MOTT MACDONALD

Cambridgeshire and Peterborough Combined Authority Local Transport Plan

SEA - Environmental Report
Appendix H - LTP Project Assessments

May 2019

Cambridgeshire and Peterborough Combined Authority

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Contents

H. LTP Projects Assessment Tables

The proposed LTP projects have been assessed as part of the SEA process using the assessment methodology described in Chapter 6.1 of the Environmental Report. The assessments tables are presented below.

Scoring Key

Assessment Scale	Significance of Effect
+++	Major positive effect
++	Moderate positive effect
+	Minor positive effect
0	Neutral or no effect
-	Minor negative effect
- -	Moderate negative effect
- - -	Major negative effect
?	Requires further classification at this stage

H.1 Projects in Peterborough

Table 1: A605 Oundle Road Widening – Alwalton to Lynch Wood Business Park

Intervention name	A605 Oundle Road Widening - Alwalton to Lynch Wood Business Park
Further Information	To provide additional lanes inbound to Lynchwood Business Park, which currently employs c.4000 staff. Capacity improvements would resolve the severe delays experienced on approach to the Business Park and would maintain the attractiveness of its employment.
Local Authority	Peterborough
Current status	Preliminary design
Location	Alwalton to Lynch Wood Business Park
Baseline	• Two Grade II listed buildings close to the roadside • Part of the intervention would be within Alwalton Conservation Area along the A605 • Grade 3 agricultural land

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to resolve severe delays which are currently experienced on the approach to the Business Park. Although there are no Air Quality Management Areas (AQMAs) at the project location, by improving the capacity there is potential for minor positive effects to the local air quality due to reduced idling traffic. This could have benefits for the health of local residents. However, if the intervention attracts more vehicles then there may negative effects.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to provide additional lanes to the Lynchwood Business park which currently employs approximately 4,000 staff. Increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of additional lanes means there could be a potential increase in the amount of private car road users which could cause an increase in road related accidents, therefore overall a mixed effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services at the project location by providing additional lanes to the business park. The project does not improve accessibility to key services or recreational areas, therefore an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local business park and consequently reduce localised congestion, which will result in a reliable and efficient transport network for approximately 4,000 staff who utilise the business park. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0	This project will provide additional lanes into the business park therefore reducing congestion. However, the additional lanes into the business park may potentially see an overall increase in the number of private car road users using the A605 and potentially users of public transport. The project does not promote the use of sustainable modes of transport, therefore an overall neutral effect is anticipated.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be minor impacts to Grade 3 agricultural land experienced from widening the road and permanent land-take of different habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	The project is within close proximity to two Grade II listed buildings located on the roadside. These buildings could experience minor negative effects from vibration caused by increased traffic or from the construction of additional lanes. There could also be a minor negative impact on buried archaeology from widening the roads. The project is within the Alwalton Conservation Area. Increasing the number of lanes will reduce congestion which may have positive effects on the setting of the Conservation Area. The addition of new lanes will alter the Conservation Area, however, given that there is an existing busy road effects are considered minor. If boundary trees used for screening are removed this may have a bigger effect on the character of the Conservation Area
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the number of lanes will reduce congestion which may have positive effects on the setting of the landscape. The addition of new lanes will alter the landscape, however, given that there is an existing busy road, effects are considered minor. If boundary trees used for screening are removed there may be a more significant effect on the character of the landscape.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project could potentially require permanent land take of a small amount of Grade 3 agricultural land to increase the number of lanes into the business park. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This could increase the potential for contaminated run off. However, drainage could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, Sustainable Urban Drainage Systems (SuDS)).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located within Flood Zone 1. Therefore, even though the project would increase the impermeable surface area by building additional road lanes, improved drainage on the current infrastructure combined with the fact that the project is not located within a Flood Zone, could result low or no flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	++	Currently, the local area experiences heavy road congestion, therefore the project aims to resolve the severe delays on the approach to the business park. Although there is no AQMA in the local area, reducing the congestion will have a moderate positive impact on the air quality for the local residents.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Currently, the local area experiences heavy road congestion, therefore the project aims to resolve the severe delays on the approach to the business park. Reducing the amount of congestion and queuing into the business park will reduce the amount of time cars are idle in queues. However, by improving access to the business park and reducing queues in this area, could result in an increase in A605 road users. Overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.

SEA Objectives	Project Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project is to provide additional lanes inbound to Lynchwood Business Park which currently employs approximately 4,000 staff. The project suggests capacity improvements to resolve severe delays that are currently experienced on the approach to the business park. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be minor negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality. There are potential minor negative impacts on the protection of landscape and townscape due to the Alwalton Conservation Area within close proximity to the scheme. Other potential minor negative effects have been identified for the historic environment with reference to buried archaeology and the two Grade II listed buildings within close proximity to the main road and also the protection of biodiversity.

Table 2: Stanground Bypass Dualling

Intervention name	Stanground Bypass Dualling
Further Information	Dual eastern end of Stanground Bypass to resolve projected congestion delays caused by the significant housing and employment growth in the Stanground area.
Local Authority	Peterborough
Current status	
Location	Stanground/Caedea
Baseline	• Grade 3b agricultural land • Small section within Flood Zone 2 • AQMA

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to resolve projected congestion delays caused by the significant housing and employment growth in the Stanground area. The project is situated within an AQMA No.1 for Peterborough Council, declared for Sulphur Dioxide (SO_2) due to emissions from the brickworks outside the Local Authority area at Whittlesey. The project suggests easing congestion which would result in a minor positive impact with regards to health by improving air quality. However, there may be an increase in vehicles as a result of the project and therefore negative effects on air quality and health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the eastern end of the A605 Stanground Bypass to ease the projected congestion delays caused by the housing and employment growth expected in the Stanground area. Increasing the capacity of the transport network at this location will aid health and safety by reducing congestion. However, a result of additional lanes means there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore a mixed effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the anticipated increase in road users. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to local employment areas and housing and will consequently reduce localised congestion, which will result in a reliable and efficient transport network. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+ / 0	This project will dual the eastern end of the Stanground Bypass to ease anticipated congestion caused by the increase in housing and employment growth. The dualling aspect of the project could see an increase in the number of private car users using the bypass, but it could also allow a more efficient transport network for public transport and make public transport more reliable. Overall the project does not promote the use of sustainable modes of transport, therefore overall a neutral to minor positive effect has been identified. .
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be minor impacts to Grade 3b agricultural land experienced from widening the road, and permanent land-take of habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from widening the bypass, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / 0	Increasing the number of lanes allowing traffic, although reducing congestion, could see an increase in the number of vehicles on the road. It is anticipated that increasing the number of lanes will have a minor negative impact on the current diversity and distinctiveness of the landscape and townscape character, therefore a neutral to minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- - / -	The project is likely to require land take consisting of Grade 3b agricultural land to dual the current bypass. Depending on the required land-take, a minor to moderate negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This could increase the potential for contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is partially situated within Flood Zone 2. Therefore, given the project would increase the impermeable surface area by building additional road lanes, improved drainage on the current infrastructure combined with the fact that the project is located partially within a Flood Zone, could result in increased flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the eastern end of the Stanground Bypass aims to ease anticipated congestion from the growth of housing and employment in the Stanground area, therefore the project aims to resolve the expected delays. There is an AQMA (No.1 for Peterborough Council) declared for SO_2, therefore by reducing congestion and idle traffic through the dualling of the bypass, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is expected to be caused by the urban extension of housing and employment areas. The project aims to resolve the severe delays anticipated. Reducing the amount of congestion around the bypass will reduce the amount of time cars are sat idle in queues. However, dualling the bypass and reducing congestion in this area, could result in an increase in road users. However, it is anticipated that the project would have an overall minor positive effect on minimising GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion anticipated from other developments in the area. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project is to dual the eastern end of the Stanground bypass to cope with the urban extension expected to accommodate significant housing and employment growth. The project aims to support this growth and relieve congestion. There are likely to be improvements to the local air quality and also accessibility to key employment areas for the new communities and provide a reliable and efficient transport network, with improved access to employment areas. There are likely to be minor negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality, protection of landscape and townscape. Other potential minor negative effects have been identified for the historic environment with reference to buried archaeology. The project is also partially situated within Flood Zone 2 and will likely increase the hardstanding surface area which could increase flood risk. Appropriate drainage systems will therefore need to be considered.

Table 3: Stanground Access

Intervention name	Stanground Access
Further Information	Provide a right turn lane at junction between the A605 and B1095, where right-turning traffic currently blocks straight ahead traffic travelling between Peterborough and Whittlesey. The intervention will provide improved access between Peterborough and Whittlesey, which could otherwise inhibit the growth and development of Whittlesey.
Local Authority	Peterborough
Current status	Preliminary design
Location	Junction between the A605 and B1095, Stanground
Baseline	• Crosses the River Nene which is Flood Zones 2 and 3 between the A605 and B1095 • Grade 3b agricultural land from post-1988 ALC data

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	This project does not aim to improve the health of the population; however, the project suggests junction improvements at the A605/B1095 junction to resolve severe delays that are currently experienced from right-turning traffic which can block the nearby roundabout for traffic travelling between Peterborough and Whittlesey. Although there are no AQMAs at the project location, improving capacity would result in minor positive effects to the local air quality, however the benefits for health are not likely to be significant. Overall, a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The project aims to provide a junction upgrade at the A605/B1095 junction to ease congestion and relieve queuing from right-turning traffic. Therefore, increasing the capacity of the transport network at this location will aid health and safety by reducing congestion. A minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	This project will improve accessibility for drivers by reducing queuing for the right-turning traffic which subsequently blocks the nearby roundabout. The project does not directly improve accessibility to key services, employment or recreational areas specifically, however the right-turning traffic blocks the traffic travelling between Peterborough and Whittlesey, therefore an overall minor to positive effect for improved accessibility has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The project will improve reliability of the transport network and reduce congestion at the A605/B1095 junction. This infrastructure improvement will in turn support and contribute to local economic growth, especially for traffic travelling between Peterborough and Whittlesey, therefore an overall minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0	This project will ease congestion at the A605/B1096 junction. However, this junction upgrade may potentially see an overall increase in the number of private car road users using the A605 and potentially users of public transport. The project does not promote the use of sustainable modes of transport, therefore an overall neutral effect is anticipated.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be minor impacts to Grade 3b agricultural land experienced from junction improvements should land take be required. Where land-take is required, there could be negative impacts on habitats and as a result biodiversity. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from junction improvements, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	Improving the junction, although reducing congestion, could see an increase in the number of vehicles on the road. It is anticipated that a neutral impact on the current diversity and distinctiveness of the landscape and townscape character is likely.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project is likely to require land take consisting of Grade 3b agricultural land to upgrade the current junction to deal with capacity. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore resulting in a negative impact by increasing the impermeable surface area. This could contribute to the risk of contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project crosses the River Nene and is situated within Flood Zones 2 and 3. Therefore, given the project would most likely increase the impermeable surface area by building additional infrastructure, improved drainage on the current infrastructure combined with the fact that the project is located within Flood Zones 2 and 3, could result in increased flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	++	Currently, the local area experiences heavy road congestion, therefore the project aims to resolve the severe delays at the A605/B1095 junction. Although there is no AQMA in the local area, reducing congestion will have a moderate positive impact on air quality for local residents.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Currently, the local area experiences heavy road congestion, therefore the project aims to resolve the severe delays at the A605/B1095 junction. Reducing the amount of congestion and queuing at the junction and blocking of traffic at the nearby roundabout will reduce the amount of time cars are sat idle in queues. However, improving the junction and reducing queues in this area, could result in an increase in A605 road users. However, it is anticipated that the project would have an overall minor positive effect on minimising GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and improve the junction to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the improvements, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to provide junction improvements at the A605/B1095 junction to relieve queuing from right-turning traffic which can block the nearby roundabout stopping traffic travelling between Peterborough and Whittlesey causing widespread congestion. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be minor negative impacts on the conservation of quality of soils and minimising the loss of agricultural land. There is potential for increased flooding risk to transport infrastructure as the project will increase the hardstanding surface area and it is situated next to a main river and within Flood Zones 2 and 3. Appropriate drainage systems will therefore need to be considered. Other potential minor negative effects have been identified for the historic environment with reference to buried archaeology and also the protection of biodiversity.

Table 4: Dualling A15 Glinton Bypass between B1524 (Deepings) and Junction 23

Intervention name	Dualling A15 Glinton Bypass between B1524 (Deepings) and Junction 23
Further Information	Dual S2 to D2.
Local Authority	Peterborough
Current status	
Location	Glinton Roundabout (Junction 23) northwards on the A15 to the roundabout junction with the B1524
Baseline	• Intervention crosses Brook Drain and Maxey Cut main rivers. Maxey Cut has flood defences on both banks • Intervention is within Flood Zones 2 and 3 from north at the B1095 3km south along the route • Grade 2 and 3 agricultural land

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion along this key route. The project is not situated within an AQMA. The project suggests easing congestion which would result in a minor positive impact with regards to health by improving air quality. However, dualling the road may result in an increase in vehicle numbers therefore reducing air quality and negatively effecting health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the Glinton Bypass between B1524 and Junction 23 to ease congestion and any delays. Increasing the capacity of the transport network at this location will aid health and safety by reducing congestion. However, a result of additional lanes means there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore overall a mixed effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A15. Therefore, an overall minor positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to local employment areas and housing and will consequently reduce localised congestion along the A15 between the B1524 and junction 23, which will result in a reliable and efficient transport network. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will dual the A15 between the B1524 and junction 23 to ease congestion currently experienced in this area. This will allow the diversion of traffic flows from the parallel Lincoln Road which will help improve bus journey times and facilitate potential bus priority measures. The dualling aspect of the project could see an increase in the number of private car users using the bypass, but it could also allow a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 2 and 3 agricultural land experienced from widening the road. Additionally, permanent land-take would have a negative impact on habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from widening the bypass, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / 0	Increasing the number of lanes will reduce congestion, however overall, the project could see an increase in the number of vehicles on the road. It is anticipated that increasing the number of lanes will have a minor negative impact on the current diversity and distinctiveness of the landscape and townscape character, therefore a neutral to minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The project is likely to require land take consisting of Grade 2 and 3 agricultural land to dual the A15. A moderate negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This could lead to an increase in contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project crosses multiple main rivers, some of which do have flood defences on both banks. The project is located within Flood Zones 2 and 3. Therefore, given the project would increase the impermeable surface area by building additional road lanes, improved drainage on the current infrastructure combined with the fact that the project is located within Flood Zones 2 and 3, the project could result in increased flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the A15 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of the A15 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A15 which the project aims to resolve. Reducing the amount of congestion around the Glinton bypass will reduce the amount of time cars are idle in queues. However, by dualling the bypass and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to dual the A15 Glinton Bypass between the B1524 and Junction 23 (Glinton Roundabout). The project suggests capacity improvements to resolve severe delays that are currently experienced on the A15. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality, protection of landscape and townscape. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and increasing the risk of flooding to transport infrastructure as the project crosses multiple main rivers and is situated within Flood Zones 2 and 3. Appropriate drainage will need to be considered as part of the project.

Table 5: Dualling of Paston Parkway between Junction 22 and Glinton Roundabout (Junction 23)

Intervention name	Dualling of Paston Parkway between Junction 22 and Glinton Roundabout (Junction 23)
Further Information	The A15 Paston Parkway is a dual carriageway route which runs from Junction 8 in the south to Junction 23 in the north, and forms part of the Parkway Network around Peterborough. The parallel traffic route, A15 Lincoln Road is identified as a key public transport corridor where a step change in the public transport provision along the route to the city centre could be provided. Dualling of A15 Paston Parkway between Glinton roundabout and Junction 22 would divert traffic from Lincoln Road and onto the dualled Paston Parkway, thereby assisting the future delivery of bus priority measures on Lincoln Road between Glinton roundabout and the A47.
Local Authority	Peterborough
Current status	
Location	Paston Parkway Junction 22 and Glinton Roundabout (Junction 23), south of Glinton
Baseline	• Grade II Listed Building 'Fen Bridge', a pedestrian and cycle footbridge • Scheduled Monument 'Section of Car Dyke between Whitepost Road and Fen Bridge', a Romano-British canal, at the end of the scheme near J22 • Grade 2 and 3 agricultural land

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion along this key route. The project is not situated within an AQMA. The project suggests easing congestion which would result in a minor positive impact with regards to health by improving air quality. However, dualling the road may result in an increase in vehicle numbers therefore reducing air quality and negatively effecting health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the Paston Parkway between Junction 22 and Junction 23 to ease congestion and any delays. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of additional lanes means there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore overall a mixed effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A15. Therefore, an overall minor positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to local employment areas and housing, consequently reducing localised congestion along the A15 between Junction 22 and Junction 23. This will result in a reliable and efficient transport network, therefore supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will dual the A15 between Junction 22 and Junction 23 to ease congestion currently experienced in this area. The dualling aspect of the project could see an increase in the number of private car users using the bypass, but it could also allow a more efficient transport network for public transport and make public transport more reliable. The project does not promote the use of sustainable modes of transport. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 2 and 3 agricultural land experienced from widening the road and permanent land-take could impact negatively on habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- -	The project is located close to Grade II Listed Building 'Fen Bridge' a pedestrian and cycle footbridge, and Scheduled Monument 'Section of Car Dyke between Whitepost Road and Fen Bridge' a Romano-British canal at the end of the scheme near Junction 22. These heritage assets could be impacted during the construction and their setting affected through anticipated increases in the volume of traffic using the A15. Therefore, a moderate negative impact is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- - / -	Increasing the number of lanes will reduce congestion but could also increase the number of vehicles on the road. It is anticipated that increasing the number of lanes will have a minor to moderate negative impact on the current diversity and distinctiveness of the landscape and townscape character.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The project is likely to require land take consisting of Grade 2 and 3 agricultural land to dual the A15. A moderate negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	+ / 0	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated within Flood Zone 1. Therefore, the project is at a low risk of flooding. However, given that the project would increase the impermeable surface area by building additional road lanes there may be a contribution to the flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the A15 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of the A15 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A15, the project aims to resolve the severe delays occurring. Reducing the amount of congestion around the Glinton bypass will reduce the amount of time cars are sat idle in queues. However, by dualling the bypass and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to dual the A15 Paston Parkway between Junction 22 and Junction 23 (Glinton Roundabout). The project suggests capacity improvements to resolve severe delays that are currently experienced on the A15. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality, protection of landscape and townscape. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and proximity of the scheme to local heritage assets.

Table 6: East Coast Main Line Rail Capacity Improvements

Intervention name	East Coast Main Line Rail Capacity Improvements
Further Information	Network Rail led strategic rail plan.
Local Authority	Peterborough and Cambridge
Current status	
Location	Throughout Cambridgeshire and Peterborough
Baseline	• Designated Sites: one NNR: Holme Fen; four LNRs: 'Little Paxton Pit'; 'Therfield Heath'; 'Melwood'; and 'Nine Wells'; Nene Washes (SSSI, Ramsar, SAC and SPA); Portholme (SSSI and SAC); • SSSIs: Woodwalton Marsh; Holme Fen; L-moor; Shepreth SSSI; Holland Hall (Melbourn) Railway Cutting; and Great Stukeley Railway Cutting • 24 listed buildings within 100m including one Grade I, nine Grade II and three Grade II* • Six scheduled monuments within 100m, the current railway crosses over Lolham Bridges and Mile Cross Ditches • Nine conservation areas, with five in close proximity: Central Cambridge; Great Shelford; Offord Cluny; Huntingdon; and Peakirk • Scheme passes over multiple main rivers and drains. • Flood Zones 2 and 3 in multiple areas • Agricultural land Grades 1, 2, ,3, 4 non-agricultural and urban land • Close to Cambridge Greenbelt • AQMA Cambridge, AQMA Huntingdon

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	This project has the potential to increase the attractiveness of train travel which could potential lead to a reduce in the number of private cars on the road. The health of local communities could therefore be positively affected by improvements in air quality.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	This project will likely have a minor positive impact on the health and safety of the transport network. By making the network more reliable, there is the potential that more people would travel via train instead of cars thereby reducing the number of private use cars on the roads.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility around the Combined Authority which will allow people to move more efficiently to key services, recreational areas and employment locations. A moderate positive impact has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	This project will support local economic growth and competitiveness through delivering reliable and efficient transport networks across the Combined Authority. Overall, a moderative positive impact is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	This project aims to improve the reliability and promote the use of the rail network on the East Coast Main Line. By making mode of transport more efficient and reliable, it would be expected that less people would travel by car subsequently reducing road traffic and congestion. A major positive effect is anticipated.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / - - -	The project has the potential to impact multiple designated sites: one NNR (Holme Fen); four LNRs ('Little Paxton Pit'; 'Therfield Heath'; 'Melwood'; and 'Nine Wells'); 'Nene Washes' with potential effects downstream (SSSI, Ramsar, SAC and SPA); 'Portholme' SSSI and SAC immediately east of the current railway; immediately east of the current railway are 'Woodwalton Marsh' (SSSI) and 'Holme Fen'; and the scheme passes through 'L-moor, Shepreth' (SSSI); 'Holland Hall (Melbourn) Railway Cutting' (SSSI); and 'Great Stukeley Railway Cutting' (SSSI). The railway also comes close to the Cambridge Greenbelt. It is anticipated that some of the designated sites will experience major negative effects. In addition, permanent land-take where required, will also impact negatively on habitats and species.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / - - -	The project has the potential to impacts multiple listed buildings ranging from Grade I to Grade II* at various locations along the route. There are six scheduled monuments within 100m; the current railway crosses over 'Lolham Bridges' and 'Mile Cross Ditches'; south of the current railway is 'Roman Site North of Brown Spinney'; north of the current railway is 'Settlement North West of Little Shelford'; and west of current railway is 'Site revealed by aerial photography west of White Hill Farm'. There are approximately nine conservation areas, the following five are within close proximity of the scheme and could be potentially affected; 'Central Cambridge'; 'Great Shelford'; 'Offord Cluny'; 'Huntingdon'; and 'Peakirk'. It is anticipated that the project would have a major negative effect on the historic environment.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / - -	The project has the potential to have a negative effect on the diversity and distinctiveness of the landscape and townscape character depending on where the changes may be required along the railway. If these updates are required within an area close to a designated site or a schedule monument or conservation area it could have a moderate negative effect. Therefore, a moderate negative effect has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / - -	The scheme (depending on what upgrades are required where) could impact upon Grades 1, 2, 3, 4, non-agricultural and urban land type. A minor to moderate negative impact is expected because land-take would be permanent and could impact upon high quality agricultural land.
10. Protect and enhance the quality of the water environment	? / -	This project is unlikely to enhance the quality of the water environment; however, any additional railway tracks would not increase flood risk in the same way roads would due to railway ballast being a permeable surface. There may an increased risk in contaminated run-off therefore a minor negative effect has been identified.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / - -	The project passes through multiple main rivers and drains and is within Flood Zones 2 and 3 at multiple points within the Combined Authority Area. It is anticipated that some permanent land-take is required which will increase the flood risk for certain areas along the railway route. However, unlike roads, railway ballast is permeable which would help to reduce flood risk. Therefore, an overall minor to moderate negative effect has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	This project could have a positive impact on improving local air quality by reducing the number of cars within town centres and cars that experience congestion. Reducing road congestion and numbers of cars on the road could have a minor to moderate positive effect on improving local air quality. The East Coast Main Line route goes through 2 AQMAs; one in Cambridge (Ref 311) and one in Huntingdon (Ref 400).

SEA Objectives	Project Assessment	Summary of Effects
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+ / ++	This project could have a positive impact on minimising GHG emissions by reducing the number of cars on the road through making the rail network more effective and efficient. This could have a minor to moderate positive impact on reducing GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project would not minimise or maximise the risk of flooding. The project is partially located in Flood Zone 2 and 3 and crosses multiple main rivers, therefore risks to flooding are still possible. Therefore, a minor negative impact is expected.
15. Maximising the use and lifespan of existing transport infrastructure	++	This project will reuse at much of the pre-existing railway infrastructure and only update where required. Therefore, a moderate positive effect is anticipated.

Summary:

This project is a Network Rail led strategic rail plan. It is located across a large portion of the Combined Authority and has the potential to impact upon or be affected by multiple environmental constraints. The major negative effects that are anticipated as a result of the project are in relation to biodiversity and the historic environment, with multiple heritage assets such as scheduled monuments, conservation areas and listed buildings within close proximity of the current railway line, therefore any upgrades could impact negatively on these assets. There are also multiple designated sites which the current railway is within close proximity to or crosses through, therefore any updates could impact negatively on habitats and species. There are some key positives from the scheme such as reducing the need to travel by car, maximising the lifespan of existing transport infrastructure, and improving efficiency and reliability of the rail network to further improve accessibility to key services, recreational areas and employment.

Table 7: South Bank Railway and River Footbridges

Intervention name	South Bank Railway and River Footbridges
Further Information	The South Bank development is severed by the Peterborough to Ely railway line and separated from the city centre by the River Nene to the north and contained by the A15 London road to the west, making travel by sustainable modes on a north-south axis potentially unattractive due to additional travel distances required to cross the railway and river via the A15 London Road. A footway/cycle crossing across the railway would provide a short cut between the Vista development and Fletton Quays. A bridge from Fletton Quays to the Embankment would further improve connectivity.
Local Authority	Peterborough
Current status	
Location	Fletton Quays, Peterborough
Baseline	• Nene Washes RAMSAR, SPA, SSSI approximately 500m-1km from project location • Two listed buildings & one scheduled monument nearby • River Nene within Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The project aims to link Fletton Quays with the Embankment across the river which will help with connectivity of cycle and pedestrian routes. Due to the improved connectivity, it will significantly improve north/south walking and cycling accessibility within Peterborough further supporting active travel as a result. Therefore, a moderate positive effect is expected.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	Providing a foot and cycle bridge across the River Nene separate to Town Bridge (the road bridge), will improve the health and safety by removing the exposure of cyclists and pedestrians to motorised road users which could result in a reduction in the number of accidents. Therefore, an overall moderate positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	This project improves the accessibility for residents of Fletton Quays to the City Centre and the future university site. Fletton Quays is experiencing continued development of new high-density residential buildings. Improving the pedestrian links will help better integrate the development into the surrounding area. Therefore, an overall major positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The new bridge will improve pedestrian and cycling links to better integrate any new developments into the surrounding area from the south of the River Nene to the city centre and future university site. Additionally, separating the cyclists and pedestrians from the motorised road users will ease congestion. This project shall help to deliver a reliable and efficient transport network for all entering the city centre for shoppers, businesses and visitors. Overall, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	The installation of a new cycle and footbridge will reduce congestion through reducing the need to travel by car. The bridge will also promote cycling and walking to access the city centre and provides a safer, traffic-free alternative to using Town Bridge. Overall, a major positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The Nene Washes Ramsar, SPA and SSSI is located 500m-1km from the project site. There is potential for this project to impact upon this designated site. Therefore, a minor negative effect is anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There are two listed buildings and one Scheduled Monument within close proximity of the scheme. There is potential for this project to impact upon these heritage assets, therefore a minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The project would be situated along a section of the River Nene that has multiple bridges; Town Bridge and the A1139 Frank Perkins Parkway bridge both of which are road bridges as well as a rail bridge, therefore adding in a further bridge would not be out of character for the area. A neutral impact is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The location of this project is within an urban setting; therefore, it is unlikely to impact upon agricultural land or green belt. Therefore, a neutral to minor negative effect is anticipated.
10. Protect and enhance the quality of the water environment	? / -	The new bridge infrastructure may provide minor indirect benefits to the water environment due to reduced cars on roads. However, these are likely to be negligible therefore a neutral effect has been identified. Given the project is likely to increase the impermeable surface area through new infrastructure and that is located next to the River Nene, there is potential for the water environment to be affected through contaminated run off. Appropriate drainage will need to be considered.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated within Flood Zone 3 therefore there is a higher risk of flooding. Given that the project would increase the impermeable surface area, there is potential that the project will contribute to flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	This project aims to improve connectivity for cyclists and pedestrians and reduce the number of motorised road users within the city centre which will help to reduce congestion which will subsequently help to improve local air quality. The project is not situated within an AQMA. Overall, a minor positive impact is anticipated.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	This project aims to improve connectivity for cyclists and pedestrians, supporting active travel and reducing the number of motorised road users within the city centre which will help to reduce congestion and in turn reduce GHG emissions. Overall, a minor positive impact is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to affect resilience as it will increase the area of impermeable surface which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	0	The separation of pedestrians and cyclists from motorised road users is expected to have little impact on maximising the use and lifespan of existing transport infrastructure such as Town Bridge. Therefore, a neutral effect is anticipated.

Summary:

This project aims to build a new cycle bridge across the River Nene linking Fletton Quays with Embankment. The positive effects anticipated from this project relate to health and safety for all road users through a reduction in the total number of accidents through separation of cars and pedestrians/cyclists, overall health improvements through supporting active travel for pedestrians and cyclists helping to reduce the number of cars on the roads. There are also positive effects associated with improved accessibility to key services in the city centre for shoppers, businesses and visitors. The reduction in motorised road users will also reduce GHG emissions and improve local air quality. There are some minor negative impacts associated with the project such as potential impacts on the Nene Washes designated site and heritage assets within close proximity to the scheme. The project is also situated within Flood Zone 3 with the potential for minor negative effects.

Table 8: A1 Wittering Junction Improvement

Intervention name	A1 Wittering Junction Improvement
Further Information	Grade separated junction to Wittering to replace at grade crossing.
Local Authority	Peterborough
Current status	
Location	Wittering
Baseline	• Grade 3 agricultural land

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	This project does not aim to improve the health of the population; however, the project suggests junction improvements capacity improvements most likely to relieve congestion. The project is not situated within an AQMA. The project suggests easing congestion which would result in a minor positive impact for localised air quality, however the effects on health are not likely to be significant. A neutral effect has therefore been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	The project aims to improve the A1 junction at Wittering. By improving and replacing the junction it will have a positive impact on cars joining the A1. This junction replacement from a grade crossing to a grade separated junction will have the positive impact on reducing accidents. Therefore, a moderate positive impact has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+ / ++	Accessibility to the A1 is likely to be improved and cars will be able to join the A1 more safely. Therefore, an overall minor to moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	?	The project could potentially improve the reliability and efficiency of the transport network which would have a resultant positive impact on supporting and contributing to local economic growth. However, further classification is required for this project.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will improve junction access to the A1, which will aid both private use cars as well as public transport joining the A1. The project has the potential to reduce road traffic congestion by improving the accessibility. The project also does not promote sustainable modes of transport; however, it will enable public transport to be more efficient and reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 3 agricultural land experienced from junction updates and where permanent land-take is required, this could have a negative impact on habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from the junction updates, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The project not situated within a conservation area, therefore replacing the junction is unlikely to impact the current diversity and distinctiveness of the landscape and townscape character, therefore a minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project is likely to require land take consisting of Grade 3 agricultural land to replace the junction. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area which would increase the potential for contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in an area unaffected by flood risk. However, the project would increase the impermeable surface area through the junction replacement. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The junction replacement at Wittering into the A1 is not located in an AQMA. The upgrade would also have a positive impact on reducing localised congestion. Therefore, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0 / +	This project is unlikely to minimise GHG emissions dramatically. The scheme would ease congestion, therefore impacts to GHG emissions would be relatively low. Therefore, a neutral to minor positive impact is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is not located in an area identified as being at risk from flooding. However, increasing the impermeable surface area through junction improvements could increase the risk of flooding by increasing run-off rates. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	0 / +	The project aims to replace the current infrastructure from a grade crossing to a grade separated junction. This would be updating the current infrastructure, therefore an overall neutral to minor positive effect is anticipated.

Summary:

The project is to improve the junction at Wittering where it joins the A1, upgrading from a grade crossing to a grade separated junction. There is likely to be improvements to the local air quality and also the health and safety of the road network where traffic is joining or leaving the A1. This improvement to the infrastructure will also aid public transport. There are likely to be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality. There are potential negative impacts on buried heritage assets and also in relation to flood risk, although effects are uncertain.

Table 9: A15 Dualling

Intervention name	A15 Dualling
Further Information	Dualling from Glinton to South Lincolnshire
Local Authority	Peterborough
Current status	
Location	Along A15 from Junction 23 (Glinton Roundabout) to Market Deeping (South Lincolnshire)
Baseline	• Agricultural Land Grade 2-3 • Flood Zones 2 and 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion along this key route. The project not situated within an AQMA. The project suggests easing congestion which would result in a minor positive impact with regards to health by improving air quality. However, dualling of the road has the potential to increase the amount of road users which will result in negative effects for health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the A15 from Glinton (taken to be Junction 23 at Glinton Roundabout) to South Lincolnshire (Market Deeping) to ease congestion and any delays. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of additional lanes means there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore overall a mixed positive and negative effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A15. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local employment areas and housing and will consequently reduce localised congestion along the A15 between Glinton and Market Deeping in South Lincolnshire. This will result in a reliable and efficient transport network, as it shall join with the A1175 which has already been dualled. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will dual the A15 between Glinton and Market Deeping to ease congestion currently experienced in this area. This will allow the diversion of traffic flows from the parallel Lincoln Road from Glinton to Northborough which will help improve bus journey times and facilitate potential bus priority measures. The dualling aspect of the project could see an increase in the number of private car users using the bypass, but it could also allow a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 2 and 3 agricultural land experienced from widening the road and where permanent land-take is required, this could impact negatively on habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from widening the bypass, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / 0	It is anticipated that increasing the number of lanes will have a minor negative impact on the current diversity and distinctiveness of the landscape and townscape character, therefore a neutral to minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The project is likely to require land take consisting of Grade 2 and 3 agricultural land to dual the A15. A moderate negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land. This will have a negative impact by increasing the impermeable surface area which will therefore increase the potential for contaminated runoff. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project crosses multiple main rivers, some of which do have flood defences on both banks. The project is located within Flood Zones 2 and 3 and also within a flood alert areas and flood warning areas. Given the project would increase the impermeable surface area by building additional road lanes, it is likely it will contribute to flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the A15 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of the A15 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A15, the project aims to resolve the severe delays occurring. Reducing the amount of congestion around Glinton will reduce the amount of time cars are idle in queues. However, by dualling the bypass and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by adding more lanes around the A15, increasing the potential flood risk in an area declared as Flood Zones 2 and 3 and from flood alert and warnings. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to dual the A15 from Glinton (taken to be Junction 23 Glinton Roundabout) to South Lincolnshire (taken to be Market Deeping). The project suggests capacity improvements to resolve severe delays that are currently experienced on the A15. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to

be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality, protection of landscape and townscape. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and increasing the risk of flooding to transport infrastructure as the project crosses multiple main rivers and is situated within Flood Zones 2 and 3, a flood alert area and flood warning area.

Table 10: A16 Dualling

Intervention name	A16 Dualling
Further Information	Dualling from Norwood to South Lincolnshire (Spalding).
Local Authority	Peterborough
Current status	
Location	Dogsthorpe along A16 to Spalding in South Lincolnshire
Baseline	• Dogsthorpe Star Pit SSSI and LNR • One scheduled monument • Agricultural Land Grades 1-3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion along this key route. The project not situated within an AQMA. The project suggests easing congestion which would result in a minor positive impact with regards to health by improving air quality. However, dualling of the road has the potential to increase the amount of road users which will result in negative effects for health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the A16 from Norwood development site to South Lincolnshire (Spalding) to ease congestion and any delays. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of additional lanes means there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore overall a mixed positive and negative effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A16. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local employment areas and housing and will consequently reduce localised congestion along the A16 between Norwood development site and Spalding in South Lincolnshire. This will result in a reliable and efficient transport network therefore supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will dual the A16 between Norwood development site and Spalding to ease congestion currently experienced, and congestion that is predicted to worsen with housing developments like Norwood being introduced in this area. The dualling aspect of the project could see an increase in the number of private car users using the A16, but it could also allow a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact green belt or ancient woodlands. However, Dogsthorpe Pstar Pit SSSI and LNR are within 2km of the scheme location. There could be impacts to Grades 1, 2 and 3 agricultural land experienced from widening the road. In addition, where permanent land-take is required there could be negative impacts on habitat anticipated. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	The project is within close proximity to a Scheduled Monument. Additionally, there could be minor negative impacts on buried archaeology from widening the bypass, therefore a minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0 / -	The project not situated within a conservation area, therefore increasing the number of lanes will reduce congestion however overall, the project could see an increase in the number of vehicles on the road. Potential impacts on the Scheduled Monument could have a negative impact on the landscape. It is anticipated that increasing the number of lanes will have a minor negative impact on the current diversity and distinctiveness of the landscape and townscape character, therefore a neutral to minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The project is likely to require land take consisting of Grades 1, 2 and 3 agricultural land to dual the A16. A moderate negative impact has therefore been identified for the protection and conservation for the quality of soils as the scheme has potential to impact upon 'best and most versatile' agricultural land.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This has the potential increase the risk of contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated in an area unaffected by Flood Zones and there are no water bodies. However, the project could result in increased flood risk from increasing the impermeable surface area. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the A16 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of the A16 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A16 with the projection of congestion increasing with Norwood development site. The project aims to resolve the severe delays occurring. Reducing the amount of congestion along the A16 will reduce the amount of time cars are idle in queues. However, by dualling the A16 and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by adding more lanes around the A16. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure and add lanes to ease the congestion currently experienced also projected congestion. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to dual the A16 from Norwood development site to South Lincolnshire (Spalding). The project suggests capacity improvements to resolve severe delays that are currently experienced on the A16. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils as the project requires permanent land-take of Grades 1-3 best and most versatile agricultural land. Negative impacts are also anticipated for the protection of landscape and townscape. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and also the scheduled monument, as well as potential negative impacts on designated sites close to the scheme site. Although the scheme is located in an area unaffected by flood risk, adding more impermeable surface area could potentially contribute to the risk of flooding. Mixed positive and negative effects have been identified for health and the health and safety of the road network.

Table 11: Lynch Wood Phase II

Intervention name	Lynch Wood Phase II
Further Information	Capacity improvements in the vicinity of Lynchwood Business Park.
Local Authority	Peterborough
Current status	
Location	Alwalton, A605 Oundle Road
Baseline	• Two listed buildings • Agricultural Land Grade 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to resolve severe delays that are currently experienced on the approach to the Business Park. Although there are no AQMAs at the project location, by improving capacity would result in minor positive effects to the local air quality. However, the benefits for health are not likely to be significant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+ / 0	The project aims to provide capacity improvements in the vicinity of the Business Park which currently employs approximately 4,000 staff. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of additional infrastructure could mean be a potential increase in the amount of private road users which could cause an increase in road related accidents, therefore overall a neutral to minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services at the project location by providing capacity improvements in the vicinity to the business park. The project does not improve accessibility to key services or recreational areas, therefore an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local business park and consequently reduce localised congestion, which will result in a reliable and efficient transport network for approximately 4,000 staff who utilise the business park. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0 / -	This project will provide improved infrastructure in the vicinity of the business park to reduce congestion caused by the approximately 4,000 staff who use the business park. However, improving the capacity could result in a potential increase in the number of private car users and potentially users of public transport. The project does not promote the use of sustainable modes of transport, therefore an overall neutral to minor negative effect is anticipated.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be minor impacts to Grade 3 agricultural land experienced from widening the road. Permanent land-take, where required, would have a negative impact on habitats. Therefore, overall minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	The project is within close proximity to two Grade II listed buildings located on the roadside. These buildings could experience minor negative effects from vibration caused by increased traffic or from the construction of additional lanes. There could also be a minor negative impact on buried archaeology from widening the roads. The project is within the Alwalton Conservation Area which could have a negative impact on the townscape.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	The project is partially situated within the Alwalton Conservation Area, therefore improving the road network will reduce congestion, however, the project could see an increase in the number of vehicles on the road. It is anticipated that the project will have a negative impact on the current diversity and distinctiveness of the landscape and townscape character of the Alwalton Conservation Area, therefore a minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project could potentially require permanent land-take consisting of Grade 3 agricultural land to enhance the road network to cope with improvements to capacity on the approach to the Lynchwood Business Park. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This has the potential increase the risk of contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated within Flood Zone 1. Therefore, it is at a low risk of flooding. However, as the project will lead to an increase in the impermeable area, it may contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	++	Currently, the local area experiences heavy road congestion localised around the business park, therefore the project aims to resolve the severe delays on the approach to the business park. Although there is no AQMA in the local area, by reducing the congestion will have a moderate positive impact on the air quality for the local residents.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Currently, the local area experiences heavy road congestion, therefore the project aims to resolve the severe delays on the approach to the business park. Reducing the amount of congestion and queuing into the business park will reduce the amount of time cars are idle in queues. However, by improving access to the business park and reducing queues in this area, could result in an increase in A605 road users. Overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by updating current infrastructure to cope with capacity into the business park. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity and reduce congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project is to provide capacity improvements in the vicinity of Lynchwood Business Park, which currently employs approximately 4,000 staff. The project suggests capacity improvements to resolve severe delays that are currently experienced on the approach to the business park. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils and minimising the loss of agricultural land. There are potential negative impacts on the protection of landscape and townscape due to the Alwalton Conservation Area within close proximity to the scheme. Other potential negative effects have been identified for the historic environment with reference to buried archaeology and the two Grade II listed buildings within close proximity to the main road and also the protection of biodiversity. Given that the project will likely increase the impermeable surface area, there is potential for it to contribute to the risk of flooding therefore appropriate drainage will need to be considered.

Table 12: A15 Junction 23 Improvements

Intervention name	A15 Junction 23 Improvements
Further Information	Improve capacity of roundabout and PT priority.
Local Authority	Peterborough
Current status	
Location	Glinton Roundabout (Junction 23)
Baseline	• Agricultural Land Grade 3 • Flood Zone 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion at this junction. The project not situated within an AQMA. The project suggests easing congestion which would improving air quality, however the benefits to health is likely to be insignificant therefore a neutral impact has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The project aims to improve capacity at Junction 23 on the A15 to ease congestion and any delays currently experienced along this road. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. Therefore, overall a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A15, specifically at Junction 23. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local employment areas and housing which will consequently reduce localised congestion along the A15 at Junction 23, resulting in a reliable and efficient transport network. This infrastructure improvement will in turn support and contribute to local economic growth, therefore an overall moderate positive effect has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will improve capacity at Junction 23 on the A15 to ease congestion currently experienced in this area. This will allow the diversion of traffic flows from the parallel Lincoln Road from Glinton to Northborough which will help improve bus journey times and facilitate potential bus priority measures, allowing a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- / 0	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 3 agricultural land experienced from widening the current road network. Therefore, overall neutral to minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	The project is located in an area of no historic features. However, there could be minor negative impacts on buried archaeology from widening the current road network, therefore a neutral to minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0 / +	The project not situated within a conservation area, therefore improvements and updates to Junction 23 are anticipated to have a neutral effect on the diversity and distinctiveness of the landscape as these updates are occurring at the location of the current junction.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project is could require land take consisting of Grade 3 agricultural land. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This has the potential increase the risk of contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated within Flood Zone 1. Therefore, it is at a low risk of flooding. However, as the project will lead to an increase in the impermeable area, it may contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The improvements at Junction 23 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of Junction 23 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A15, the project aims to resolve the severe delays occurring at Junction 23. Reducing the amount of congestion around Glinton Roundabout will reduce the amount of time cars are idle in queues. However, by improving junction capacity and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by improving infrastructure with regards to capacity around Junction 23. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to improve capacity of the roundabout at Junction 23 of the A15 to resolve severe delays that are currently experienced on the A15. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining

the quality of soils. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and potential impacts to biodiversity. Junction 23 is not located within an area at risk of flooding, however increasing the impermeable surface areas has the potential to contribute to flood risk. Appropriate drainage will need to be considered as part of the project.

Table 13: A15 Paston Parkway Junction 21 Improvements

Intervention name	A15 Paston Parkway Junction 21 Improvements
Further Information	Improve capacity of roundabout.
Local Authority	Peterborough
Current status	
Location	Junction 21 on the A15 north-east of Gunthorpe
Baseline	• Section of the Car Dyke between Whitepost Road and Fen Bridge Scheduled Monument • Water environment – car dyke • Agricultural Land Grade 3 • Flood zone 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to relieve congestion at this junction. The project not situated within an AQMA. The project suggests easing congestion which would improving air quality, however the benefits to health is likely to be insignificant therefore a neutral impact has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The project aims to improve capacity at Junction 21 on the A15 to ease congestion and any delays currently experienced along this road. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. Therefore, overall a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A15, specifically at Junction 21. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local employment areas and housing and will consequently reduce localised congestion along the A15 at Junction 21, which will result in a reliable and efficient transport network. This infrastructure improvement will in turn support and contribute to local economic growth, therefore an overall moderate positive effect has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will improve capacity at Junction 21 on the A15 to ease congestion currently experienced in this area. This will help improve bus journey times and facilitate potential bus priority measures, allowing a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0 / -	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be impacts to Grade 3 agricultural land experienced from widening the current road network. Therefore, overall neutral to minor negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0 / -	The project is within close proximity to a Scheduled Monument. Additionally, there could be minor negative impacts on buried archaeology from widening the road network, therefore a minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	The project not situated within a conservation area, however, the project is within close proximity to a Scheduled Monument would could affect the setting. Additionally, there could be minor negative impacts on buried archaeology from widening the road network, therefore a minor negative effect is anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project is could require land take consisting of Grade 3 agricultural land. A minor negative impact has therefore been identified for the protection and conservation for the quality of soils.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This has the potential increase the risk of contaminated run off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located Flood Zone 1 therefore it is at a low risk of flooding. However, given that the project will increase the impermeable surface area, it has the potential to contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The improvements at Junction 21 aims to reduce current levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of Junction 21 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A15, the project aims to resolve the severe delays occurring at Junction 21. Reducing the amount of congestion around this junction will reduce the amount of time cars are idle in queues. However, by improving junction capacity and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by improving infrastructure with regards to capacity around Junction 21. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to ease the congestion currently experienced. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to improve capacity of the roundabout at Junction 21 of the A15 to resolve severe delays that are currently experienced on the A15. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils, minimising the loss of agricultural land and maintaining the quality of soils. Other potential negative effects have been identified for the historic environment with reference to buried archaeology associated with land-take and potential impacts to biodiversity. Junction 21 is located within Flood Zone 1, however as it will increase the impermeable surface areas there is potential for the project to contribute to the risk of flooding. There may also be an increase in contaminated run-off. Appropriate drainage will therefore need to be considered as part of the project.

Table 14: A16 Norwood Dualling

Intervention name	A16 Norwood Dualling
Further Information	Provide roundabout access off the A16 into the proposed Norwood development and dual the existing section of the A16 between there and its roundabout with the A47 which would also be improved. Enable the development of Norwood comprising 2,000 houses, which would otherwise be difficult to bring forward due to developer cash flow issues.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Norwood development site located off of the current A16 junction with the A47
Baseline	• Dogsthorpe Star Pit SSSI and LNR • Section of the Car Dyke between Whitepost Road and Fen Bridge Scheduled Monument • Dogsthorpe Star Pit water body • Agricultural Land Grade 3 • Flood Zone 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	This project does not aim to improve the health of the population; however, the project suggests capacity improvements for the projected increase in cars due to the Norwood development site. The project not situated within an AQMA. The project suggests easing potential congestion which would result in a minor positive impact with regards to health by improving air quality. However, the project has the potential to attract more vehicles which could reduce air quality and therefore negatively impact health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project aims to dual the A16 from Norwood development site to the A47 with roundabout access off the A16 and improving the A47/A16 junction to ease potential congestion and any delays. By increasing the capacity of the transport network at this location will aid health and safety by reducing the congestion. However, a result of increased capacity infrastructure there could be a potential increase in the amount of road users which could cause an increase in road related accidents, therefore a mixed positive and negative effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility to key employment services and housing by providing better infrastructure to cope with the current volumes of traffic experienced along the A16. The Norwood development will only increase volumes of traffic, therefore improving the infrastructure will help to cope with anticipated congestion along these main roads and junctions. Therefore, an overall moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The project will improve accessibility to the local employment areas and housing and will consequently reduce predicted localised congestion along the A16 between Norwood development site and the A47, which will result in a reliable and efficient transport network. This infrastructure improvement will in turn support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	This project will dual the A16 between Norwood development site and the A47 junction to ease congestion currently experienced, and congestion that is predicted to worsen with developments like Norwood being introduced in this area. The dualling aspect of the project could see an increase in the number of private car users using the A16, but it could also allow a more efficient transport network for public transport and make public transport more reliable. Overall a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	The project is unlikely to impact green belt or ancient woodlands. However, Dogsthorpe Pstar Pit SSSI and LNR are within 2km of the scheme location. There could be impacts to Grade 3 agricultural land experienced from widening the road and junction updates. In addition, where permanent land-take is required there could be negative impacts on habitat anticipated. Therefore, overall minor to moderate negative impacts are anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- - / -	The project is within close proximity to a Scheduled Monument. There is the potential for negative effects to the scheduled monument depending on the exact location of the roundabout. Additionally, the dualling aspect of the project could have negative impacts on buried archaeology. Therefore, a minor to moderate negative effects are anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	There is likely to be minor negative effects to the landscape as a result of this project as it will require land-take from agricultural land to dual the A16..
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The project is likely to require land take consisting of Grade 3 agricultural land to dual the A16. A moderate negative impact has therefore been identified for the protection and conservation for the quality of soils as the scheme has potential to impact upon 'best and most versatile' agricultural land.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at this location are likely to take place on agricultural land, therefore this will have a negative impact by increasing the impermeable surface area. This could result in an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated in an area affected by Flood Zone 1 and Dogthorpe Star Pit water body. By increasing the impermeable surface area, the project could result in increased flood risk. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The dualling of the A16 aims to reduce current levels and predicted levels of congestion and idle traffic. This combined with no AQMA for the area would result in a moderate positive impact, however the increase in capacity of the A16 could also see an increase in private road users, therefore an overall, a minor to moderate positive impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Road congestion is currently experienced along the A16 with the projection of congestion increasing with Norwood development site. The project aims to resolve the severe delays occurring. Reducing the amount of congestion along the A16 will reduce the amount of time cars are idle in queues. However, by dualling the A16 and reducing congestion in this area, this could result in an increase in road users. However overall, it is anticipated that the project would have a minor positive effect on minimising GHG emissions for the local area and Combined Authority.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will increase the area of impermeable surface by adding more lanes around the A16, increasing the potential flood risk. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.

SEA Objectives	Project Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure along the A16 and roundabout with the A47 with new infrastructure in the form of a roundabout along the A16 to ease the congestion currently experienced also projected congestion. This would be utilising the current infrastructure; however, the current infrastructure may require updating to accommodate the new lanes, therefore an overall minor positive effect is anticipated.

Summary:

The project aims to dual the A16 from Norwood development site to the A47 with a new roundabout off the A16 into the proposed Norwood development and update the roundabout where the A16 and A47 meet. The project suggests capacity improvements to resolve severe delays that are currently experienced and are predicted to worsen on the A16. There is likely to be improvements to the local air quality and also accessibility to key employment areas for the community and provide a reliable and efficient transport network. There are likely to be negative impacts on the conservation of quality of soils as the project requires permanent land-take of Grade 3 agricultural land. Negative impacts are also anticipated for the protection of landscape and townscape. Other potential negative effects have been identified for the historic environment with reference to buried archaeology and setting impact on the scheduled monument, as well as potential negative impacts on designated sites close to the scheme site. Additionally, the scheme is located Flood Zone 1, however by increasing the impermeable surface area has the potential to contribute to the risk of flooding.

Table 15: A1139 Fletton Parkway Junction 3-3a Widening

Intervention name	A1139 Fletton Parkway Junction 3-3a Widening
Further Information	Widen parkway to D3-lane
Local Authority	Peterborough
Current status	
Location	Hampton
Baseline	• Orton Pit SAC and SSSI • Romano-British settlement SE of Orton Longueville Scheduled Monument • Fletton Lake and Stanground Lode waterbodies • Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The project has the potential to reduce congestion and therefore improve air quality. However, it is unlikely that the widening of the parkway between junctions 3 and 3a will have an effect on the health of the population. Therefore, a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the parkway between these two junctions will have positive effects on the health and safety as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Widening of the parkway between these junctions will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	By widening the road, there is likely to be positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network. This is likely to have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the parkway by widening the road will have positive effects on reducing congestion. This will make the road network more efficient as well as helping public transport to be more reliable and efficient. A minor positive effect has therefore been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	Orton Pit SAC/SSSI designated site is located adjacent to the project site. There is potential for minor to moderate negative effects on species, and the potential for habitat loss. There is no green belt land-take associated with this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There is a scheduled monument within close proximity of the junction. There is potential for the setting to be affected by the project therefore a minor negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Widening the parkway between these two junctions will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The junction widening at Junction 3-3a and its upgrade are located in an area classified as urban land use or non-agricultural. Therefore, neutral effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are a number of waterbodies located adjacent to the scheme. The enhancements to the road network between are likely to result in an increase in the impermeable surface area which may lead to an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 3 and therefore is at a higher risk of flooding. Given the project would increase the impermeable surface area to allow for greater capacity at the junction, there is potential that the project could further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements in capacity by widening Junction 3 – 3a will reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to widen the parkway between these two junctions which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding. Therefore, increasing the impermeable surface area through adding additional lanes to widen the parkway could increase the risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity on the parkway to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure and maximising its use, therefore an overall minor positive effect is anticipated.

Summary:

The project is to widen the Fletton Parkway to D3-lane to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape character, risk of the infrastructure from and its contribution to flooding, the historic environment with reference to the scheduled monument and biodiversity with a designated site close to the project site.

Table 16: A1139 Fletton Parkway Junction 3 Improvements

Intervention name	A1139 Fletton Parkway Junction 3 Improvements
Further Information	Improve the capacity of the interchange.
Local Authority	Peterborough
Current status	
Location	Hampton
Baseline	• Orton Pit SAC and SSSI • Romano-British Settlement SE of Orton Longueville Scheduled Monument • Fletton Lake and Stanground Lode waterbodies • Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The project has the potential to reduce congestion and therefore improve air quality. However, it is unlikely that the effect on the health of the population will be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the interchange will have positive effects on the health and safety of this junction as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion therefore making the road network more efficient. This also has the potential to make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	Orton Pit SAC/SSSI is located adjacent to the project site. There is potential for minor to moderate negative effects on species, and the potential for habitat loss. There is no green belt land-take associated with this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There is a scheduled monument within close proximity of the junction. There may be effects on the setting of the scheduled monument as a result of this project therefore a minor negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the capacity of the junction will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The Junction 3 and its upgrade are located in an area classified as urban land use or non-agricultural. Therefore, neutral effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are a number of waterbodies located adjacent to the scheme. The enhancements to the road network between are likely to result in an increase in the impermeable surface area which may lead to an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 3 and therefore is at a higher risk of flooding. Given the project would increase the impermeable surface area to allow for greater capacity at the junction, there is potential that the project could further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. The improvements in the capacity of the interchange at Junction 3 will likely reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve capacity at this junction which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding and will result in an increase in the impermeable surface. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity of the interchange to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

The project is to upgrade Junction 3 of the Fletton Parkway to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape character, the historic environment with reference to the scheduled monument and biodiversity with a designated site close to the project site. Given that the project is located within Flood Zone 3 and will lead to an increase in the impermeable surface area, there is potential for the project to be at risk from flooding as well as contribute to increasing flood risk. Appropriate drainage will therefore need to be considered alongside the project.

Table 17: A1139 Fletton Parkway Junction 2 Improvements

Intervention name	A1139 Fletton Parkway Junction 2 Improvements
Further Information	Improve the capacity of the interchange.
Local Authority	Peterborough
Current status	
Location	Hampton Hargate
Baseline	• Orton Pit SAC/SSSO • Settlement areas SW of Orton Longueville Scheduled Monument • Waterbodies close by • Flood Zone 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The junction improvements have the potential to reduce congestion and prevent cars from idling which will help to improve air quality. However, the benefits of the air quality improvements on the health of the local population is likely to be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the interchange will have positive effects on the health and safety of this junction as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion, making the road network more efficient. This may also make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	Orton Pit SAC/SSSI designated site is located adjacent to the project site. There is potential for minor to moderate negative effects on species, and the potential for habitat loss. There is no green belt land-take associated with this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There is a scheduled monument within close proximity of the junction. The setting of the scheduled monument could be affected as a result of the project therefore a minor negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the capacity of the junction will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The Junction 2 and its upgrade are located in an area classified as urban land use or non-agricultural. Therefore, neutral effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are some waterbodies located adjacent to the scheme. The project will likely increase the surface area of the impermeable surface which could result in an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 1 therefore is at lower risk of flooding. However, given the project would increase the impermeable surface area there is potential it contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements in capacity of the interchange at Junction 2 will reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve capacity at this junction which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will likely result in an increase in the impermeable surface. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve the capacity of the interchange to ease the congestion. This would be utilising the current infrastructure, maximising its use, therefore a minor postitive effect has been identified.

Summary:

The project is to upgrade Junction 2 of the Fletton Parkway to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape character, the historic environment with reference to the scheduled monument and biodiversity with a designated site close to the project site. The project is likely to lead to an increase in the impermeable surface area therefore there is potential for the project to contribute an increase in flood risk. Appropriate drainage will therefore need to be considered alongside the project.

Table 18: A1139 Fletton Parkway Junction 3a Improvements

Intervention name	A1139 Fletton Parkway Junction 3a Improvements
Further Information	Improve the capacity of the interchange.
Local Authority	Peterborough
Current status	
Location	West of Cardea on the Fletton Parkway
Baseline	• Orton Pit SAC and SSSI • Romano-British Settlement SE of Orton Longueville Scheduled Monument • Fletton Lake and Stanground Lode waterbodies • Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The junction improvements have the potential to reduce congestion and prevent cars from idling which will help to improve air quality. However, the benefits of the air quality improvements on the health of the local population is likely to be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the interchange will have positive effects on the health and safety of this junction as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network. This will likely have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion, making the road network more efficient. This also has the potential to make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	Orton Pit SAC/SSSI designated site is located adjacent to the project site. There is potential for minor to moderate negative effects on species, and the potential for habitat loss. There is no green belt land-take associated with this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There is a scheduled monument within close proximity of the junction. The setting of the scheduled monument could be affected as a result of the project therefore a minor negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the capacity of the junction will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The Junction 3a and its upgrade are located in an area classified as urban land use or non-agricultural. Therefore, neutral effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are a number of waterbodies located adjacent to the scheme. The enhancements to the road network between are likely to result in an increase in the impermeable surface area which may lead to an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 3 and therefore is at a higher risk of flooding. Given the project would increase the impermeable surface area to allow for greater capacity at the junction, there is potential that the project could further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements in capacity of the interchange at Junction 3a will reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve capacity at this junction which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding and it is likely to increase the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity of the interchange to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

The project is to upgrade Junction 3a of the Fletton Parkway to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape character, the historic environment with reference to the scheduled monument and biodiversity with a designated site close to the project site. Given that the project is located within Flood Zone 3 and will lead to an increase in the impermeable surface area, there is potential for the project to be at risk from flooding as well as contribute to increasing flood risk. Appropriate drainage will therefore need to be considered alongside the project.

Table 19: A1139 Fletton Parkway Junction 4 Improvements

Intervention name	A1139 Fletton Parkway Junction 4 Improvements
Further Information	Improve capacity of interchange.
Local Authority	Peterborough
Current status	
Location	Stanground
Baseline	• Nene Washes Ramsar, SSSI, SAC and SPA • Fletton Lake and Stanground Lode waterbodies • Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The junction improvements have the potential to reduce congestion and prevent cars from idling which will help to improve air quality. However, the benefits of the air quality improvements on the health of the local population is likely to be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the interchange will have positive effects on the health and safety of this junction as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion, making the road network more efficient. This also has the potential to make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- / -	Nene Washes Ramsar/SSSI/SPA/SAC is located with close proximity of the project site. There is potential for minor to moderate negative effects on species, and the potential for habitat loss. There is no green belt land-take associated with this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There are no historic assets identified at the scheme location therefore a neutral effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the capacity of the junction will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The Junction 4 and its upgrade are located in an area classified as urban land use or non-agricultural. Therefore, neutral effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network between are likely to result in an increase in the impermeable surface area which may lead to an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 3 and therefore is at a higher risk of flooding. Given the project would increase the impermeable surface area to allow for greater capacity at the junction, there is potential that the project could further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. The improvements in capacity of the interchange at Junction 4 will likely reduce congestion and cars queuing which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve capacity at this junction which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding and it is likely to increase the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity of the interchange to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

The project is to upgrade Junction 4 of the Fletton Parkway to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape

character, the historic environment with reference to the scheduled monument and biodiversity with a designated site close to the project site. Given that the project is located within Flood Zone 3 and will lead to an increase in the impermeable surface area, there is potential for the project to be at risk from flooding as well as contribute to increasing flood risk. Appropriate drainage will therefore need to be considered alongside the project.

Table 20: A1260 Nene Parkway Improvement Jn 32 to Jn 3 (Fletton Parkway)

Intervention name	A1260 Nene Parkway Improvement Jn 32 to Jn 3 (Fletton Parkway)
Further Information	Capacity improvements to A1260 Nene Parkway including additional lanes. The proposal would increase capacity necessary to enable Peterborough's Core Strategy of 26,000 homes and 20,000 jobs to be delivered.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Orton Longueville
Baseline	• Woodston Ponds LNR • The Gordon Arms Public House listed building • River Nene, Orton Mere, Osier Lake and additional waterbodies • Agricultural Land Grade 3 • Flood Zones 2 and 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The junction improvements have the potential to reduce congestion and prevent cars from idling which will help to improve air quality. However, the benefits of the air quality improvements on the health of the local population is likely to be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the parkway between these two junctions will have positive effects on the health and safety as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Widening of the parkway between these junctions will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	Improvements to parkway by widening the road will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. The project has the potential to allow the delivery of 20,000 new jobs as well as 26,000 new homes therefore a moderate positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the parkway by widening the road will have positive effects on reducing congestion, making the road network more efficient. This will make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- / 0	Woodston Ponds LNR is situated within 500m of the project site, however, there are unlikely to be any significant effects on this designated site as a result of this project. There is no green belt located near the proposed site. Overall a neutral to minor negative effect has been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	There is a listed building within 100m of the proposed scheme. The project has the potential to negatively impact the setting of the listed building. Therefore, a neutral to minor negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Widening the Nene Parkway between these Junctions 32 and 3 will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered minor.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The junction improvement at Junction 32-3 is located within Grade 3 agricultural land. Depending on the land-take required, minor negative effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are some waterbodies located adjacent to the scheme such as; River Nene, Orton Mere, Osier Lake and other additional waterbodies. The project is likely to increase the impermeable surface area therefore increasing the potential for contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zones 2 and 3, therefore it is at a higher risk of flooding. Given the project would increase the impermeable surface area to allow for greater capacity at the junctions, there is potential that the project could further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements in capacity by widening the A1260 Nene Parkway with additional lanes will reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to widen the parkway between these two junctions which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding and it is likely to increase the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity on the parkway to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

The project is to widen the Nene Parkway Junction 32 to Junction 3 (where the Nene Parkway meets the Fletton Parkway) including additional lanes to improve the capacity of the interchange. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Minor negatives are expected with regard to landscape and townscape character, the historic environment with reference to the listed building and biodiversity with a LNR close to the project site. Given that the project is located within Flood Zone 2 and 3, and will lead to an increase in the impermeable surface area, there is potential for the project to be at risk from flooding as well as contribute to increasing flood risk. Appropriate drainage will therefore need to be considered alongside the project.

Table 21: A1260 Nene Parkway Junction 15 Improvements

Intervention name	A1260 Nene Parkway Junction 15 Improvements
Further Information	Capacity improvements to existing Junction 15, at the interchange between the A1260 and A47 Major Roads. Increased capacity to enable Peterborough's Core Strategy of 26,000 homes and 20,000 jobs to be delivered.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Longthorpe
Baseline	• Milton Hall Registered Park and Garden • River Nene <200m from the junction • Agricultural Land Grade 2 • Flood Zone 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The junction improvements have the potential to reduce congestion and prevent cars from idling which will help to improve air quality. However, the benefits of the air quality improvements on the health of the local population is likely to be insignificant therefore a neutral effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the capacity of the interchange will have positive effects on the health and safety of this junction as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas. Therefore, a minor positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. The project has the potential to allow the delivery of 20,000 new jobs as well as 26,000 new homes therefore a moderate positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the interchange will have positive effects on reducing congestion, making the road network more efficient. This may also make public transport more reliable and efficient therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- / 0	The project is unlikely to impact designated sites, green belt or ancient woodlands. There could be minor impacts to Grade 2 agricultural land experienced from widening the road and permanent land-take of different habitats. Therefore, overall minor negative impacts are anticipated
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	Milton Hall Registered Park and Garden is adjacent to Junction 15. There is potential for negative effects during the construction phase as well as effects on the setting of the registered park and garden. Minor negative effects have therefore been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / 0	Increasing the capacity of the junction will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered neutral to minor negative. No greenbelt is affected by this project.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The junction improvement at Junction 32-31 is located within Grade 2 agricultural land. Depending on the land-take required, minor negative effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	There are a number of waterbodies located adjacent to the scheme and the River Nene is located <200m from Junction 15. The project is likely to increase the impermeable surface area therefore increasing the potential for contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 1 therefore the project is at a lower risk of flooding. However, given the project would increase the impermeable surface area to allow for greater capacity at the junction, there is potential for an increase in the risk of flooding. Appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements in capacity of the interchange at Junction 15 will reduce congestion and cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve capacity at this junction at the interchange between the A1260 and A47 major roads, which will help to ease congestion. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is likely to increase the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve capacity of the interchange to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure and maximising its use therefore an overall minor positive effect is anticipated.

Summary:

The project is to upgrade Junction 15 for improved capacity of the interchange between A1260 and A47 major roads. There is likely to be minor positive effects to improvements to the local air quality, GHG emissions, health and safety by reducing congestion. Improvements are also anticipated with regards to improving accessibility and providing an efficient and reliable transport network. Neutral to minor negatives are expected with regard to landscape and townscape character, the historic environment and biodiversity with a designated site adjacent to the project site. There are no historic assets within close proximity of the project site therefore effects anticipated here are neutral. Given that the project is likely to increase the impermeable surface area, it has the potential to contribute to the risk of flooding therefore appropriate drainage will need to be considered as part of the project.

Table 22: Crescent Bridge Pedestrian and Cycle Bridge

Intervention name	Crescent Bridge Pedestrian and Cycle Bridge
Further Information	Build cycle bridge across railway adjoining western side of Crescent Bridge.
Local Authority	Peterborough
Current status	
Location	Peterborough
Baseline	• AQMA No. 1 • Five listed buildings

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The project will help with connectivity of cycle and pedestrian routes therefore improving accessibility for walkers and cyclists, supporting active travel as a result. This may encourage more people to use active travel rather than travel by car which could have a significant benefit on health. It may also improve air quality. Therefore, a moderate positive effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The project has the potential to improve the health and safety of the transport network by providing a safe crossing across a railway for both cyclists and pedestrians. This separate crossing is also likely to remove cyclists and pedestrians from the road network therefore reducing the risk of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	The Crescent Bridge connects the west of Peterborough and the city centre. The provision of bike and pedestrian access across railway adjoining the bridge will likely improve accessibility to key services, employment and recreational areas and therefore a moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The new bridge will improve pedestrian and cycling links to better integrate the west of the city and the city centre. Additionally, separating the cyclists and pedestrians from the motorised road users will ease congestion. This project shall help to deliver a reliable and efficient transport network for all entering the city centre for shoppers, businesses and visitors. Overall, a minor positive effect is anticipated
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	The installation of a new cycle and pedestrian will help to reduce congestion by reducing the need to travel by car. The bridge will also promote cycling and walking to access the city centre and provides a safer, traffic-free alternative to using the Crescent Bridge. Overall, a major positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	+	The project has the potential to have indirect positive effects on biodiversity by reducing the reliance on private car and the number of journeys made by vehicles. A minor positive effect has therefore been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There are a number of listed buildings near to the site of the new cycle and pedestrian bridge. There is potential for these buildings to be affected during the construction phase and also for the setting to be affected. A minor negative effect has therefore been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	?	The scheme's effect on the landscape and townscape character will depend on the final design of the bridge.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on the quality of soils, therefore a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	0	Given that the project is located within an already developed and urban landscape, there is unlikely to be effects on the water environment. A neutral impact has been therefore been identified.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	Although the project proposed to build a bridge across existing railway, both construction and operation is unlikely to have an effect on the risk of flooding to transport infrastructure, therefore a neutral impact has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	++	Moderate positive effect is expected on local air quality with the potential increase use of bike rather than car for travel, protecting and improving air quality in AQMA No. 1, which the project is located within.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	Potential increase bike use and reduction in car travel is expected to reduce GHG emissions from vehicles, thereby having a moderate positive effect on the reduction of Peterborough's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely effects on the vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards, therefore a neutral impact has been identified.
15. Maximising the use and lifespan of existing transport infrastructure	+	Potential minor positive effect on the lifespan of existing transport infrastructure is expected should there be an increase use of bikes rather than car travel, reducing pressure on the network.

Summary:

Construction of a bridge which links to the city centre will have a general positive effect on accessibility, human health, air quality and biodiversity. It has the potential to encourage more people to use active modes of transport rather than use the private car. This would likely have a positive effect on reducing congestion. While direct impact on surrounding listed buildings are not expected, there is potential indirect negative effect from vibration during construction stage.

Table 23: Eastern Industries Access Phase 1 – Parnwell Way

Intervention name	Eastern Industries Access Phase 1 – Parnwell Way
Further Information	Capacity improvements to existing infrastructure, possible dualling of link road or alternative access arrangements. Provides access to large employment area at Red Brick Farm within the Eastern Industries, enabling the creation of 6,000-8,000 jobs,
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Peterborough
Baseline	• Within SSSI impact risk zone • Adjacent to Flood Zones 2 and 3 • AQMA No. 1

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	There is potential for the project to reduce congestion by increasing the capacity of the road network. This may have positive effects on air quality and therefore lead to improvements in health. However, given that the project may lead to dualling of the link road, it may attract additional vehicles. A mixed positive and negative effect has therefore been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	Minor positive effect on the safety of the transport network is expected from improving access to Eastern Industries where the road is used by both private cars and heavy goods vehicles. However, if the project attracts additional vehicles to the area, there may be an increase in the risk of accidents occurring. A mixed positive and negative effect has therefore been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Moderate positive effect on accessibility is expected from the increased capacity access to Eastern Industries which is a large employment area.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	Major positive effect is expected from the proposed capacity improvement which may improve the reliability and efficiency of the transport network, supporting the local economic growth and competitiveness, given that Eastern Industries is a large employment area. It may also help to support the creation of 6,000-8,000 new employment opportunities.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	A moderate positive effect is expected as the project is expected improve the capacity of Parnell way or with alternative access arrangement, thereby improving congestion. However, this project does not promote the use of sustainable modes of transport.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	A minor negative effect is expected as improved road capacity may cause habitat fragmentation and/or deterioration in habitat environment and the connection between habitats and species from increased traffic volume, especially when the project is situated within a SSSI impact risk zone.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	While there is no existing designated historic assets within close proximity of the proposed project, there is a risk/potential for the discovery of historic resources from excavation during construction.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Potential minor negative effect on the landscape and townscape character is expected from the widening of Parnell Way or redirection of traffic to other roads.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	Minor negative effect on the quality of soil is expected as increased traffic and potential road widening may cause soil compaction and/or erosion. However, the project is not expected to cause any loss of agricultural / greenfield land, and unlikely to have opportunities in remediating contaminated land.
10. Protect and enhance the quality of the water environment	? / -	There is potential for the project to affect the water environment given it is likely to increase the impermeable surface area which could lead to an increase in contaminated run-off. However, the updates required to the road network will require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Considering the Parnell Way is located next to Flood Zone 2 and 3 there is potential for the project to be at a higher risk of flooding. In addition, it is likely to increase the impermeable surface area which has the potential to contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	-	Parnell Way is located within AQMA No.1, and the increasing road capacity to accommodate more traffic will lead to increased air pollution from vehicular emission, especially if the number heavy good vehicles are expected to increase. However, the capacity improvements may reduce emissions associated with idling cars in traffic jams. Therefore, a moderate negative effect is expected.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- -	The increase of road capacity is expected to allow for more road traffic, leading to an increase in GHG emissions and Peterborough's contribution to climate change. However, the capacity improvements may reduce emissions associated with idling cars in traffic jams. Therefore, a moderate negative effect is expected.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	Subject to the final capacity improvement arrangements, considering the project is located next to Flood Zone 2 and 3, there is a potential for minor negative effect on flood risk from the removal of vegetation/land clearance (albeit small extent) for road widening. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	++	Moderate positive effect is expected as capacity improvement is expected to further maximise the use and lifespan of existing road.

Summary:

Moderate to major positive effects are expected for existing road network and road users (associated with improved accessibility and safety) from proposed capacity improvement. However, major negative effects are expected on air quality and contribution to climate change from the improved capacity with increased traffic volume. There is also potential for the project to be contribute to the risk of flooding given that it will increase the impermeable surface area. Appropriate drainage will need to be considered as part of the project.

Table 24: University and Fengate South Access

Intervention name	University and Fengate South Access
Further Information	Package of capacity improvements to existing infrastructure, possible road widening or junction improvements focusing on Southern Fengate.
Local Authority	Peterborough
Current status	
Location	Fengate in Peterborough
Baseline	• Nene Washes Ramsar Site, SSSI, SAC and SPA • Flood zones 2 and 3 • AQMA No. 1

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	Capacity improvements may result in improvements to congestion which could have positive effects on air quality. However, the benefits for human health is likely to be insignificant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	There may be minor positive effects on the health and safety of the transport network if existing constraints or hazards are also identified and addressed in the process of improving existing road network.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Minor positive effects on accessibility are expected with improved road network capacity.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Minor positive effects are expected as the improved road capacity will increase the efficiency of transport network, supporting and contributing to local economic growth and competitiveness
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Although the project is expected to reduce traffic congestion by improving existing infrastructure capacity, it does not reduce the need to travel by car or promote sustainable transport modes; therefore, a minor positive impact has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- -	The project is in close proximity to the Nene Washes Ramsar site (SSSI, SAC, SPA), road works and increased traffic are expected to increase disturbance to habitat and species within and/or traveling to and from the designated site. Therefore, a moderate negative effect has been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	There are no listed historic features around the proposed project area. However, subject to the details of improvement works to be proposed, there is still a potential for discovery during construction (excavation).
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	While details of the improvement works are to be confirmed, the overall townscape character around Fengate is not expected to be affected from road widening or junction improvement. Therefore, neutral impact has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	Minor negative effect on the quality of soil is expected as increased traffic and potential road widening and junction improvements may cause soil compaction and/or erosion. However, the project is not expected to cause any loss of agricultural / greenfield land, and unlikely to have opportunities in remediating contaminated land.
10. Protect and enhance the quality of the water environment	? / -	Given that the capacity improvements may result in the widening of the road, there is potential for the impermeable surface area to be increase. However, the updates required to the road network may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Parts of Fengate South is located within Flood Zone 2 and 3 therefore the transport infrastructure is likely to be at a higher risk of flooding. The project may increase the impermeable surface area and therefore contribute to the risk of flood. Appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	University and Fengate South is located within AQMA No.1, potential negative effects on local air quality from road capacity improvement which will lead to increased road traffic and air pollution. However, the capacity improvements may reduce emissions associated with idling cars in traffic jams. Therefore, a moderate negative effect is expected.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	Moderate negative effect is expected as increased capacity is expected to result in increase in GHG emission from increased traffic volume, and also increase Peterborough's contribution to climate change. However, the capacity improvements may reduce emissions associated with idling cars in traffic jams.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	Subject to the final capacity improvement arrangements, considering parts of Fengate South is located within Flood Zone 2 and 3, there is a potential for negative effect on flood risk from the removal of vegetation/land clearance for road widening. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	Improving capacity is expected to maximise the use and lifespan of existing transport infrastructure, therefore a minor positive impact has been identified.

Summary:

Increasing existing road network capacity will have positive effects on the efficiency of transport networks thereby improving accessibility to key services, employment area, thus supporting local economic growth. There is potential that the improved capacity will reduce congestion and therefore improve air quality and reduce GHG emissions. However, there is potential for the capacity improvements to attract more vehicles which could result in negative effects. The health benefits from the improvements in air quality are not likely to be significant but the health and safety of the road network will likely improve. There is potential for negative effects on biodiversity, the historic environment, soils, the water environment, flooding and climate resilience.

Table 25: Frank Perkins Parkway Junction 4 – 5 widening

Intervention name	Frank Perkins Parkway Junction 4 – 5 widening
Further Information	Widen parkway to D3-lane.
Local Authority	Peterborough
Current status	
Location	A1139 (Frank Perkins Parkway) Junctions 4 (Fletton Parkway) – 5 (Boongate), near Fengate
Baseline	• Nene Washes SSSI, Ramsar, and SAC • 2 listed buildings • Flood Zones 2 and 3 • AQMA No. 1

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The widening of the junction may lead to reduced congestion and therefore air quality improvements. However, the effects on health are likely to be insignificant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Potential minor positive effects on safety if the project improves traffic flow, reducing the likelihood of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Widening the parkway to D3-lane is expected to allow better traffic flow, thereby improving accessibility to key services. A minor positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Efficiency of the transport network is expected to improve from road widening allowing smoother traffic flow. This will allow better access to key services which will help contribute and support the local economy therefore major positive effect has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Although the project is expected improve road congestion, it will not be through the reduction in need for car travel and promotion of sustainable modes of transport. Therefore, a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- -	Potential for moderate negative effect on biodiversity is expected from road widening which will increase disturbance to habitats and species (Nene Washes SSSI and Ramsar Site and SAC) from increased traffic flow and air pollution.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There are two listed buildings near the Parkway Junction 4 and 5, while no direct impact is expected, there may be minor indirect effects from vibration during construction or operation (heavy traffic).
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The project is unlikely to have effects on the townscape character as it is expected to remain similar to existing condition after widening.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	Widening of the parkway may lead to soil compaction or erosion, having a minor negative effect on the quality of soil. However, the project is not expected to cause loss of agricultural / greenfield land, nor will there be likely any opportunities for contaminated land remediation.
10. Protect and enhance the quality of the water environment	? / -	Subject to the preventive and mitigation measures during construction of widening works, the Parkway crosses the River Nene and may have a minor negative effect on the water environment. The works may increase the impermeable surface areas which could increase contaminated run-off. However, the updates required to the road network may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The Parkway is within Flood Zone 2 and 3, subject to detailed design of proposed widening, there could be either positive or negative effect on the risk of flooding to transport infrastructure. The project also has the potential to increase the impermeable surface area which could contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	Increased traffic volume could occur as a result of the project, hence increasing air pollution from vehicle emissions. This could have negative effects on air quality, particularly AQMA No. 1 which the project falls within. However, the improvements may reduce emission associated with idling vehicles in traffic jams.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	Increased traffic volume could occur as a result of the project, therefore increasing GHG emissions from vehicles. However, the improvements may reduce emission associated with idling vehicles in traffic jams.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	?	The Parkway is within Flood Zone 2 and 3, subject to detailed design of proposed widening, there could be either positive or negative effect on the vulnerability to flood risk (for example, vegetation removal and/or flood mitigation measures embedded with road design). The increase in the impermeable area coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	Widening the Parkway is expected to have a minor positive effect on the use and lifespan of existing transport infrastructure.

Summary:

Widening of the Parkway may increase existing road capacity and reduce congestion, improving accessibility to surrounding services thereby supporting local economic growth. Reduced congestion may also lead to improvements in air quality and reductions in GHG emissions. However, increased traffic could result from the project which has potential to have negative effects. There is also likely to be improvements to the health and safety of the road network. The project has the potential to have negative effects on biodiversity, the historic environment, soils, the water environment, flooding, and climate resilience.

Table 26: Hampton East Coast Main Line (ECML) Rail Crossing

Intervention name	Hampton East Coast Main Line (ECML) Rail Crossing
Further Information	New road over ECML.
Local Authority	Peterborough
Current status	
Location	Road Location is unknown; however, baseline area has been completed on section of ECML south of Market Deeping and north of Peterborough
Baseline	• One listed building • AQMA No. 1 • Flood Zones 2 and 3 • River Welland, South Drain and Brook Drain

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	There is unlikely to be effects on health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Potential minor positive effect on health and safety on the transport network from the new road, which will enable safer crossing and minimise the likelihood and/or risk of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Moderate positive effect is expected on accessibility as the project may provide a more direct route for travelling
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	There is potential for a minor indirect positive effect on the support and contribution to local economic growth given the new road will help to improve accessibility.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	There is potential for the project to alleviate congestion elsewhere by providing a new a road link. However, this will unlikely to contribute to the need to reduce car travel or promotion of sustainable transport mode. Therefore, a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	The scale of the proposed new rail crossing is unlikely to cause significant effect on biodiversity considering there is already a rail line and a major road (A1175) and there are no designated sites nearby, though there may still be minor negative effect if disturbance (increased traffic) increases as a result.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	There are listed buildings immediately next to the proposed new rail crossing which may cause minor negative effect from vibration, though these may already be subject to impacts from existing rail line.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	There is unlikely to be effects on the landscape and townscape character, therefore a neutral impact has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on the quality of soils, nor loss of agricultural/greenfield land, therefore a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	? / -	River Welland is located nearby to the propose site. The project has the potential to increase the impermeable area and therefore increasing the risk of contaminated run-off. However, the updates required to the road network may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located within Flood Zone 3 therefore there is potential for flood risk. The new road will likely increase the impermeable surface area which further contribute to the risk of flooding. Appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	0	The new rail crossing may be an alternative route to existing traffic and is not expected to induce additional traffic, therefore a neutral impact has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0	The new rail crossing may be an alternative route to existing traffic and is not expected to induce additional traffic leading to increase GHG emission, therefore a neutral impact has been identified.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will likely lead to an increase in the impermeable area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The new road crossing ECML is expected to divert some traffic from other existing roads, which may reduce pressure on these existing roads. Therefore, a minor positive effect on the lifespan of existing transport infrastructure is expected.

Summary:

Considering the scale of the project, majority of the effects have been identified as minor and/or indirect, or neutral. The new road crossing will provide a new link across the railway which will likely lead to improved accessibility to key services. This may support local economic growth and the introduction of new rail crossing will have positive effect on the safety of transport network. However, there is potential for negative effects on biodiversity, the water environment, flooding and climate resilience. Although the project may reduce congestion on the roads elsewhere, there is unlikely to be significant effects on air quality, GHG emissions or health.

Table 27: Junction 68 Stanground Fire Station Roundabout Improvements

Intervention name	Junction 68 Stanground Fire Station Roundabout Improvements
Further Information	Further study work to identify improvement works to Junction 68, with PT priority.
Local Authority	Peterborough
Current status	
Location	Stanground Fire Station Roundabout, Stanground
Baseline	• Nene Washes Ramsar and SSSI • AQMA No. 1 • Fletton Lake is less than 500m from potential site • Flood Zone 1

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	It is unlikely that the study will have a direct effect on health. However, if the outcomes of the study include improvements to the junction there may be a reduction in congestion. This could therefore improve air quality and benefit health but effects would likely be insignificant.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	0	It is unlikely that the study will have a direct effect on the health and safety of the road network. However, if the outcomes of the study identify the requirements for improvement works there is potential for positive effects.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	0	There is unlikely to be direct positive effects of the study on improving accessibility. However, there are potential for minor positives effect if the outcomes of the study identify works that will improve traffic flow, reducing congestion and accidents, around Junction 68. This will likely result in increased accessibility to key services, employment and recreational areas.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	The study is unlikely directly affect the local economy. There is potential that the improvements, which are identified in the study, could contribute to the local economy by improving the reliability and efficiency of the road network.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0	It is unlikely that the study will contribute directly to reducing congestion. However, there is potential for positive effects if the outcomes of the study identifies junction improvements. The junction improvements will likely improve capacity, reduce congestion, and improve bus journey reliability which is currently an issue.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be direct effects on biodiversity as a result of the study. However, if junction improvements are suggested, the Nene Washes SSSI and Ramsar site is located near the potential location for works. The likelihood, extent and nature of impact on biodiversity is yet to be determined, subject to the study findings and the proposed works to be carried out in the future.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be direct effects of the study on the historic environment. However, there are no designated historic resources around Junction 68 and taking into account the area is already relatively developed, there is unlikely to be effects on the historic environment.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	It is unlikely that the study will directly affect the landscape and townscape. However, the outcomes of the study may have an effect although this will depend on the extent and design of the final works.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	It is unlikely that there will be direct effects as a result of the study. However, if the outcomes identity improvements to the junction, no effects are expected as there is no agricultural / greenfield land in the vicinity of Junction 68 and is unlikely to impact on quality of soils.
10. Protect and enhance the quality of the water environment	0	The study is unlikely to directly impact the water environment. However, Fletton Lake is less than 500m to the west of Junction 68. If the outcomes of the study identify improvements to the junction, and increase the impermeable area, there may be an increased risk of contaminated run off.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely to be direct effects on the risk of flooding and contribution to flood risk as a result of the study. However, if the outcomes of the study identify improvements to Junction 68 and require an increase in the impermeable surface area then there is potential for an increase in flood risk. The junction is located in Flood Zone 1, however there are areas of Flood Zone 2 and 3 relatively close by to the site.
12. Protect and improve local air quality, particularly in the AQMAs	0	The study is unlikely to contribute directly to improvements in air quality. If the outcomes of the study require improvements to increase the capacity of the junction, and consequently increase traffic and air pollution to AQMA No.1, there may be negative effects expected. However, the improvements maty reduce emission associated with idling vehicles in traffic jams.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0	The study is unlikely to contribute directly to GHG emissions. If the outcomes of study require improvements works to be carried out, there may an increase the capacity and therefore additional traffic and GHG emissions. However, the improvements maty reduce emission associated with idling vehicles in traffic jams.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be effects on the vulnerability to climate change by minimising flood risk as a direct effect of the study. However, there is potential for effects if the outcomes require improvements to the junction which lead to an increase in the impermeable surface area.
15. Maximising the use and lifespan of existing transport infrastructure	0	The study is unlikely to contribute directly to maximising the use of the infrastructure. However, improvement works to the junction may lead to positive effects.

Summary:

As this project only involves the study of potential improvement works needed for Junction 68, majority of the identified neutral impacts will be subject to the final works to be carried out.

Table 28: Nene Parkway Junction 32 – 33 widening (within carriageway)

Intervention name	Nene Parkway Junction 32 – 33 widening (within carriageway)
Further Information	Widen parkway to D3-lane
Local Authority	Peterborough
Current status	
Location	Between Orton Longueville and Longthorpe: Junction 32 Nene Parkway meets Oundle Road and Junction 33 Nene Parkway meets Longthorpe Parkway
Baseline	• Orton Pit SSSI and SAC • One scheduled monument (Romano-British settlement) and 2 listed buildings • Junction 32 within Flood Zone 2 • AQMA No. 1 • River Nene

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	There may be an improvement in air quality as a result of the works, however the benefits for health are likely to be insignificant therefore a neutral effect is identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The widened parkway is expected to relieve dense road traffic, and therefore have minor positive effect on the health and safety of the transport network.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Accessibility to key services, employment and recreational areas are expected to improve with smoother traffic flow and increased capacity after widening the Nene Parkway into D3 lane.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	With improved accessibility and additional capacity, the transport network is expected to become more reliable and efficient, thereby supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	The project is likely to have a minor positive effect on congestion as it will improve traffic flow. This also has the potential to contribute to more efficient and reliable public transport.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	Junction 32 to 33 of the Nene Parkway located next to the Ferry Meadows Country Park and in between two SSSIs and a LNR. Although there is existing traffic in the area, widening the Parkway is likely to allow more traffic and therefore potentially increasing human disturbances, potentially affecting the habitat and species travelling between these sites.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There is a Grade II listed building next to Junction 32 and scheduled monument at Junction 33, there may be potential negative effects on these depending on details of the widening works, for example the construction method.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	There is likely to be minor effects on the landscape and townscape character as the scheme is to widen the existing Parkway, though negative due to the potential increased magnitude of the infrastructure across the landscape.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	There is potential for negative effects on the soils and loss of agricultural / greenfield land, therefore a minor negative effect has been identified.
10. Protect and enhance the quality of the water environment	? / -	The road section between Junction 32 and 33 of the Nene Parkway crosses the River Nene, with multiple lakes north and west of the road. Potential negative effects are expected, especially during construction stage, to these waterbodies if preventive and/or mitigation measures are not implemented. The project also has the potential to increase the impermeable surface area which could lead to contaminated run-off. However, the updates required to the road network may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The junction is located within Flood Zone 2 and is therefore at a higher risk of flooding. Given the project has the potential to increase the impermeable surface area, it may further contribute to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	Potential negative effect on air quality locally and within AQMA No.1 as the widened parkway is expected to allow for more traffic, hence increased vehicular emission and pollution. However, there may be benefits in reduced idling emissions and current congestion.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	The additional traffic from the widened parkway will increase the amount of GHG emission from vehicles, having a negative effect on Peterborough's contribution to climate change. However, there may be benefits in reduced idling emissions and current congestion.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will likely lead to an increase in the impermeable area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.

SEA Objectives	Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	+	By widening the existing parkway, it will further maximise the use and the lifespan of existing transport infrastructure to accommodate increasing traffic, as opposed to the construction of a new road at another location.

Summary:

The project will likely help to reduce congestion which has the potential to improve air quality, reduce GHG emissions, improve accessibility and contribute to economic growth. However, there is also potential that the improvements will attract additional vehicles which may result in negative effects. The health and safety of the road network will likely be improved. There is potential for negative effects on biodiversity, the historic environment, soils, landscape, the water environment, flooding and climate resilience.

Table 29: Nene Parkway Junction 33 Improvements

Intervention name	Nene Parkway Junction 33 Improvements
Further Information	Improve capacity of roundabout.
Local Authority	Peterborough
Current status	
Location	Junction 33 on Nene Parkway (A1260) where it meets Longthorpe Parkway (A1179), south of Longthorpe
Baseline	• Orton Pit SSSI and SAC • 1 scheduled monument (Romano-British settlement) and 2 listed buildings • Junction 32 within Flood zone 2 • AQMA No. 1 • River Nene

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	There may be an improvement in air quality as a result of the works, however the benefits for health are likely to be insignificant therefore a neutral effect is identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Increased capacity of roundabout will likely reduce congestion and therefore improve the health and safety of the road network.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Accessibility to key services, employment and recreational areas are expected to improve with smoother traffic flow with improved capacity at the roundabout.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	With improved accessibility, the transport network is expected to become more reliable and efficient, thereby supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improved capacity will likely help to alleviate congestion at the roundabout. This will allow for a more efficient road network which may also benefit the reliability and efficiency of the public transport. However, it may also attract more vehicles. An overall minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	Junction 33 of the Nene Parkway is located next to the Ferry Meadows Country Park and in between two SSSIs and a LNR. Although there is existing traffic in the area, increased roundabout capacity is likely to allow more traffic and therefore potentially increasing human disturbances, potentially affecting the habitat and species travelling between these sites.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	Nene Parkway Junction 33 falls within the Longthorpe Roman fort and settlement scheduled monument site but has not been reviewed under the Monuments Protection Programme. Taking into account of the existing site condition, increasing the roundabout capacity is likely to have very minor negative effect, if any.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	There is likely to be minor negative effects on the landscape and townscape character from improving the roundabout capacity as the works involved is expected to be of small scale.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be any effects on the quality of soils and loss of agricultural / greenfield land, therefore a neutral impact has been identified. There is also unlikely be opportunities to remediate contaminated land.
10. Protect and enhance the quality of the water environment	? / -	Nene Parkway Junction 33 is located near the River Nene, with multiple lakes in the west. Potential minor negative effects are expected, especially from site runoff during construction stage, to these waterbodies. The project may lead to an increase in the impermeable surface area which could increase contaminated run off. However, the updates required may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located with Flood Zone 2 and therefore is at a higher risk of flooding. The capacity improvements may result in an increase in the impermeable surface area which may also further contribute to the risk of flooding. Appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	Potential minor negative effect on air quality locally and within AQMA No.1 from increased traffic at the improved capacity roundabout, hence increased vehicular emission (with more stop/start engine emission) and pollution. However, it may also help reduce congestion and the idling of vehicles in traffic jams. Mixed positive and negative effects have been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	The additional traffic from the improved capacity roundabout will increase the amount of GHG emission from vehicles, having a negative effect on Peterborough's contribution to climate change. However, there is potential for improvement to the capacity of the roundabout to reduce congestion which will lead to a reduction in GHG emissions. Mixed positive and negative effects have been identified.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to lead to an increase in the impermeable area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	By improving the capacity of the existing roundabout, it will further maximise the use and the lifespan of existing transport infrastructure to accommodate increasing traffic, as opposed to the construction of an alternative scheme.

Summary:

The project has the potential to reduce congestion at the junction through preventing cars from idling. This has the potential to have benefits for the health and safety of the road network, improve accessibility and contribute and support the local economy. However, improved capacity may attract more vehicles which has the potential to lead to reductions in air quality and increases in GHG emissions. There is potential for negative effects on biodiversity, landscape, the water environment, flooding and climate resilience.

Table 30: Schemes and Studies

Intervention name	Schemes and Studies
Further Information	Undertake small scale studies and traffic modelling in order to develop on-going pipeline of transport infrastructure schemes.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Peterborough
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The studies are unlikely to have any effect on the health of the population. However, the outcomes of the studies could result in positive health effects if schemes which encourage active and sustainable modes of transport are prioritised over road schemes. Similarly, the outcomes could also result in negative effects.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	0	The studies are unlikely to directly affect the health and safety of the road network. However, if the outcomes recommend schemes which reduce vehicle numbers, there may a reduction in the likelihood of accidents although there is also potential for the schemes to result in an increased in vehicles.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	0	The studies are unlikely to directly affect accessibility to key services, however the schemes implemented as a result of the studies may improve accessibility.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	The studies are unlikely to directly contribute to economic growth. However, the outcomes of the studies could result in benefits for the local economy if they improve accessibility and open up opportunities for employment and business.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0	The studies are unlikely to reduce congestion directly. However, if the outcomes of the studies are schemes which look to promote active and sustainable modes of transport rather than private cars then congestion will likely be improved. The outcomes also have the potential to increase congestion if they are road schemes which encourage the use of private car and result in an increase in vehicle numbers.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	Biodiversity and geodiversity is unlikely to be directly affected by the studies. However, there are potential for negative effects if the outcomes involve the construction of new transport infrastructure. The significance of the effects will be dependent on location. There may be indirect positive effects for biodiversity if the outcome of the studies reduce the use of private cars.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be any direct effects on the historic environment as a result of the studies. The historic environment may be affected by the outcomes of the study involve schemes which are in the proximity of historic assets.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The studies are unlikely to directly affect the landscape and townscape. The outcomes of the studies however may result in negative effects if the schemes result in significant changes. There may also be improvements to the townscape as a result of the outcomes of the studies.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be any direct effects on soils, agricultural or greenfield land as a result of the studies. However, if the outcomes of the studies are schemes which require permanent land-take then there is the potential for negative effects.
10. Protect and enhance the quality of the water environment	0	The water environment is unlikely to be directly affected by the studies. However, if the outcomes of the studies are schemes which increase the overall impermeable surface area or are located adjacent to water bodies, there is potential for effects from contaminated run off.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	The studies are unlikely to directly affect or be affected by the risk of flooding. Depending on the location of the schemes which result from the study, there may be negative effects from flood risk. The schemes have the potential to increase the impermeable surface area and therefore increase the risk of flooding.
12. Protect and improve local air quality, particularly in the AQMAs	0	Air quality is unlikely to be directly affected as a result of the study. However, the outcomes of the studies may be schemes which prioritise active and sustainable modes of transport and will therefore result in air quality benefits.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0	GHG emission are unlikely to be directly affected as a result of the study. However, the outcomes of the studies may be schemes which reduce private car usage therefore resulting in positive effects in reducing GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	The studies are unlikely to directly affect resilience. There may be outcomes of the studies which involve schemes which increase the impermeable surface area. This coupled with an increase in rainfall and severe weather events as a result of climate change may result in negative effects for resilience. However, the schemes may actively look to improve resilience of transport infrastructure and therefore positive effects will occur.
15. Maximising the use and lifespan of existing transport infrastructure	0	The studies are unlikely to directly affect use and lifespan of existing assets. However, the outcomes may result in improvements to existing infrastructure which will help maximise their use as well as expanding their lifespan. Outcomes may focus on new infrastructure therefore there is also potential for negative effects.

Summary:

The studies are unlikely to directly affect any of the SEA objectives. However, the outcomes of the schemes have the potential to have both positive and negative effects depending on their aims and objectives. If the outcomes prioritise schemes which aim to promote active and sustainable modes of transport, then there is likely to be benefits to health and air quality amongst others. Similarly, if the outcomes result in the construction of new transport infrastructure, particularly road schemes, then there is potential for negative effects.

Table 31: Sustainable Travel Improvements

Intervention name	Sustainable Travel Improvements
Further Information	Promoting sustainable travel and infrastructure improvements in Peterborough.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Peterborough
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	There is likely to be health benefits for the local population as a result of this project. Through promote sustainable transport, moving away from private car, there is likely to be air quality improvements and therefore health benefits. The project may also encourage active modes of transport, such as walking and cycling, which will also result in health benefits. Improving transport infrastructure may also increase accessibility for recreation and social opportunities, particularly for those without a car, which would positive affect physical and mental wellbeing.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	By promoting sustainable transport, the reliance on private cars is likely to be reduced. This has the potential to indirectly lead to a reduced risk and likelihood of accidents on the road therefore making the transport network safer.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	The project is likely to improve accessibility to key services, particularly through public transport. This may provide or improve access to employment and recreation opportunities for those who may otherwise would not have been able to.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The promotion of public transport is likely to make the transport network more efficient through reducing congestion. There may also be improvements to the public transport network, resulting in more frequent and reliable services. This may result in benefits for the local economy as the area will be more attractive for businesses. Journey times may also be reduced which is likely to benefit businesses such as delivery services.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	The project aims to promote sustainable transport which is likely to have subsequent effects on reducing congestion. Improved infrastructure is also likely to reduce congestion and may also result in a more reliable and efficient public transport network.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There may be indirect positive effects for biodiversity due a decrease in the number of private cars through promoting public transport. However, there is potential for negative effects on biodiversity, although this is dependent on the type and location of infrastructure improvements proposed as part of this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, this will depend on the type, exact location and design of the improvements.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The landscape and townscape has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, this will depend on the type, exact location and design of the improvements.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	Soils, agricultural and greenfield land have the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, this will depend on the type, exact location and design of the improvements.
10. Protect and enhance the quality of the water environment	? / -	The water environment has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, this will depend on the type, exact location and design of the improvements.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The infrastructure improvements as part of this project has the potential to be negatively affected by flood risk and also has the potential to contribute to the risk of flooding. However, this will depend on the type, exact location and design of the improvements.
12. Protect and improve local air quality, particularly in the AQMAs	++	Through promoting sustainable transport, there is likely to be an increase in the use of public and active modes of travel which will help to improve air quality.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	Through promoting sustainable transport, there is likely to be an increase in the use of public and active modes of travel which will help to reduce GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	There is potential for the infrastructure improvements to affect climate resilience. However, this will depend on the type, exact location and design of the improvements.
15. Maximising the use and lifespan of existing transport infrastructure	+	It is likely that the use of the existing transport network will be maximise through promoting public transport. The project may result in increased frequency and reliability of public transport therefore making it more attractive.

Summary:

Accessibility, particularly for those without a car, is likely to be improved as a result of this project as it aims promote sustainable transport modes which is likely to include public transport. It is also likely to include the use of active modes of transport which will have benefits for health. Sustainable transport will result in improvements in air quality, also with subsequent health benefits, as well as a reduction in GHG emissions. The health and safety of the road network also has the potential to be improved indirectly through a reducing the reliance on private cars. The effects on biodiversity, the historic environment, landscape and townscape, the water environment, flooding, soils and climate resilience are uncertain given that the exact type, location and design of the infrastructure improvements is unknown.

Table 32: Smart Cities Peterborough

Intervention name	Smart Cities Peterborough
Further Information	Continuation of Smart Cities projects.
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Peterborough
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The transport projects under the Smart Cities Peterborough are likely to promote public and active modes of transport. Active modes of transport have the potential to directly improve health and public transport may result in air quality improvements and therefore health benefits through reduced reliance on private car.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Through reducing the reliance on private cars, the projects as part of the Smart Cities remit have the potential to indirectly benefits the health and safety of the transport network as the likelihood of accidents may be reduced.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	The Smart Cities projects have the potential to improve access to key services in sustainable, active and innovative ways.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	By making Peterborough a more innovative city in terms of transport as well as within other spheres, the city is likely to be more attractive for business. This will help to boost economic growth. Access is likely to be improved and transport is likely to be more efficient therefore making businesses more competitive and efficient.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The Smart Cities Peterborough projects are likely to prioritise and promote active and public transport over private cars. This will likely be done in an innovative way therefore encouraging people to use these modes over using private car. Congestion will therefore be reduced.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There may be indirect positive effects for biodiversity due a decrease in the number of private cars through promoting public transport. However, there is potential for negative effects on biodiversity, although this is dependent on the type, exact location and design of projects proposed under this remit.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, there is potential for negative effects, although this is dependent on the type, exact location and design of projects proposed under this remit.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The landscape and townscape has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, there is potential for negative effects, although this is dependent on the type, exact location and design of projects proposed under this remit.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	Soils, agricultural and greenfield land have the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, there is potential for negative effects, although this is dependent on the type, exact location and design of projects proposed under this remit.
10. Protect and enhance the quality of the water environment	? / -	The water environment has the potential to be negatively affected by the infrastructure improvements which may be proposed as part of this project. However, there is potential for negative effects, although this is dependent on the type, exact location and design of projects proposed under this remit.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The infrastructure improvements as part of this project has the potential to be negatively affected by flood risk and also has the potential to contribute to the risk of flooding. However, there is potential for negative effects, although this is dependent on the type, exact location and design of projects proposed under this remit.
12. Protect and improve local air quality, particularly in the AQMAs	++	It is likely that active and sustainable modes of transport will be prioritised under the Smart Cities Peterborough remit therefore air quality improvements are likely.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	It is likely that active and sustainable modes of transport will be prioritised under the Smart Cities Peterborough remit therefore reductions in GHG emissions are likely.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	There is potential for the infrastructure improvements to affect climate resilience. However, this will depend on the type, exact location and design of the improvements.
15. Maximising the use and lifespan of existing transport infrastructure	+	The Smart Cities Peterborough initiative has the potential to implement innovative ways to use existing infrastructure to its full potential.

Summary:

Given that the aim of the Smart Cities Peterborough is to deliver a more sustainable city to live and work in, the transport projects are likely to promote active and public modes of transport over using private car. This is likely to result in air quality improvements and GHG reductions. Health benefits are also likely to occur as a result of active travel and also through improving air quality. The effects on biodiversity, the historic environment, landscape and townscape, the water environment, flooding, soils and climate resilience are uncertain given that the exact type, location and design of the projects is unknown. However, it is likely that they will take a holistic approach.

Table 33: Light Rapid Transit

Intervention name	Light Rapid Transit
Further Information	Light rapid transit system in Peterborough
Local Authority	Peterborough
Current status	Pre-feasibility
Location	Peterborough
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The introduction of a light rapid transit system in Peterborough has the potential to reduce the reliance on private cars and reduce congestion, resulting in air quality improvements which is likely to have health benefits. Improving public transport infrastructure may also increase accessibility for recreation and social opportunities, particularly for those without access to a car, which would positive affect physical and mental wellbeing.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The project may have indirect positive effects on the health and safety of the transport network by reducing the number of vehicles on the road therefore the likelihood of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	Accessibility to key services is likely to be improved as the project will provide an additional public transport option for travel around the city. This may provide or improve access to employment and recreation opportunities for those who may otherwise would not have been able to.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The addition of a light rapid transit system is likely to make the transport network more efficient by expanding the public transport offering. It is also likely to reduce congestion which will also help to make the network more efficient. As a result, the area may be more attractive for businesses and employment opportunities will be opened up. Journey times may also be reduced which is likely to benefit businesses such as delivery services.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	The project is likely to have a positive effect in reducing congestion as it has the potential to encourage more people to use public transport rather than relying on the use of private car.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There may be indirect positive effects for biodiversity due a decrease in the number of private cars as a result of the new public transport infrastructure. However, there is potential for negative effects on biodiversity, although this is dependent on the exact location of the route. If the route remains within the urban area of Peterborough, effects are likely to be negligible.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment has the potential to be negatively affected by the light rapid transit infrastructure. However, this will depend on the exact location and design of the improvements.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The landscape and townscape has the potential to be negatively affected by the introduction of the light rapid transit infrastructure. However, this will depend on the exact location and design of the improvements. By reducing the number of vehicles within the city, the project also has the potential to enhance the townscape.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	Soils, agricultural and greenfield land have the potential to be negatively affected by the project. However, this will depend on the exact location and design of the improvements. If the project is located within the urban area of Peterborough, effects are likely to be negligible.
10. Protect and enhance the quality of the water environment	? / -	The water environment has the potential to be negatively affected by the introduction of the new infrastructure. However, this will depend on the exact location and design of the improvements. If the project is located within the urban area of Peterborough, effects are likely to be negligible.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The infrastructure improvements as part of this project has the potential to be negatively affected by flood risk and also has the potential to contribute to the risk of flooding. However, this will depend on the exact location and design of the improvements.
12. Protect and improve local air quality, particularly in the AQMAs	++	The project has the potential to reduce the reliance on private car as well as reducing congestion, therefore resulting in air quality improvements.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	The project has the potential to reduce the reliance on private car as well as reducing congestion, therefore reducing GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	There is potential for the infrastructure improvements to affect climate resilience. However, this will depend on the exact location and design of the improvements.
15. Maximising the use and lifespan of existing transport infrastructure	- / +	The project is for the introduction of new transport infrastructure for Peterborough therefore negative effects have been identified. However, it may maximise the use of the road network by reducing the number of vehicles on the road and making it more efficient.

Summary:

The project is likely to improve accessibility to key services, particularly for those without a car, by providing an additional option for public transport. This may open up area which may have not be as easily accessible by public transport previously. Economic benefits are likely to result as the transport network will be more efficient and opportunities for employment will be more accessible. Through improving the public transport offering, the reliance on private car is likely to be reduce which will have subsequent benefits for air quality and GHG emissions. Health benefits are also likely as the local community will be able to access recreation and social opportunities as well as there being improvements to air quality. Effects on biodiversity, the historic environment, landscape and townscape, the water environment, flooding, soils and climate resilience are uncertain given that the exact location and design of the infrastructure improvements is unknown.

Table 34: Closure of Level Crossings

Intervention name	Closure of level crossings
Further Information	To improve safety and journey times
Local Authority	Peterborough
Current status	Ongoing (to 2025)
Location	Peterborough
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	There may be indirect positive effects on health given the project aims to reduce peak-traffic time congestion. This could lead to improvements to air quality and therefore benefits for health of the local population, however these are likely to be significant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+++	Level crossings are considered to be dangerous where vehicles and pedestrians can be hit by passing trains. The closure of level crossing is likely to significantly improve the health and safety of the road network and improving safety is a key driver for this project. The objectives also include embedding safe systems approach into all planning and transport operations to achieve Vision Zero – zero fatalities or serious injuries
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	There may be improvements in accessibility to key services through reducing peak-traffic congestion. A minor positive effect has therefore been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	There is potential for minor positive effects on the local economy given that congestion will be reduced and journey times improved. This will contribute to a more efficient and reliable transport network. By reducing the risk associated with level crossings, there may be economic benefits for network rail as well as reducing economic loss and burden from accidents for individuals, health services and businesses.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	By removing level crossing there is likely to be a reduction in road traffic congestion, particularly at peak times, therefore moderate positive effects have been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be any effects on biodiversity as a result of this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be any effects on the historic environment as a result of this project.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	+	There may be improvements to the townscape if the removal of level crossings prevents congestion. Minor positive effects have therefore been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be any effects on soils as a result of this project.
10. Protect and enhance the quality of the water environment	0	There is unlikely to be any effects on the water environment as a result of this project.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely to be any effects on flood risk as a result of this project.
12. Protect and improve local air quality, particularly in the AQMAs	+	By reducing congestion around the level crossings, there is likely to be less car idling, which will therefore lead to an improvement in local air quality. Minor positive effects have therefore been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	There is likely to be a reducing in GHG emissions given that traffic congestion will likely be reduced by the removal of level crossings.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	The project is unlikely to have any effects on climate resilience.
15. Maximising the use and lifespan of existing transport infrastructure	+	By removing the level crossings, the road network will be able to operate to its full potential as congestion will be reduced. This will maximise the use of the road network.

Summary:

The removal of level crossings is likely to significantly impact the health and safety of the transport network therefore major positive effects have been identified. Level crossings are considered to be dangerous and can lead to serious accidents for vehicles, pedestrians and cyclists. The removal of the level crossings will also likely lead to reduced congestion and improved journey times which will lead to benefits for the economy, accessibility, air quality and GHG emissions. There may also be improvements to the townscape if the removal of crossings reduces traffic congestion within a town, city or village. The use of the road network is also likely to be maximised. No effects have been identified for biodiversity, historic environment, soils, water environment, flooding and climate resilience.

Table 35: North Westgate Redevelopment

Intervention name	North Westgate Redevelopment
Further Information	Highway improvements are still being determined and these will be developed as part of the master planning process
Local Authority	Peterborough
Current status	Pre-feasibility (2021-25)
Location	North Westgate Redevelopment extends from Bourges Boulevard across to Lincoln Road, and from Bright Street on the north side to Westgate at the south.
Baseline	• Listed buildings within the proximity of the development area • Urban Grade Agricultural Land • Flood Zone 1 • River Nene approximately 1km from development area

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	The highway improvements may reduce congestion which could result in improvements to air quality and benefits for health. Minor positive effects have been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	There may be indirect positive effects on the health and safety of the road network as a result of the highway improvements associated with the North Westgate Redevelopment.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	The highway improvements associated with the North Westgate Redevelopment will likely increase accessibility, linking up this new mixed use development with other areas of the city.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The highway improvements will help to increase the accessibility to this new development. This will likely encourage businesses to locate there and attract visitors, benefitting and contributing to the local economy.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	There may be improvements to road traffic congestion as a result of the highway improvements. The North Westgate Development should consider accessibility from active and sustainable modes of transport alongside the highway improvements.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be any effects on biodiversity as a result of this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The project has the potential to negatively affect the historic environment. There a number of listed buildings within the proximity of the development area therefore improvements to the road surrounding the development site may have negative effects on the setting of these buildings.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / +	The townscape may be negatively affected during the construction phase of the highway improvements. However, there is potential for the improvements to reduce congestion and improve accessibility which will likely lead to improvements for the townscape. Mixed effects have been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be any effects on soils given the works will likely occur within a built-up urban area.
10. Protect and enhance the quality of the water environment	0	There is unlikely to be any effects on the water environment given the works will likely occur within a built-up urban area and appropriate drainage will likely be in place. There may be additional drainage required as part of the works and there is potential to consider Sustainable Urban Drainage Systems (SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	It is unlikely that the works will contribute to the risk of flooding given they will likely occur within a built-up area and appropriate drainage will likely be in place. There may be additional drainage required as part of the works and there is potential to consider SuDS. The North Westgate Development is located in Flood Zone 1 therefore the connecting highways are likely to be at a lower risk of flooding. However, there is an area of Flood Zone 2 and 3 to the south therefore if the improvements extend to this area, there may be a higher risk of flooding.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project has the potential to result in benefits for air quality if the highway improvements lead to a reduction in congestion.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project has the potential to result GHG reductions if the highway improvements lead to a reduction in congestion.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be any effects on climate resilience as a result of the project.
15. Maximising the use and lifespan of existing transport infrastructure	+	By improving the existing highways around the North Westgate Development site, the use and efficiency of the road network will likely be improved and its use maximised.

Summary:

The project aims to improve the highways around the proposed North Westgate Development in the city centre of Peterborough. The improvements have the potential to reduce congestion in this area of the city which will likely benefits air quality, GHG emissions and maximise the use and efficiency of the road network. The project will likely increase the accessibility of this development, connecting it with other areas of the city, which will help to contribute to the local economy and success of the development. There may also be positive effects on the townscape if congestion is reduced as a result of the project, however there may negative effects to the townscape during the construction phase. There is also potential for negative effects on the historic environment. No effects are anticipated for biodiversity, soils, the water environment and climate resilience. There is potential for the highway works to be affected by flooding, however this is uncertain given the exact location is unknown.

H.2 Projects in Greater Cambridge

Table 36: Newmarket to Cambridge Track Doubling

Intervention name	Newmarket to Cambridge Track Doubling
Further Information	Additional passing bays or full double tracking to enable increase in frequency to half hourly of services between Cambridge, Newmarket and Ipswich.
Local Authority	Cambridge
Current status	
Location	Railway line from Cambridge to Newmarket and Ipswich
Baseline	• 13 SSSIs: direct impact on Fulbourn Fen and Norton Wood SSSIs • 8 LNRs: direct impact on Coldham's Common; Needham Lane; and Bramford Meadows LNRs • 3 Ancient Woodlands: Hazel Wood and Norton Wood twice (rail passing through the woodland) • 5 scheduled monuments • 55 listed buildings: 3 in Bury St Edminds; 2 near Thuston directly along railway line and Stowmarket Station is listed • Agricultural Land Grades 2 and 3a • Passes within Flood zone 3 on multiple occasions • River Kennett, River Lark and River Gipping • AQMA Cambridge, AQMA A14 Corridor; AQMA Newmarket; AQMA St Edmundsbury Borough; AQMA Sudbury and AQMA Ipswich No.1 to 5

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	Minor indirect positive effect on population as the increased service frequency will encourage more train travel over travel by car, which may reduce air pollution and associated health problems.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	There is unlikely to be any direct effects on the health and safety of the transport network, however there may indirect positive effects if there is a reduction in the number of vehicles on the road which will contribute to reducing the likelihood of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	With increased frequency of train services between three city and towns, major positive effect is expected on accessibility to key services, employment and recreational areas for these communities.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	With additional passing bays and increased frequency of train services, major positive effect is expected on the transport network, thereby supporting and contributing to local economic growth and competitiveness.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	Increased frequency of train services will have major positive effect on the promotion of sustainable modes of transport and will also reduce the need to travel by car as the scheme is expected to offer more service options for travellers, which consequently will reduce congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / - -	There is potential for moderate negative effects on biodiversity and geodiversity as the existing rail line is near or runs along multiple SSSIs, LNRs and local wildlife sites. The scheme will potentially require additional land to accommodate the passing bays and double tracks and increase train frequency will increase disturbance to biodiversity. Furthermore, the existing rail line passes through three ancient woodlands.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / - -	There are multiple historic resources along the existing rail line, with the Stowmarket Station as a listed building on its own and passing through the Chippenham Hall registered park and garden. Additional train services may generate more vibration to the listed buildings, resulting in negative effect; though it may also be a change to protect these resources in the process. Additionally, subject to the construction methods to be adopted, there is potential for discovery in the process.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	Depending on the extent of additional passing bays and double tracks, there could be negative effect on landscape and townscape character, though minor as there is already an existing rail line. There may also be improvements to the townscape if the number of vehicles is reduced as a result of improved public transport.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	There are various Grade 2 and Grade 3a agricultural land next to the existing rail line in Kentford and Elmswell. Subject to the final design and approach to increase train service frequency, there may be minor negative effects.
10. Protect and enhance the quality of the water environment	? / -	Key moderate negative effect on the water environment will be potential pollution to River Kennett, River Lark and River Gipping where the existing rail line is now passing through, especially during construction stage (for example, site runoff or sewage from workers).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The existing rail line passes through area of Flood Zone 3 and is therefore at a higher risk of flooding. It is anticipated that some permanent land-take is required which will increase the flood risk for certain areas along the railway route. However, unlike roads, railway ballast is permeable which would help to reduce flood risk.
12. Protect and improve local air quality, particularly in the AQMAs	++	Increased train service frequency may reduce amount of car travel and hence reduced pollution and improved air quality locally and the 10 AQMAs which the existing railway line falls within.

SEA Objectives	Assessment	Summary of Effects
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	Increased train service frequency may reduce amount of car travel and hence reduced associated GHG emission, therefore contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	There is potential for the area of railway to be at risk from flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	Potential minor positive effect is expected from maximising the use of existing rail infrastructure, and potentially increasing the lifespan of the road network from directing car travel to train.

Summary:

The aim of the project is to increase frequency of train services which will promote the use of public transport with improved efficiency and potentially reduce road congestion as a result. This has the potential to benefit the health of the local community through improved air quality as well as improving the health and safety of the road network. However, the existing rail line passing through and/or run along multiple sensitive receptors, which may be subjected to minor to major negative effects, depending on the final design and approach of the project.

Table 37: A505 Corridor Study

Intervention name	A505 Corridor Study
Further Information	A strategic economic growth and transport study to include outline business case development for a scheme on the A505. Reduces congestion, supports key employment sites including Granta Park, Babraham and the Genome campus with potential growth of over 11,200 jobs.
Local Authority	South Cambridgeshire
Current status	Pre-feasibility
Location	Section 1: Starts at the roundabout where the A10 meets the A505 north of Royston to Duxford Air Base Section 2: Duxford Air Base 3 options; one north, one south and one widening Section 3: M11 J10 along the A505 to the roundabout with the A1301 4 options: realignment, south (short) and south (long) Section 4: roundabout with the A1301 along the A505 to A11 at Granta Park west of Great Abington Section 5: M11 Junction 9 2 options: reconfiguration or relocation
Baseline	• Section 1: – Holland Hall (Melbourn) Railway Cutting SSSI – One Grade II Listed Building right on the roadside 'Milestone at Junction of A505 and B1368' – One scheduled monument 'Bran Ditch: an Anglo-Saxon bank and ditch between Fowlmere and Heydon, including an Anglo-Saxon burial ground, a second of medieval lynchet and an Iron Age enclosure' scheme crosses this monument – Flood zones 2 and 3 where scheme crosses Wardington Bottom (drain) – Agricultural Land Grades 2 and 3 • Section 2: – SSSI Thriplow Peat Holes SSSI – One scheduled monument 'Roman Settlement S of Chronicle Hills' – 34 Grade II and II* listed buildings – Duxford Airfield Conservation Area (especially impacted by Option 2a) – Agricultural Land Grade 2 – Cambridge Greenbelt • Section 3: – Whittlesford Conservation area (potentially, Whittlesford Bridge Conservation Area) effected by option 3a, – One scheduled monument 'Chapel of the Hospital of St John at Whittlesford Bridge – Two listed buildings Grade II and Grade II* – Flood Zones 2 and 3 around the 'drain' east of Whittlesford, River Cam is located south of the A505 – Agricultural Land Grade 2 and 3 – Cambridge Greenbelt • Section 4: – Pampisford Conservation Area – One Registered Park and Garden Grade II* – One listed building on the roadside – One scheduled monument 'Two Moated Sites 150m east of College Farm' – Agricultural Land Grades 2 and 3 – Cambridge Greenbelt • Section 5: – One scheduled monument 'Roman Fort, Roman Town, Roman and Anglo-Saxon Cemeteries at Great Chesterford' – Water Environment: 'drain' main river (M11 crosses northbound of Junction) Flood Zones 2 and 3 – Agricultural land Grades 2 and 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	This project does not aim to improve the health of the population; however, the project suggests capacity improvements to resolve severe delays that are currently experienced on the A505 corridor in multiple locations. Although there are no AQMAs at the project locations, by improving capacity would result in minor to moderate positive effects to the local air quality due to reduced idling traffic which would have benefits for health of local residents.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	Improvements to the capacity of the A505 will have positive effects on the health and safety of this corridor as it will ease congestion in multiple locations and could result in fewer accidents. Therefore, a moderate positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas such as Granta Park, Babraham and Genome campus with the potential growth of over 11,200 jobs. Therefore, a major positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	Improvements to the capacity of the interchange will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. The improvements to the A505 will also support key employment sites such as Granta Park, Babraham and Genome campus with the potential growth of over 11,200 jobs. Therefore, a major positive effect is anticipated.

SEA Objectives	Project Assessment	Summary of Effects
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improvements to the capacity of the A505 corridor will have positive effects on reducing congestion. This will make public transport more reliable and efficient, however upgrading the A505 will not encourage people to take public transport. Therefore, a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	The options selected for each section will determine the protection of biodiversity. Online options will require less land-take than realignment or relocation options. Therefore, reducing the impacts on the SSSIs. However, offline options could have a minor negative effect on designated sites.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- -	The project sections are within close proximity to multiple Grade II and II* listed building, some are located on the roadside. These buildings could experience minor negative effects from vibration caused by increased traffic or from the construction of additional lanes. There could also be a minor negative impact on buried archaeology from widening the roads or realignment of the roads. There are multiple scheduled monuments within close proximity which the project could impact the setting of. The A505 corridor project could also have impacts on the multiple conservation areas and the Grade II* registered Park and Garden. Increasing the number of lanes will reduce congestion which may have positive effects on the setting of the Conservation Area. The addition of new lanes will alter the Conservation Area, however, given that there is an existing busy road effects are considered minor. Overall a moderate effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	-	Increasing the capacity of the A505 corridor by widening to a dual carriageway will reduce congestion which may have positive effects on the setting of the landscape. The addition of new lanes will alter the landscape, however, given that there is an existing busy road effects are considered minor. If boundary trees used for screening are removed this may have a bigger effect on the character of the landscape
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- - / -	The options selected for each section will determine the permanent land-take required for the project. The Grade of Agricultural land at the different sections of the project is Grades 2 and 3. Online options will require less land-take than realignment or relocation options. Therefore, dependent on the options chose, a minor to moderate negative effect is anticipated. Additionally, Cambridge Greenbelt could be impacted depending on the different options
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network along this corridor, are likely to increase the impermeable surface area and will therefore increase the risk of contaminated run-off. The River Cam and Wardington Bottom (drain) and drain to the east of Whittlesford are located within close proximity of the scheme. However, the updates required may require updated drainage which, although minor could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located at various points (in sections 1 and 3) in Flood Zones 2 and 3. Therefore, given the project would increase the impermeable surface area to allow for greater capacity along the A505, the project may contribute to the risk of flooding. Appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	+ / ++	The different project sections are not located in an area with an AQMA. This coupled with the improvements to alleviate congestion will reduce the number of cars queuing, which will result in minor improvements to the air quality. Therefore, a minor to moderate positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to improve alleviate the local highway congestion along the A505 corridor. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is partially located (in sections 1 and 3) in an area identified as being at risk from flooding. Therefore, increasing the impermeable surface area these locations through road improvements could increase the risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	- / +	Currently, there are different options for Sections 2, 3 and 5 of the A505 corridor such as online widening and realignment. A minor negative effect has been identified where current infrastructure will not be utilised such as Option 2b (northern realignment), Option 2c (southern realignment), Option 3b (northern realignment), Option 3c (southern realignment short), Option 3d (southern realignment long) and Option 5b (relocation). A minor positive effect has been identified for the remaining options as they shall maximise the current infrastructure and will require online widening.

Summary:

This project aims to improve orbital accessibility and alleviate congestion along the A505 corridor. Major positive effects are anticipated with regard to improving accessibility to key services and supporting and contributing to local economic growth by delivering an efficient transport network. Minor positive effects are anticipated for the health of residents local to the scheme locations and moderate positive effects on the overall health and safety of the A505 corridor by reducing congestion. Moderate negative effects are expected around the conservation of soils and the historic environment. Minor negative effects have been identified with regard to the landscape and townscape. There is also potential for negative effects on biodiversity, the water environment, flooding and climate resilience.

Table 38: Electrification of Rural Rail Routes

Intervention name	Electrification of Rural Rail Routes
Further Information	Electrification would allow electrically powered freight trains to serve Felixstowe Port from the north. It will also allow passenger services between Cambridge and Ipswich, Cambridge and Norwich, Peterborough and Ipswich and Stansted Airport and Birmingham New Street to be run using more widely available and flexible electric powered rolling stock. Lobbying for electrification of the following routes: • Felixstowe to Nuneaton (Newmarket to Peterborough in strategy area). • Cambridge to Newmarket. • Ely to Norwich.
Local Authority	Cambridge, East Cambridge, Fenland
Current status	
Location	Current rail routes between: • Cambridge Station to Newmarket Station • Ely Station to Norwich Station • Newmarket Station to Peterborough Station
Baseline	• Biodiversity :9 LNRs; 1 NNR; 27 SSSIs; 3 Ramsar; 3 SACs; 2 SPAs; 2 Ancient Woodland • Historic Environment: Multiple Grade II and II* listed buildings including Thetford, Attleborough, Wymondham and Norwich Station and the Great Northern Railway Bridge no. 184; 10 Scheduled Monuments; 1 Registered Park and Garden and 12 Conservation Areas • Water Environment: At multiple places within FZ 2 and 3, crosses multiple drains, dykes, brooks and main rivers • Cambridge Greenbelt • ALC land classes: urban, non-agricultural, Grade 1, 2, 3 and 4 • AQMAs: Cambridge AQMA, Central Norwich AQMA and Whittlesey AQMA

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	Given that the project has the potential to encourage more people to travel by public transport by making the rail service more reliant, there if potential for air quality improvements through reduced car use. The electrification of routes also allows for cleaner rail travel and therefore improvements in air quality and health benefits.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	This project will likely have a minor positive impact on the health and safety of the transport network. By making the network more reliable, there is the potential that more people would travel via train instead of cars reducing the number of private use cars on the roads, especially by connecting rural locations with larger towns. Therefore, a minor positive effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project will improve accessibility around the Combined Authority which will allow people to move more efficiently to key services, recreational areas and employment locations. A moderate positive impact has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	This project will support local economic growth and competitiveness through delivering reliable and efficient transport networks across the Combined Authority. Overall, it is anticipated that a moderative positive impact is expected.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	This project aims to improve the passenger services between Cambridge and Ipswich, Cambridge and Norwich, Peterborough and Ipswich, Stanstead Airport and Birmingham New Street. By making mode of transport more efficient and reliable, it would be expected that less people would travel by car subsequently reducing road traffic and congestion. A major positive effect would be anticipated.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / -	The project has the potential to impact multiple designated sites: nine LNRs, one NNR, 27 SSSIs, three Ramsar, three SACs, two SPAs and two ancient woodlands. The railway also crosses the Cambridge Greenbelt. It is anticipated that some of the designated sites will experience minor to moderate negative effects as no further land-take is required impacting on habitats and species.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- -	The project has the potential to impacts multiple listed buildings ranging from Grade II to Grade II* at various locations along the route including Thetford, Attleborough, Wymondham and Norwich Stations and the Great Northern Railway Bridge no. 184. There are 10 scheduled monuments within 100m.There are approximately 12 conservation areas and 1 Registered Park and Garden within 100m of the project. It is anticipated that the project would have a moderate negative effect on the setting of the historic environment.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- -	The project has the potential to have a negative effect on the diversity and distinctiveness of the landscape and townscape character depending on where the changes may be required along the railway. If these updates are required within an area close to a designated site or a schedule monument or conservation area it could have a moderate negative effect. Therefore, a moderate negative effect has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The scheme (depending on what upgrades are required where) could impact upon Grades 1, 2, 3, 4, non-agricultural and urban land type. A minor negative impact is expected because it is not anticipated to require permanent land-take.
10. Protect and enhance the quality of the water environment	0	This project is unlikely to enhance the quality of the water environment; however, any additional railway infrastructure would not increase flood risk in the same way roads would due to railway ballast being a permeable surface. Therefore, a neutral effect is anticipated.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0 / -	The project passes through multiple main rivers and drains and is within Flood Zones 2 and 3 at multiple points within the Combined Authority Area. It is anticipated that a small amount of permanent land-take is required which will increase the flood risk for certain areas along the railway route. However, unlike roads, railway ballast is permeable which would help to reduce flood risk. Therefore, an overall neutral to minor negative effect has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	++	This project could have a positive impact on improving local air quality by reducing the number of cars within town centres and cars that experience congestion. Reducing road congestion and numbers of cars on the road could have a minor to moderate positive effect on improving local air quality. The project rail routes go through Cambridge AQMA, Central Norwich AQMA and Whittlesey AQMA. The electrification of routes also has the potential to improve air quality.

SEA Objectives	Project Assessment	Summary of Effects
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+ / ++	This project could have a positive impact on minimising GHG emissions by reducing the number of cars on the road through making the rail network more effective and efficient for rural communities. This could have a minor to moderate positive impact on reducing GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	-	The project would not minimise or maximise the risk of flooding. The project is partially located in Flood Zone 2 and 3 and crosses multiple main rivers, therefore risks to flooding are still possible. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Therefore, a minor negative impact is expected.
15. Maximising the use and lifespan of existing transport infrastructure	++	This project will reuse at much of the pre-existing railway infrastructure and only update where required. Therefore, a moderate positive effect is anticipated.

Summary:

This project would allow electrically powered freight trains to serve Felixstowe Port from the north. It will also allow passenger services between Cambridge and Ipswich, Cambridge and Norwich, Peterborough and Ipswich and Stansted Airport and Birmingham New Street to be run using more widely available and flexible electric powered rolling stock. Lobbying for electrification of the following routes: Felixstowe to Nuneaton (Newmarket to Peterborough in strategy area); Cambridge to Newmarket; and Ely to Norwich. It is located across a large portion of the Combined Authority and has the potential to impact upon or be affected by multiple environmental constraints. The moderate negative effects that are anticipated as a result of the project are in relation to biodiversity and the historic environment, with multiple heritage assets such as scheduled monuments, conservation areas and listed buildings within close proximity of the current railway line, therefore any upgrades could impact negatively on these assets. There are also multiple designated sites which the current railway is within close proximity to or crosses through, therefore any updates could impact negatively on habitats and species. There are some key positives from the scheme to highlight such as reducing the need to travel by car, maximising the lifespan of existing transport infrastructure, and improving efficiency and reliability of the rail network to further improve accessibility to key services, recreational areas and employment.

Table 39: Coldham's Lane Improvements

Intervention name	Coldham's Lane Improvements
Further Information	Design phase of improvements to the junction of Coldham's Lane, Brooks Road and Barnwell Road, Cambridge. Aim to improve safety for cyclists. Remodelling roundabout to improve safety and provide crossings on each arm. Improved road safety encourages walking and cycling to major urban development of over 1,200 new homes in East Cambridgeshire.
Local Authority	Cambridge
Current status	Pre-feasibility
Location	Roundabout junction where Coldham's Lane, Brooks Road and Barnwell Road (A1134) meet in Cambridge
Baseline	• 3 LNRs: Barnwell, Barnwell II (closest to could impact slightly) and Coldham's Common • Cambridge Greenbelt • Close to Cambridge AQMA • Flood zones 2 and 3 where Cherry Hinton Brook crosses under Coldham's Lane and Barnwell Road • Unnamed Lakes to the south and Cherry Hinton Brook

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	This project is not aimed at improving the health of the population, it does have the intention of providing improved road safety at this roundabout junction which will help improve safety for pedestrians and cyclists, therefore encouraging walking and cycling. Therefore, a moderate positive effect is anticipated.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	Improvements to the roundabout to improve safety for cyclists will have positive effects on the health and safety of this junction as it will allow more cyclists to use the roundabout more safely and could result in fewer accidents. Therefore, a moderate positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+ / ++	Improvements to the junction will allow improved road safety, encourages walking and cycling to the major urban development of over 1,200 new homes in East Cambridgeshire. Therefore, a minor to moderate positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the junction will allow improved road safety, encourages walking and cycling will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	Improvements to the capacity of the interchange will have positive effects on reducing congestion and the need to travel by car, making the roundabout safer for cyclists and walkers. Reducing the need to travel by car could have the effect of making public transport more reliable and efficient, and will potentially encourage more people to use active forms of travel.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There are 3 LNRs to the north of the roundabout. Dependent on the re-modelling, there could be neutral impacts to these designated sites. The project is also located within the Cambridge Greenbelt.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There are no historic assets identified at the scheme location. Therefore, a neutral effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	+	Remodelling the roundabout will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered mixed.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The project is located on urban or non-agricultural land. It is therefore anticipated that the effect on soils would be neutral.
10. Protect and enhance the quality of the water environment	? / -	The remodelling to the roundabout is likely to take place on already impermeable surfaces. However, there is potential for contaminated run-off during the works. There are some unnamed waterbodies located adjacent to the south of the scheme and Cherry Hinton Brook.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zones 2 and 3 where Cherry Hinton Brook crosses under Coldham's Lane and Barnwell Road. The project is likely to take place on already impermeable surface area, however drainage may need to be updated as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	++	The project is not located in an area with an AQMA, however it is close to Cambridge AQMA. This coupled with the improvements of the roundabout, encouraging people to walk and cycle rather than drive will reduce congestion, which will result in improvements to the air quality. Therefore, a minor to moderate positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+ / ++	The project looks to make the Coldham's Lane roundabout safer for cyclists and walkers to use. Encouraging people to use other modes of transport other than cars. Also, by remodelling the roundabout this could reduce congestion at the junction. The project will help to reduce GHG emissions slightly, therefore, a moderate positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to improve the roundabout for use by walker and cyclists. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

This project aims to improve safety for cyclists at the Coldham's Lane roundabout to provide crossings on each arm. The improved road safety encourages walking and cycling and reduces private car use, which allows for positive effects on local air quality, minimising GHG emissions, health of the population, improving the health and safety of the transport system and reducing road traffic allowing for increased reliability of the public transport network and for greater efficiency and reliability of the transport network as a whole. Neutral and minor negatives of this scheme are with regard to flooding, the water environment, the historic environment, biodiversity and protection of soils.

Table 40: Cambridgeshire Rail Capacity Study

Intervention name	Cambridgeshire Capacity Study
Further Information	Strategic rail study identifying network constraints on the Cambridgeshire Rail network. Likely to overlap with other rail schemes e.g. Electrification of rural routes in Cambridgeshire and surrounding counties and Newmarket to Cambridge track doubling. Underpins strategic rail growth directly supporting jobs and housing.
Local Authority	Strategic
Current status	Pre-feasibility
Location	Study area covered Stanstead North junction, Ely, Chippenham and Meldreth
Baseline	• Flood zones 2 and 3 • Mostly within an AQMA (apart from Ely) • SSSIs, SACs and LNRs • Multiple listed buildings (especially around Chippenham and Cambridge) • Registered Parks and Gardens

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	The study is unlikely to have any direct effects on health. However, the study will eventually lead to increased rail capacity and improved rail services by increased reliability and frequency; thereby increased train usage over car travel. Reduced car travel will reduce vehicular emission, improving air quality and health of population.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	0	The study is unlikely to have any direct effects. However. network constraints may also be a cause to health and safety issues, which would be identified in the study and are expected to be addressed in the future.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	0	There is unlikely to be any direct effects. However, the study is expected to lead to increased rail capacity, which will directly improve the accessibility to key services, hence major positive effect.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	There is unlikely to be any direct effects. However, increasing rail capacity and addressing network constraints is expected to improve the overall efficiency of transport network, supporting local growth and competitiveness, therefore a moderate positive effect has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0	There is unlikely to be any direct effects. The study will eventually lead to increased rail capacity and improved rail services which will contribute to the promotion of sustainable transport and reduce the need for car travel. Therefore, a major positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be any direct effects. There are several SSSIs, SACs and LNRs around the existing rail network. Depending on the study findings and subsequent actions as a result (for example, proposed rail improvements), there is likely negative effect on the overall biodiversity in the area if major construction is involved. However, proposed rail improvements may also provide an opportunity for habitat enhancement which may result in a positive effect.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be any direct effects. There are multiple listed buildings, especially around Chippenham and Cambridge, with various registered parks and gardens within Cambridge city. However, taking into account of general development principles, direct impacts to these historic resources are not expected. However, subject to proposed improvements as a result of the study, there may be indirect negative effect (for example, vibration).
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	There is unlikely to be any direct effects. Depending on improvement works to be proposed as a result of the study, additional rail tracks are expected to increase the rail network capacity, which is expected to have a minor negative effect on the overall landscape and townscape character.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be any direct effects. Should new rail tracks be proposed as a result of the study, there may be a minor negative effect on quality of soils and loss of agricultural/greenfield land; though if contaminated land is identified in the process, remediation is likely.
10. Protect and enhance the quality of the water environment	0	There is unlikely to be effects on the quality of the water environment as the existing rail network is not in close proximity to existing waterbodies.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely to be any direct effects. If new infrastructure are proposed as a result of the study, flood risk measures are expected to be needed (as Cambridge and ELY are within FZ2 and 3), which will generate a moderate positive effect on the reduction of flood risk to transport infrastructure. However, there is unlikely to be effects on minimising contribution to flood risk.
12. Protect and improve local air quality, particularly in the AQMAs	0	There is unlikely to be any direct effects. The study will eventually lead to the increased of rail capacity and improved rail services by increased reliability and frequency; thereby increased train usage over car travel. Reduced car travel will reduce vehicular emission, improving air quality.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0	There is unlikely to be any direct effects. The study will eventually lead to the increased of rail capacity and improved rail services by increased reliability and frequency; thereby increased train usage over car travel. Reduced car travel will reduce vehicular emission therefore minimising GHG emissions and contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be any direct effects. There is unlikely to be effects on vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards, therefore a neutral impact has been identified.

SEA Objectives	Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	0	There is unlikely to be any direct effects. By identifying network constraints, improvement works can be proposed which are expected to maximise the use and lifespan of existing transport infrastructure, including the existing rail network.

Summary:

The study is unlikely to have any directive effects on the objectives; however the outcomes of the study will likely have effects. The improvement of existing rail network is expected to have a general positive effect on identified SEA objectives as it will contribute positively to the reliability and efficiency of a sustainable transport mode, improving overall environmental performance, and will support local community and economic growth. However, the effects on biodiversity and soils are subject to the details of the proposed improvement works.

Table 41: Girton Interchange Improvements

Intervention name	Girton Interchange Improvements
Further Information	Improvements to Girton Interchange
Local Authority	Cambridge
Current status	
Location	Girton interchange off A14
Baseline	• Cambridge Greenbelt • Close to Flood zones 2 and 3 • A14 corridor AQMA • Adjacent to Agricultural Land Grade 3b

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	There may be indirect positive effects if congestion is improved as a result of the project. This could lead to improvements to air quality and therefore benefits for health of the local population, however these are likely to be significant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improving the Girton Interchange may improve the overall safety with traffic entering/exiting M11/A14/A428 and reduce accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	Improvements may improve the traffic flow and relieve congestion at the interchange, leading to positive effect on accessibility to key services, employment and recreational areas.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	With potential improved accessibility and relieved congestion from better traffic flow at the improved interchange, a positive effect on the reliability and efficiency of the transport network is expected, thereby supporting local economic growth and competitiveness.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	There is likely to be reduced congestion as a result of the Girton Interchange project therefore a minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	Potential increased disturbances on biodiversity if traffic volume is increased as a result of interchange improvement (located within greenbelt).
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There are no historic resources in the vicinity of the Girton Interchange, therefore a neutral impact has been identified. However, depending on the works to be proposed, there is still a potential for discovery during construction.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	Improvement to the Girton Interchange is not expected to change the existing townscape character significantly, therefore a neutral impact has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	The project may require permanent land-take of Grade 3b agricultural land therefore resulting in minor negative effects.
10. Protect and enhance the quality of the water environment	? / -	There are no waterbodies in close proximity to the Girton interchange, therefore a neutral impact has been identified. However, the project may lead to an increase in the impermeable surface area which in turn could contribute to an increased risk of contaminated run-off.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The Girton Interchange is with Flood Zone 1, although there are areas of Flood Zone 2 and 3 are nearby. The project may lead to an increase in the impermeable surface area which may contribute to a higher risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	The improvements may help to reduce congestion which will lead to air quality improvements. However, there may be an increase the number of vehicles as a result of the improvements which may lead to deterioration in air quality from increased vehicular emission, therefore minor negative effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	There may be reductions in GHG emissions from reduced congestion as a result of the works. However, there may be an increase in the number of vehicles the interchange improvements which may lead to increased GHG emission from vehicles, therefore minor negative effect has been identified.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to increase the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	Improving the Girton interchange is expected to maximise the use and lifespan of existing transport infrastructure, therefore a minor positive effect has been identified.

Summary:

Improvement to the Girton Interchange is expected to have positive effect on the general traffic flow in the area, improving accessibility and the health and safety of the network. This may also lead to a reduction in congestion and GHG emissions whilst improving air quality. However, if the volume of traffic is increased, there is potential for negative effects on air pollution and GHG emissions. Potential negative effects have also been identified for biodiversity, soils, the water environment, flooding and climate resilience.

Table 42: Greenways Development

Intervention name	Greenways Development
Further Information	Creating a high-quality network of 12 separate Greenway routes to connect local villages with Cambridge city. Each Greenway has its own timetable. Consultation has finished on two routes (Barton and Haslingfield) and is underway on a further 2 (Fulbourn and Waterbeach). A programme of 'quick wins' has been identified and these are now under construction.
Local Authority	Cambridge
Current status	
Location	Cambridge and the wider area – 12 separate Greenway routes from the following towns into Cambridge: Waterbeach; Horningsea; Swaffham; Bottisham; Fulbourn; Linton; Sawston; Melbourn; Haslingfield; Barton; Comberton and St Ives
Baseline	• 22 SSSIs: Thriplow Peat Holes; Barrington Chalk Pit; Fulbourn Fen; Furze Hill; Fowlmere Watercress Beds; Great Wilbraham Common; Madingley Wood; Hardwick Wood; Stow-cum-Quy Fen; Triplow Meadow; Overhall Grove; Whittlesford-Triplow Hummocky Fields; Fleam Dyke; Wilbraham Fens; God Magog Golf Course; Roman Road; Traveller's Rest Pit; Cherry Hinton Pit; Dernford Fen; Histon Road; Sawston Hall Meadows; and Alder Carr • 14 LNRs: Barnwell; Barnwell II; Bramblefields; Byron's Pool; Coldham's Common; Mare Fen; Logan's Meadow; Limekiln Close (and West Pit); East Pit; Worts Meadow; Sheep's Green and Coe Fen; The Beechwoods; Paradise; and Nine Wells. • 2 Ancient Woodlands: Madingley Wood; another Ancient & Semi-Natural Woodland with no name. • Large number of listed buildings and scheduled monuments • Flood zones 2 and 3 • A14 Corridor AQMA and Cambridge AQMA • River Cam • Agricultural Land Grade 2, 3a and 3b • Registered Parks and Gardens

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+++	The Greenways will promote cycling and walking, which will generate health benefits, but also potentially the need for car travel, thereby reducing air pollution. Furthermore, routes proposed so far cover a wide area, reducing inequalities between areas. Therefore, major positive effects have been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	The introduction of designated walking and cycling routes will reduce the likelihood of road accidents with between different types of road users. Therefore, minor positive effect has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	The Greenways Development will provide designated walking and cycling routes connecting different areas around the Cambridge city, which is expected to have major positive effect on accessibility especially to recreational areas for all areas of the community in Cambridge.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	There is potential for minor positive effects given that the project aims to increase accessibility by walking and cycling. This may also have indirect positive effects on making the road network more efficient.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	Provision of designated walking and cycling routes will have major positive effects on the promotion of sustainable transport modes and reducing the need for car travel.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There are multiple SSSIs, LNRs and ancient woodlands along the 12 proposed routes. There are potential minor negative effects on overall biodiversity and geodiversity associated with the introduction of cycling routes as it may increase human disturbances from recreation use and construction.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	There are large number of listed buildings, scheduled monuments and registered parks and gardens along the 12 proposed routes. Subject to detailed design of these routes, there is a potential for minor negative effect, though unlikely.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	Potential minor negative effects on townscape and landscape character is expected from the introduction of walking and cycling routes branching out to nearby towns within Cambridgeshire. However, there may also be benefits if the number of vehicles are reduced as a result of the project.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	There are various Grade 2, 3a and 3b agricultural along the 12 Greenway routes, therefore subject to final route design, there may be minor negative effects from encroaching onto these areas.
10. Protect and enhance the quality of the water environment	? / -	Two of the proposed routes (Waterbeach and Haslingfield) next to and/or crosses River Cam, where existing greenway already exist and works involved are expected to be enhancement, widening or additional route across the River. Considering these areas fall within a Flood Zone 2 and 3, potential minor negative effect on the river is expected if construction is carried out during wet season. Moreover, depending on construction method, site runoff may potentially have a negative effect on the water environment.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Given the areas potentially fall within areas at higher risk of flooding, the routes may be at risk of flooding. The project may also increase the impermeable surface area which can contribute to a higher risk of flooding. Appropriate drainage will need to be considered.
12. Protect and improve local air quality, particularly in the AQMAs	+++	Major positive impact on local air quality, particularly the A14 Corridor AQMA and Cambridge AQMA which this project falls within. The provision of new or improved walking/cycling/equestrian routes may reduce car travel and associated air pollution.

SEA Objectives	Assessment	Summary of Effects
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+++	Major positive effect on minimising GHG emissions from the potential reduction in car use, hence associated emissions, and Cambridgeshire's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	There may an increase in the impermeable surface area. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	0	There is unlikely to be effects on transport infrastructure, therefore a neutral impact has been identified.

Summary:

The proposed 12 greenways span across different areas within Cambridgeshire, include multiple SSSIs, LNRs and ancient woodland; therefore, there is likely to be minor negative effects from increased human / recreational disturbance, and to landscape and townscape character. Furthermore, two of the routes are within Flood Zone 3 and along the River Cam; consequently, potential minor to moderate negative effect on flood risk and water environment has been identified. Nevertheless, the project will promote and encourage the use of sustainable transport mode, including walking and walking, and therefore has a general positive effect on human health (benefits from the activity), air quality (reduced car travel).

Table 43: Jesus Green Lock

Intervention name	Jesus Green Lock
Further Information	Upgrades to cycling routes and resolve crossing (new bridge) in the vicinity of Jesus Green Lock existing pedestrian bridge.
Local Authority	Cambridge
Current status	
Location	Jesus Green, Cambridge
Baseline	• Listed buildings with Jesus Green Lock House most at risk • Flood zones 2 and 3 • River Cam • Cambridge AQMA

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	Moderate positive effects are expected from the health benefits generated from cycling, which is expected to be more encouraging from the route upgrades and new bridge crossing. There may be a reduction in car travel as a result of the upgrade which may lead to health benefits through improvements in air quality.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	There is likely to be improvements to the health and safety of the road network given the project aims to resolve crossing issues by providing a new bridge. Cyclists will therefore be able to travel safer.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Upgraded cycling routes and new bridge crossing will improve the overall accessibility in an area where cycling is common. Hence, moderate positive effect has been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	There is unlikely to be effects on the economy, therefore a neutral impact has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	Major positive effect is expected as the upgrade of cycling routes and new bridge crossing will encourage more sustainable transport mode, and improved accessibility will potentially reduce the need for car travel.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be effects on biodiversity, where any disturbance during construction of the new bridge is expected to be minor and temporary. Hence a neutral impact has been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / 0	There are several listed buildings in close proximity to the project, which may or may not cause negative effects, depending on details and methods of the proposed works. However, it is more likely that these listed buildings will be protected during construction stage and there will be no effects.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / 0	Upgrading of the existing cycling routes is not expected to have any effects on the landscape and townscape character. However, depending on new bridge design, it may have a minor negative effect.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on soil quality and loss of loss of agricultural / greenfield land, or opportunities to remediate contaminated land. Therefore, a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	? / -	There will be potential minor negative effects on River Cam which the proposed new bridge will be crossing, especially during construction if appropriate measures are implemented; and potentially increased runoff into the river.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely to be effects on transport infrastructure, nor flood risk to it, therefore neutral impact has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	++	Although cycling is fairly common in the area, upgrade of existing cycling route and provision of new bridge crossing is expected to further encourage cycling, potentially reducing vehicular and improve air quality locally and within the Cambridge AQMA.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	Although cycling is fairly common in the area, upgrade of existing cycling route and provision of new bridge crossing is expected to further encourage cycling, potentially reducing GHG emissions from car travel and improve air quality locally and within the Cambridge AQMA.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be effects on vulnerability to climate change by minimising flood risk. Therefore, a neutral impact has been identified.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project is expected to encourage more cycling activities over car travel, which will potentially reduce traffic volume and delay road surface deterioration, thereby maximising the lifespan of existing transport infrastructure. Therefore, a minor positive effect has been identified.

Summary:

Positive effects are generally expected from the project as it will encourage cycling with improved routes and accessibility, improving air quality and having benefits for the health of the local population whilst making the transport network safer. However, as the existing routes and proposed bridge will be along and/or across the River Cam, there will be potential negative effect on water environment.

Table 44: Mill Road Railway Bridge Widening

Intervention name	Mill Road Railway Bridge Widening
Further Information	Widen existing bridge or new cycle bridge.
Local Authority	Cambridge
Current status	
Location	Mill Road Bridge, Cambridge
Baseline	• Cambridge AQMA • 11 listed buildings including Cambridge City Branch Library

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The outcome of this project, regardless of its delivery form, will encourage and allow more cycling, generating health benefits from the activity, hence a moderate positive impact on population health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	Widening or provision of new cycle bridge will provide a safer environment for road users, including drivers and cyclists, reducing the likelihood of accidents. Therefore, moderate positive effect is expected.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	As one of the roads for entering/exiting the Cambridge city centre, the provision of addition cycle path will improve accessibility to and from the city centre, where key services, employment and education areas are. Therefore, moderate positive effect is expected.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The reliability and efficiency of transport network may benefit indirectly with less cars on the road from potential increase in cycling, thereby having a minor positive contribution to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	A new cycle bridge or widened bridge to accommodate cyclists will provide a safer environment for cycling, and therefore a major positive effect on the promotion of sustainable transport mode, reduction in need for car travel and traffic congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be effects on biodiversity, therefore a neutral impact has been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- -	Abutment of the western end of the existing bridge is located immediately next to a Grade II listed building, which may be subject to direct and/or indirect impact during construction stage. Therefore, a moderate negative effect is expected.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	?	The nature of effects will be dependent on the final design of the new/widened bridge. No effect is expected on the townscape character if the widened/new bridge is designed to be consistent with existing surrounding, and vice versa if a modern design is used which contradicts with the overall environmental setting.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on the quality of soil and nor loss of agricultural/greenfield land, and unlikely to be opportunity to remediate contaminated land. Therefore, a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	0	There are no waterbodies around the existing bridge, and the project does not contribute to the water quality protection. With the assumption that if a new cycle bridge is built, it will be close to the existing bridge. Therefore, no effects on the quality of water environment is expected.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely effects to flood risk to transport infrastructure nor would the project contribute to minimising flood risk; therefore, a neutral impact has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	++	Provision of cycle paths will reduce the need for car travel, reducing associated emission thereby improving air quality locally and for the Cambridge AQMA.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	Provision of cycle paths will reduce the need for car travel, reducing associated GHG emission and reducing Cambridgeshire's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be effects on the reduction of vulnerability to climate change by minimising the risk of flooding, therefore a neutral impact has been identified.
15. Maximising the use and lifespan of existing transport infrastructure	+	Minor indirect positive effect is expected on the lifespan of existing transport infrastructure if the need for car travel is reduced from increased cycling, which will reduce pressure on road condition/maintenance.

Summary:

While the approach for providing bike access is yet to be confirmed, positive effects are generally expected from this scheme as it will encourage and allow more cycling, contributing and generating a range of benefits to the environment, human health and safety. However, depending on the construction method to be used, there may be potential moderate negative effect on a listed Grade II building located immediately next to the bridge abutment.

Table 45: Mitigation of Local Impacts of Waterbeach Development

Intervention name	Mitigation of Local Impacts of Waterbeach Development
Further Information	Package of schemes to mitigate development impacts. Includes wider Waterbeach pedestrian / cycle network.
Local Authority	Cambridge
Current status	
Location	Waterbeach
Baseline	• Cambridge Greenbelt • 2 scheduled monuments and multiple listed buildings within Waterbeach • A14 Corridor AQMA • Flood zones 2 and 3 • River Cam • Agricultural Land Grade 2 and 3

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The provision of a pedestrian cycle network will encourage more cycling, where the activity itself will generate health benefits. There is potential for car travel to be reduced as a result from the bus, rail and active travel measures therefore resulting in health benefitsts from improved air quality.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+++	Proposed measures such as level crossing, improved road access for vehicles and pedestrians and signal adjustments, will all have major positive effects on the overall health and safety of the transport network within the Waterbeach area, and reducing the number of accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	The aim of this scheme is to mitigate the travel impact and needs from the population influx of the proposed Waterbeach Development (11,000 dwelling). The relocation of railway station, provision of pedestrian cycle network and improved bus network will improve overall accessibility for the Waterbeach community.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The proposed transport measures will not only improve local accessibility, but also provide connection to the Cambridge city centre, thereby supporting and contributing to economic grown and competitiveness.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The scheme consists of a variety of transport packages, where the provision of pedestrian cycle network and improved bus and rail network will contribute to the promotion of sustainable transport mode and potentially the need for car travel. However, effects on road traffic and congestion is yet to be determined.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There is unlikely to be effects on biodiversity as the proposed scheme is to address transport needs of new developments which will occur regardless. However, the transport infrastructure may lead to land-take and biodiversity loss therefore there is potential for negative effects.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The proposed greenway and new bus link will run across or pass multiple listed buildings and a few scheduled monuments. Subject to detailed design of these schemes, there may be opportunity to maintain / protect on these resources but may also cause direct and indirect negative effects from construction.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	This scheme aims to introducing multiple transport infrastructure projects to the area. This may lead to a change in landscape, depending on where the projects are location.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	There is potential for effects on soils or loss of agricultural/greenfield land if the new transport infrastructure requires land-take. However, the schemes are expected to be in the vicinity of existing infrastructures and therefore neutral impact has been identified.
10. Protect and enhance the quality of the water environment	? / -	The package of schemes are not located in close proximity to any waterbodies, therefore there is unlikely any effects on the water environment. However, there may be an increase in the impermeable surface area which could lead to an increased risk of contaminated run-off.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located within Flood Zone 2 and 3 and is therefore at a higher risk of flooding. There may be an increase in the impermeable surface area as a result of the new transport infrastructure associated with this project. This has the potential to contribute to the risk of flooding therefore appropriate drainage will need to be considered alongside the project.
12. Protect and improve local air quality, particularly in the AQMAs	0 / +	Although the package of schemes is to accommodate more traffic, the increased traffic volume is not induced by the project but the Waterbeach Development and therefore neutral impact has been identified in this regard. However, as the schemes focus on sustainable transport mode, there is potentially positive effect on air quality locally and within the A14 Corridor AQMA.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	0 / +	Although the package of schemes is to accommodate more traffic, the increased traffic volume and hence associated GHG emission, is not induced by the project but the Waterbeach Development and therefore neutral impact has been identified in this regard. However, as the schemes focus on sustainable transport mode, there is potentially positive effect on minimising GHG emission and reducing Cambridgeshire's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to increase the impermeable surface. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.

SEA Objectives	Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	++	The package of schemes involves provision of new transport infrastructure for accommodating future transport need which the existing infrastructure may not have to capacity to handle. Existing transport infrastructure will be relieved from potential stress from new developments, thereby maximising its lifespan.

Summary:

This scheme is to mitigate the traffic and transport impact associated with the Waterbeach Development and therefore will generally have a positive effect on the SEA objectives especially it involves the provision and promotion of sustainable transport modes (walking, cycling, public transport). There is potential for negative effects on biodiversity, the historic environment, the landscape, soils, the water environment, flooding an climate resilience.

Table 46: Newmarket West Chord

Intervention name	Newmarket West Chord
Further Information	New chord to enable direct services between Soham, Newmarket and Cambridge.
Local Authority	East Cambridgeshire
Current status	
Location	Along the railway between Ely, Soham, Newmarket and towards Cambridge
Baseline	• Ely Pits and Meadows SSSI • Partially within Flood zone 2

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	Indirect minor positive effect on population health is expected from the potential reduction in air pollution from the diversion of car travel to the resumed train service.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	There is potential for indirect effects on the health and safety of the transport network given that the project may lead to a reduction in the number of vehicles on the road.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	The provision of direct train services to and from Soham, Newmarket and Cambridge city will have major positive effect on accessibility to key services, employment and recreational areas for these communities, as it will avoid the need for service change.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The resumed direct train service will increase the efficiency of transport network, improving accessibility, thereby supporting and contributing to the local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+++	The direct train service will encourage people to use public transport rather than car travel as it will be more convenient, consequently reducing road traffic and congestion. Therefore, major positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - -	With the Ely Pits and Meadows SSSI immediately next to and within the 'Newmarket west curve', reinstating the rail and provision of train services will introduce new disturbance to the nationally important SSSI which supports a variety of breeding and wintering birds. The SSSI is also a Geological Conservation Review site.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be effects on the historic environment, therefore a neutral impact has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	As the project only involves the reinstatement of the existing Newmarket west curve where no significant changes to the overall appearance is expected. Therefore, a neutral impact has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- / 0	Depending on the reinstatement works involved, there is unlikely to be effects on the quality of soils if it is confined within the existing track area. However, should there be any extension, or accidental encroachment, there may be minor negative effect.
10. Protect and enhance the quality of the water environment	-	Construction site runoff may potentially affect the open waters in Ely Pits and Meadows SSSI, therefore minor negative impact has been identified.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Part of the route is located within Flood Zone 2 therefore potential for flood risk exists. There may be an increase in flood risk from the introduction of the new railway.
12. Protect and improve local air quality, particularly in the AQMAs	+	The provision of direct train service is likely to have minor positive effects on local air quality as it may reduce pollution from car travel. Although the Newmarket West Curve is not located within an AQMA, the resumed direct train service will pass through three other AQMAs, which will also benefit from the potential reduction.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The provision of direct train service is likely to have minor positive effects as car trips may be reduced and therefore associated GHG emission.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The new railway may contribute to an increase risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues.
15. Maximising the use and lifespan of existing transport infrastructure	+++	Reinstating the existing Newmarket west curve will maximise the use of existing transport infrastructure and therefore major positive effect has been identified.

Summary:

The reinstatement of the existing Newmarket West Chord will mainly have positive effects as it will improve public transport, accessibility by public thereby supporting growth, and improve air pollution by direct car trips to train travel. However, as the Newmarket west curve is located within a SSSI of nationally importance in supporting breeding and wintering bird, which is also a geological conservation review site, there may be potential negative effects from the resumed train service causing increased disturbance.

Table 47: Riverside Improvements Phase 2 between Priory Road and Stourbridge Common

Intervention name	Riverside Improvements Phase 2 between Priory Road and Stourbridge Common
Further Information	Public realm improvements
Local Authority	Cambridge
Current status	
Location	South-east of Chesterton, Cambridge
Baseline	• Three LNRs: Logan's Meadow adjacent to the river • One scheduled monument adjacent to the river and four listed buildings • Cambridge AQMA • Flood Zone 3 • River Cam

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	Minor positive effects from improved public realm allowing a relaxing environment along the River which may improve health and wellbeing.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	0	There is unlikely to be effects on the health and safety of the transport network, therefore a neutral impact has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	There are potentially minor benefits to accessibility from improving public realm along the riverside, providing a more pleasant and safe environment which users feel they can walk along comfortably.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	The project is expected to contribute to the creation of a safe transport network which will support and contribute to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+	Improved riverside will encourage public to walk as it will provide a better environment, therefore minor positive effect is expected.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There is a LNR located next to the river, the project is unlikely to have any effects on the LNR or biodiversity in the area. However, this will be dependent on the extent and design of the works although a significant negative effects is unlikely.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	There are a few listed buildings along the riverside which may be subjected to minor negative or no effects, depending on the improvement works to be involved.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	+++	Public realm improvements to the riverside is expected to contribute positively by maintaining and enhancing the distinctiveness of the townscape character.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on the quality soils and loss of agricultural/greenfield land, therefore a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	? / -	Depending on the type of improvement works to be proposed, considering the close proximity to the River Cam, there is potential minor negative effects during the works, mainly from site runoff into the river. Appropriate drainage will need to be considered as part of the project.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located adjacent to the River Cam and is in an area of Flood Zone 3, and an area benefitting from flood defence, therefore there is a potential risk of flooding. The improvements may increase the impermeable area though new footpaths, however this will be dependent on the extent of works. Appropriate drainage will need to be considered.
12. Protect and improve local air quality, particularly in the AQMAs	+	Improved public realm will encourage more walking and reduce the need to travel by car, thereby reducing vehicular air pollution, having a positive effect on air quality locally and the Cambridge AQMA.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Improved public realm will encourage more walking and reduce the need to travel by car, thereby reducing vehicular GHG emission, having a positive effect Cambridgeshire's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located within Flood Zone 3 where a small part of the area is benefited from existing flood defence. There is potential for an increase in impermeable surface, however this will be dependent on the extent of works. Depending on the proposed improvement works, there could be opportunities for including additional flood defence along the river generating positive effects on the reduction of vulnerability to climate change be minimising the risk of flooding. If flood defence is not included, the project is not expected to have an effect.
15. Maximising the use and lifespan of existing transport infrastructure	0	There is unlikely to be effects on the use and lifespan of existing transport infrastructure, therefore a neutral impact has been identified.

Summary:

Improving the riverside environment is anticipated to have benefits for health and wellbeing and for the townscape through improved public realm given that it will promote the use of active travel. There is also potential for the project to improve accessibility, support economic growth, improve air quality and reduce GHG emissions. There is potential for negative effects on biodiversity, the historic environment, the water enevironment, flood risk and climate resilience.

H.3 Projects in East Cambridgeshire

Table 48: Queen Adelaide Road Study

Intervention name	Queen Adelaide Road Study
Further Information	Highway scheme to mitigate the impact of increased periods of level crossing closures.
Local Authority	East Cambridgeshire
Current status	
Location	3 level crossings along the B1382 in Queen Adelaide. 3 crossing are with the railway lines for Peterborough, Kings Lynn and Norwich.
Baseline	• Ely Pits and Meadows SSSI • Agricultural Land Grade 1 and non-agricultural • Flood zones 2 and 3 (apart from Peterborough crossing) • Crosses River Great Ouse but whole project is in area benefitting from flood defences

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0 / +	It is unlikely that the level crossing improvement will have an effect on the health of the population. However, the project aims to reduce congestion and therefore idling cars. Therefore, a neutral to minor positive effect is anticipated due to increased air quality for local residents.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	Improvements to the period of time the level crossings are closed will have positive effects on the health and safety of these levels crossings as it will ease congestion and could result in fewer accidents. Therefore, a minor positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+ / ++	Improvements to the level crossings will have positive effects on reducing congestion which will help to improve accessibility to key services, employment and recreational areas, for both road traffic and rail traffic. Therefore, a minor to moderate positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	Improvements to the level crossings will have positive effects on reducing congestion which will help to improve reliability and efficiency of the transport network which will have a positive impact on supporting and contributing to the local economic growth of the area. Therefore, a minor positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0 / +	Improvements to the level crossings will have positive effects on reducing congestion. This will make public transport more reliable and efficient, however upgrading the junction will not encourage people to take public transport. Therefore, a neutral to minor positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	Ely Pits and Meadows SSSI is located within 1km of the scheme. There is a small possibility for the project to have negative impacts on this site. In addition, there is no greenbelt affected by this project.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There are no historic assets identified at the scheme location. Therefore, a neutral effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0 / -	Increasing the period of level crossing closure along Queen Adelaide road will reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure will alter the landscape, however, given that there is an existing busy road effects are considered neutral to minor negative.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0 / -	The level crossing improvements along Queen Adelaide road are located within Grade 1 and non-agricultural land. Depending on the improvements to the level crossings, permanent land-take may be required. Therefore, a neutral to minor negative effects are anticipated.
10. Protect and enhance the quality of the water environment	? / -	The enhancements to the road network at the level crossings could increase impermeable surfaces which could contribute the risk of contaminated run-off. There are some waterbodies located close to the scheme and Queen Adelaide road crosses the River Great Ouse. Any enhancements to this section of road could result in reduced protection of the water environment, however the project is located in an area benefitting from flood defences and there is potential for enhancements to the infrastructure and its drainage such as SuDS.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is located in Flood Zone 2 and 3, apart from the Peterborough level crossing. Therefore, if the scheme requires infrastructure improvements in the shape of more lanes, this would increase the impermeable surface area. Improved drainage on the current infrastructure combined with the fact that the project is located within a Flood Zone, could result in increased flood risk.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is not located in an area with an AQMA. This coupled with the improvements to alleviate congestion along Queen Adelaide road will reduce cars queuing, which will result in minor improvements to the air quality. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project looks to alleviate congestion at these level crossings. Reducing the congestion will help to reduce GHG emissions slightly but could also see an increase in road users, therefore a minor positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located in an area identified as being at risk from flooding. Therefore, increasing the impermeable surface area through road improvements could increase the risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The project aims to update the current infrastructure to mitigate the impact of increased periods of level crossing closures to ease the congestion. This would be utilising the current infrastructure; however, it will also be updating the current infrastructure, therefore an overall minor positive effect is anticipated.

Summary:

This project aims to mitigate the impact of increased periods of level crossing closures and relieve congestion through improving existing links and developing a more flexible network. Minor negative effects are anticipated with regard to biodiversity, the water environment risks of flooding and climate resilience. Minor positive effects have been identified with regard to maximising the current infrastructure, reducing GHG emissions, improved air quality, and health of local residents and improved health and safety with a more efficient transport network. Neutral effects have been identified for the protection of soils, maintaining the landscape and townscape and the historic environment.

Table 49: Improved Parking and Access Facilities at Littleport Station

Intervention name	Improved Parking and Access Facilities at Littleport Station
Further Information	Additional car and cycle parking, improved access for all users.
Local Authority	East Cambridgeshire
Current status	
Location	Littleport Station, Littleport
Baseline	• Great River Ouse and Holmes River • Within area benefitting from flood defences

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	Minor positive and negative effects are expected on population health, where additional cycle parking will encourage cycling to the station, generating positive health impact from the activity; while additional car parking will cause minor increase in vehicular emission causing negative impact on health associated with air pollution.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	0	There is unlikely to be effects on the health and safety of the transport network, therefore a neutral impact has been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Moderate positive effects are expected on accessibility from additional car and cycle parking at the Littleport Station, which would improve convenience for train rides connecting to other areas.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	Although accessibility is expected to improve, additional parking is not expected to contribute to the reliability and efficiency of transport networks, hence a neutral impact has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	- / +	Additional cycle parking will promote the use of sustainable transport mode to and from the station, reducing the need for car travel, generating positive effects. However, additional car parking will also encourage more car travel, hence a negative effect.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	While there are no designated sites in close proximity to the Littleport Station, the proposed additional car and cycle parking is expected to be from the existing car park or nearby land. This will require land-take and may involve the removal of tree which could result in biodiversity loss.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be effects on historic environment given there are no historic assets located within the vicinity of the Littleport Station. There is potential for construction to lead to a potential discovery. However, a neutral impact has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	Depending on the final location of the proposed additional parking which is assumed to be either extension of existing carpark or land adjacent to the station, there is potential to be effects on landscape given that it is currently open countryside.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	If the surface of the proposed additional parking will be paved with concrete or bitumen or other similar materials, there may be potential soil compaction, leading to minor negative effect on soil quality. This is likely to be land-take required for the additional surfaces.
10. Protect and enhance the quality of the water environment	? / -	Although the Littleport Station is in close proximity to River Great Ouse, the additional parking is unlikely to have effects on the River, considering the station is separated by a road and rail track. There is will likely be an increase in the impermeable surface area which could contribute to an increased risk of contaminated run-off. Appropriate drainage will need to be considered alongside the project.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Littleport Station is located within an area benefitting from flood defences. However, the project will likely lead to an increase in the impermeable surface area which could contribute to the risk of flooding. There will need to be appropriate drainage systems considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	The Littleport Station is not within any AQMA. Minor positive and negative effect is expected on air quality from potential increased in cycling and increased car travel respectively. There is potential for further air quality improvements as the project may encourage more people to leave their car and take the train for longer journeys.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	Minor positive and negative effect is expected on GHG emission from potential increased in cycling and increased car travel respectively. There is potential for further GHG reductions as the project may encourage more people to leave their car and take the train for longer journeys.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will likely increase the impermeable surface area which could contribute to the risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The provision of additional car and cycle parking will encourage train travel, having a positive effect on maximising the use of existing transport infrastructure.

Summary:

As the project involves the provision of both car and cycle parking at the Littleport station, it is expected to have both positive and negative effects on air quality, GHG emissions and human health. While major positive effect on accessibility has been identified as it is expected to allow more capacity for train passengers who travel to the station by car or bike. The project may encourage more people to use the train for longer journeys, rather than taking the car. There is potential for negative effects on biodiversity, the landscape, soils, the water environment, flooding, the water environment and climate resilience.

Table 50: Pedestrian and Cycle Bridge – Henley Way to Merivale Way

Intervention name	Pedestrian and Cycle Bridge – Henley Way to Merivale Way
Further Information	Bridge between Henley Way and Merivale Way. Linking two large housing developments and connecting into the Lisle Lane route. This route would also connect up the Ely North development.
Local Authority	East Cambridgeshire
Current status	
Location	Henley Way and Merivale Way in Ely
Baseline	• Ely Pits and Meadows SSSI (Ely Pits also known as Roswell Pits)

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	Provision of pedestrian and cycle route will generate health benefits from walking and cycling, while potential reduction in car travel will reduce air pollution and contribute positive to associated health issues.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	There may be moderate positive effect on the safety of transport network as the designated pedestrian and cycle bridge will provide a safe environment for users to access nearby areas, reducing the likelihood of car-pedestrian accidents.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	The new bridge will provide the missing link to the Lisle Lane route and connect to Ely North, improving overall local accessibility.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	There is unlikely to be effects on the reliability and efficiency of transport networks. Therefore, a neutral impact has been identified.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	Moderate positive effects are expected given the project will likely promote and encourage the use of cycling and walking. This could lead to a reduction in car travel and therefore improving congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	Although the project is of small scale, it is immediately next to the Ely Pits (also known as Roswell Pits) and Meadows SSSIs, potential negative effect is expected from construction and operation (disturbance from potential increased recreational use).
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	There is unlikely to be effects on the historic environment, therefore a neutral impact has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / +	The bridge structure may change the existing environment and cause minor negative effect on the landscape and townscape character. However, there is potential for the townscape to be improved if there is more walking and cycling journeys rather than car travel.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on quality of soils or loss of agricultural / greenfield land. Therefore, a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	? / -	The waterbodies within the Ely Pits (also known as Roswell Pits) and Meadows SSSI is located in close proximity to the project, there may be potential minor negative effects given the project could lead to an increased risk of contaminated run-off. Appropriate drainage will need to be considered.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project will likely lead to an increase in the impermeable surface area which could contribute to the risk of flooding. There will need to be appropriate drainage systems considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	+	The project is expected to have minor positive effect in protecting local air quality by minimising the need for car travel for short trips to nearby areas by providing a designated pedestrian and cycle bridge.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	The project is expected to have minor positive effect in minimising GHG emission by minimising the need for car travel for short trips to nearby areas by providing a designated pedestrian and cycle bridge.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project will likely lead to an increase in the impermeable surface area which could contribute to the risk of flooding. This coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	0	There is unlikely to be effects on maximising the use and lifespan of existing transport infrastructure. Therefore, a neutral impact has been identified.

Summary:

The project will generally have positive effect on accessibility and safety of road users, with induced indirect benefits on health and air pollution. However, as the project is located in close proximity to a SSSI, there may be potential effects if measures are not taken to prevent pollution and disturbance. There is also potential for negative effects on biodiversity, the water environment, flooding and climate resilience.

Table 51: A142 Capacity and Safety Improvements

Intervention name	A142 Capacity and Safety Improvements
Further Information	Study into capacity improvements on the A142 between Ely and Chatteris. Includes safety improvements.
Local Authority	East Cambridgeshire
Current status	
Location	From the A141 roundabout with the A142 north of Chatteris to the roundabout with the A10 south-west of Ely.
Baseline	• Ouse Washes • Grade 1, 2 and 3a agricultural land • Old Bedford River, Hundred Foot Drain (New Bedford River)

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	Effects on population health will be mainly from the change in air pollution, which could be reduced from less idling and start-up emission due to relieved traffic congestion. However, there would be negative effect if the increased traffic after capacity improvements are more than the reduction.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+++	Safety improvements will also be considered under this study, as such, major positive effect on the health and safety of the transport network is expected and number of accidents may decrease once improvement works have been carried out.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	Study findings are expected to propose works for improving the safety and increasing the capacity of the A142, which will reduce congestion and accidents, thereby improving accessibility. Therefore, major positive effect is expected.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	Improved traffic flow and safety will result in a more reliable and efficient transport network, thereby supporting and contributing to local economic growth and competitiveness. Therefore, major positive effect is expected.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	- / 0	While congestion may be relieved as a result of this study, due to the capacity improvement works, it is not expected to be achieved through the reduction of car travel, nor promotion of sustainable transport mode, therefore a neutral impact has been identified. The improved capacity may in contrary encourage more car travel due to the reduced congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	A section of the A142 passes through the Ouse Washes (Ramsar Site, SSSI, SAC, SPA), any capacity improvement will increase more traffic, hence increased disturbance. However, the timing of the proposed works to be carried out as a result of this study are likely to be after 2019/20, where the requirement of net gain biodiversity may already become effective, and project proponent will be obliged to biodiversity enhancement.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	There are a few scheduled monuments (bowl barrows) next to the concerned section of the A142 and some trial trenches nearby, indicating potential for discovery; hence, potential negative effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	Subject to the final works proposed and carried out from this study, the distinctiveness of the landscaper character may be affected negatively if scales are extensive, while there may be no effects if only minor works to the exiting road is carried out.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	There is Grade 1, 2 and 3a agricultural land immediately next to the multiple sections along the A142 between Ely and Chatteris. If capacity and safety improvements are to be achieved through road widening in these sections, there will be loss of agricultural land and therefore moderate negative effect has been identified.
10. Protect and enhance the quality of the water environment	? / -	As the part of the A142 passes through the Old Bedford River and the Hundred Foot Drain (New Bedford River), there is potential for negative effects on these water environments, especially during the construction stage. The project has the potential to increase the impermeable surface area, contributing to the risk of contaminated run-off. Appropriate drainage will need to be considered.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	There is potential for the project to increase the impermeable surface area, therefore contributing to the risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	Improvement works as a result of this study can have either positive or negative effect as safer and less congested road may encourage more car travel, therefore reducing air quality. However, reduced congestion will lead to a reduction of idling and start-up emissions.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	Improvement works as a result of this study can have either positive or negative effect as safer and less congested road may encourage more car travel, therefore increasing GHG emissions. However, reduced congestion will lead to a reduction of idling and start-up emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	Given the potential of an increased impermeable area coupled with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+++	Improving the capacity and safety of the A142 will maximise the use and lifespan of existing transport infrastructure as it will provide a better driving condition.

Summary:

Major benefits are expected as this study will inform the needs for improving the safety and capacity of the A142, improving accessibility and supporting local economic growth, and the generally existing transport network and infrastructure. However, as this section of the A142 passes through a SSSI with two rivers along the SSSI boundary and agricultural soils immediately net to the road, there is potential for negative effects. There are also potential negative effects identified for the water environment, flooding and climate resilience.

Table 52: Ely to Soham Track Doubling

Intervention name	Ely to Soham Track Doubling
Further Information	Doubling the track between Ely and Soham.
Local Authority	East Cambridgeshire
Current status	Pre-feasibility
Location	Ely to Soham railway
Baseline	• SSSIs, SAC and NNR • Listed Buildings • Soham Lode Drain and River Great Ouse • Flood Zone 1, 2 and 3

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	+	There may be an improvement in air quality and therefore health as a result of this project as it may encourage more people to use public transport rather than their car, particularly for shorter journeys between Ely and Soham.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	There may be an indirect positive effect on the safety of the road network if the number of car journeys are reduced as a result of increased rail capacity between Ely and Soham.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Accessibility to key services, particularly for those without access to a car, is likely to be improved as a result of this project. A moderate positive effect has therefore been identified.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	Improving the capacity of the rail offering is likely to result in benefits to the local economy as it is likely to open up more opportunities.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The project will likely promote the use of rail as a viable and efficient mode of travel, particularly between Ely and Soham. This has the potential to reduce the number of vehicles on the road, therefore alleviating congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	- - / +	There are a number of SSSIs and a SAC and NNR which may be affected during the construction of the project therefore moderate negative effects have been identified. However, there may also be indirect positive effects on biodiversity due to a reduction in the number of vehicles from the increased rail capacity.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	Listed buildings may be affected during the construction works, however this is likely to be temporary therefore a neutral effect has been identified.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The setting of the landscape may be disrupted during the construction works, however it is unlikely this will change significantly therefore a neutral effect has been identified.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	- -	The railway between Ely and Soham passes through Grades 1, 2 and 3 agricultural land. The doubling of the tracks have the potential to lead to a loss of soil therefore a moderate negative effect has been identified.
10. Protect and enhance the quality of the water environment	-	The railway is adjacent to several waterbodies and also crosses the Soham Lode Drain and River Great Ouse. There is potential effects during the construction phase on the water environment therefore a minor negative effect has been identified. There may be a reduction in the number of vehicles on the road as a result of improved train capacity which could lead to improvements for the water environment, however this is likely to be negligible.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	-	The railway passes through Flood Zone 1 but also areas with Flood Zone 2 and 3, and areas benefitting from flood defences. Flooding could therefore pose a risk to the railway during both the construction and operational phases. There is also potential that the railway may increase the impermeable area which may also contribute to flooding. A minor negative effect has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	++	Improvements to the capacity of the railway has the potential to result in reduced vehicles journeys which therefore has a positive effect on air quality.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	A reduction in the number of vehicle journeys as a result of improved rail capacity also has the potential to reduce GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be effects on vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards, therefore a neutral impact has been identified.
15. Maximising the use and lifespan of existing transport infrastructure	++	The improvement to the capacity of the section of railway between Ely and Soham will likely maximise the use of the transport infrastructure therefore a moderate positive effect has been identified.

Summary:

The doubling of the railway track between Ely and Soham is likely to increase the capacity of the railway and promote the use of public transport. This has the potential to reduce the number of vehicle journeys which could lead to improvements in air quality and therefore health, a reduction in GHG emissions and also indirect benefits for biodiversity. There is also potential for a reduction in congestion and improved accessibility with benefits to the local economy. The use of the rail network is likely to be maximised due to increased capacity. However, there are also potential negative effects for biodiversity and the water environment during the construction phase.

Table 53: A10/A142 Roundabouts Improvements

Intervention name	A10/A142 Roundabouts Improvements
Further Information	Study has been commissioned to look at increasing the capacity of A10/A142 roundabouts and Lancaster Way roundabout, supporting development at Grovemere and Lancaster Way Business Parks.
Local Authority	East Cambridgeshire
Current status	Pre-feasibility
Location	Ely
Baseline	• Agricultural Grade 2 and 3 • Flood Zone 1

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	The project has the potential to reduce congestion through increased capacity of the roundabouts which could result in air quality improvements and therefore health benefits. However, increased capacity may attract additional vehicles which will reduce air quality. Mixed effects have therefore been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	There is potential for road safety to be improvement and therefore a reduction in the likelihood of accidents as a result of the capacity improvements at the roundabouts. However, if there are more vehicles as a result of the improvements works, the likelihood of accidents occurring may increase. Mixed effects have therefore been identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	Increasing the capacity at the roundabouts, access between the A10 and A142 is likely to be improved as well as access to the Grovemere and Lancaster Way Business Parks.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	Through improving access to the Grovemere and Lancaster Way Business Parks, there is likely to benefits for the local economy as it may encourage more people to visit the Business Parks or attract businesses to locate there.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	- / ++	There is likely to be improvements to congestion as a result of the capacity improvement works. However, if more vehicles are attracted to the area then there may be an increase in congestion therefore mixed effects have been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There is potential for negative effects on biodiversity and geodiversity if there is land-take required as a result of capacity improvements. However, this will be dependent on the extent of the works. There is unlikely to be any effects on designated sites.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	No effects are anticipated for the historic environment as a result of this project.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The works may result in changes to the landscape if there is land-take required for the capacity improvements. However, the significance of this will be dependent on the extent and design of the works.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	The project has the potential for negative effects, however this will be dependent on the extent and design of the works. The project location is adjacent to Grade 2 and 3 agricultural land which may be affected as a result of the works.
10. Protect and enhance the quality of the water environment	? / -	There is potential for negative effects on the water environment as the project is likely to increase the impermeable layer therefore resulting in a potential for contaminated runoff. This will be dependent on mitigation measures included as part of the project.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	As the project is likely to increase the impermeable layer, there is potential for it in to contribute to the risk of flooding. The project is located in Flood Zone 1 therefore is a low risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	As there is potential for the project to reduce congestion, air quality may be improved as a result. The project also has the potential to result in an increase in vehicle numbers which will therefore result in negative effects for air quality.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	Given the potential for a reduction in congestion, there is also potential for vehicle GHG emissions to be reduced. However, this is dependent on the number of vehicles therefore a mixed effect has been identified.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to effect resilience as it is likely to create additional hardstanding areas which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The capacity improvements will likely make the road network more efficient and therefore maximise its use.

Summary:

The capacity improvements as part of this project is likely to improve accessibility between the A10 and A142 as well as to the Grovemere and Lancaster Way Business Parks. This also has the potential to benefit the local economy. The project is likely to reduce congestion, however the capacity improvements may attract additional vehicles. As a result, mixed effects have been identified for air quality, GHG emissions, health and the safety of the road network. There is potential for negative effects on biodiversity, the water environment, the landscape, soils, flooding and climate resilience. However, this will be dependent on the extent and the design of the works involved. There is unlikely to be any effects on the historic environment as a result.

H.4 Projects in Huntingdonshire

Table 54: St. Neots River Great Ouse Cycle Bridge

Intervention name	St. Neots River Great Ouse Cycle Bridge
Further Information	Delivery of a new foot and cycle bridge in St Neots, located to the north of the town, offering a safer, traffic-free crossing of the River Great Ouse. Provides critical infrastructure linked to the St Neots Masterplan, supporting 4,000 houses and 3,600 jobs.
Local Authority	Huntingdonshire
Current status	Pre-feasibility
Location	St Neots
Baseline	• St. Neot's Common SSSI approx. 500m-1km • Two Listed Buildings & one Schedule Monument nearby • River Great Ouse within Flood Zone 3

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The project aims to link the east and west sides of the town across the River Great Ouse which will help with connectivity of cycle and pedestrian routes. Due to the improved connectivity, it will significantly improve accessibility within St Neots and also supporting active travel as a result. Therefore, a moderate positive effect is expected.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	Providing a foot and cycle bridge across the River Great Ouse separate to the roadway bridge crossing (B1428), will improve the health and safety by removing the exposure of cyclists and pedestrians to motorised road users which could result in a reduction in the number of accidents. Therefore, an overall moderate positive effect is anticipated.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	This project improves the accessibility of residents and commuters of St Neots to the town centre. Improving the pedestrian and cycle links will help better integrate the development into the surrounding area. Therefore, an overall moderate positive effect is anticipated.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The new bridge will improve pedestrian and cycling links to better integrate any new developments into the surrounding area from the eastern bank of the River Great Ouse to St Neots town centre and also St Neots station, served by a fast rail link into London. Additionally, separating the cyclists and pedestrians from the motorised road users will ease congestion. This project shall help to deliver a reliable and efficient transport network for all entering the town centre for shoppers, businesses and visitors. It will also help facilities the St Neots Masterplan supporting 4,000 houses and 3,600 jobs. Overall, a moderate positive effect is anticipated.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The installation of a new cycle and footbridge will reduce congestion through reducing the need to travel by car. The bridge will also promote cycling and walking to access the town centre and provides a safer, traffic-free alternative to the B1428. Overall, a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	St Neots Common SSSI is located within 500m – 1km of the project site. There is low potential for this project to impact upon this designated site. Therefore, a minor negative effect is anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	-	There are two listed buildings and one Scheduled Monument within close proximity of the scheme. There is potential for this project to impact upon these heritage assets, therefore a minor negative effect is anticipated.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	0	The project would be situated along a section of the River Great Ouse that has a road bridge crossing (B1428) already, therefore adding in a further bridge would not be out of character for the area. A neutral impact is therefore anticipated.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	The location of this project is within an urban setting; therefore, it is unlikely to impact upon agricultural land or green belt. Therefore, a neutral effect is anticipated.
10. Protect and enhance the quality of the water environment	? / -	The project is located across the River Great Ouse therefore there is potential for negative effects on the water environment, particularly during construction. The new bridge and associated access infrastructure may lead to an increase in the impermeable and therefore increase the risk of contaminated run-off.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is situated within Flood Zone 3, therefore the project may be at risk of flooding. The new bridge and associated access infrastructure may lead to an increase in the impermeable surface area which could contribute to the risk of flooding. Appropriate drainage will need to be considered.
12. Protect and improve local air quality, particularly in the AQMAs	+	This project aims to improve connectivity for cyclists and pedestrians and reduce the number of motorised road users within the town centre which will help to reduce congestion which will subsequently help to improve local air quality. The project is not situated within an AQMA. Overall, a minor positive impact is anticipated.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	This project aims to improve connectivity for cyclists and pedestrians, supporting active travel and reducing the number of motorised road users within the city centre which will help to reduce congestion and in turn reduce GHG emissions. Overall, a minor positive impact is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to effect resilience as it is likely to create additional hardstanding areas which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	0	The separation of pedestrians and cyclists from motorised road users is expected to have little impact on maximising the use and lifespan of existing transport infrastructure such as the B1428 roadway bridge crossing. Therefore, a neutral effect is anticipated.

Summary:

This project aims to build a new cycle bridge across the River Great Ouse linking the east and west sides of the town centre of St Neots, currently restricted by a single roadway bridge crossing (B1428). The positive effects anticipated from this project relate to health and safety for all road users through a reduction in the total number of accidents, overall health improvements through supporting active travel for pedestrians and cyclists helping to reduce the number of cars on the roads. There are also positives associated with improved accessibility to key services in the town centre for shoppers, businesses, visitors and rail commuters. There is a possibility that installing the cycle/pedestrian bridge will lead to a reduction in motorised road users, this could have subsequent effects associated with a reduction in GHG emissions and improvements in local air quality. There are some minor negative impacts associated with the project such as potential impacts on the St Neots Common designated site and heritage assets within close proximity to the scheme. The project is also situated within Flood Zone 3 with the potential for minor negative effects.

Table 55: A1 Buckden Roundabout Capacity and Safety Improvements

Intervention name	A1 Buckden Roundabout Capacity and Safety Improvements
Further Information	Capacity improvements to accommodate increased demand, and proposals to improve safety along this link.
Local Authority	Huntingdonshire
Current status	
Location	A1 meets the B661 at Buckden Roundabout, south-west of Buckden village
Baseline	• AQMAs: Huntingdon; St Neots; Brampton; Hemingford to Fenstanton (A14)

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	0	Potential benefits from relieving the existing significant traffic congestion, thus reducing idling and start-up emission, thereby reducing air pollution. However, the benefits for health are likely to be insigifcant therefore a neutral effect has been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+++	The project aims to create a safe transport network by improving the roundabout, and therefore major positive effect is expected, and the number of accidents and other incidents are expected to reduce.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	As the roundabout is one of the key junctions and is currently suffering from significant traffic congestion, therefore the project will have major positive effects on accessibility, with improved capacity and inter-regional connectivity.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	Major positive effect is expected as the project will improve inter-regional connectivity and access to key national and international gateways which will enhance business connectivity, supporting and facilitating trades.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	0 / +	Although the project will relieve congestion, it is not achieved by reducing the need to travel by car, therefore a neutral impact has been identified. However, the project is expected to have an indirect positive effect on the strategy for bus network in the wider region to link market towns and villages (for example, Huntingdon – Brampton – Buckden – St Neots).
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	0	There is unlikely to be effects on biodiversity, therefore a neutral impact has been identified.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	0	Although there are multiple listed buildings and a scheduled monument site nearby, direct impact is not expected if the improvement works are to be confined close to the existing roundabout.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	?	There could be potential minor positive effect on maintaining the distinctiveness of the landscape and townscape character if the improvement works are designed to be of similar appearance to the existing infrastructure. However, if the improvement works to be carried out will be of major scale, with significant changes made, there is then likely to be negative effect.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	0	There is unlikely to be effects on the quality of soils or loss of agricultural / greenfield land, therefore a neutral impact has been identified.
10. Protect and enhance the quality of the water environment	0	There are no waterbodies near the project area, therefore no effects are expected on the water environment.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	0	There is unlikely to be effects on the risk of flooding to transport infrastructure or contribution to it, and the project is not within a Flood Zone, therefore a neutral impact has been identified.
12. Protect and improve local air quality, particularly in the AQMAs	+	Potential minor positive effect is expected on air quality and the four AQMAs the project falls within, largely from the potential reduction in idling and start-up emission from the significant congestion that should be relieved by this project.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	Potential minor positive effect is expected on minimising GHG emission, largely from the potential reduction in idling and start-up emission from the significant congestion that should be relieved by this project; and reduce Cambridgeshire's contribution to climate change.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	0	There is unlikely to be effects on reducing vulnerability to climate change by minimising the risk of flooding and other climate hazards, therefore a neutral impact has been identified.
15. Maximising the use and lifespan of existing transport infrastructure	++	By improving the roundabout, the use and lifespan of the infrastructure is expected to be maximised, therefore a moderate positive effect has been identified.

Summary:

By improving the A1 Buckden Roundabout which is currently heavily congested, overall accessibility will be improved by smoother traffic flow, supporting local businesses; emissions from idling and engine start-up will also be reduced contributing to the environment and human health. There is unlikely to be negative effects, however, this will depend on the scale and design of the designed works.

Table 56: St Neots Northern Link to Little Paxton

Intervention name	St Neots Northern Link to Little Paxton
Further Information	New highway link between the St Neots Northern Link to Little Paxton.
Local Authority	Huntingdonshire
Current status	Pre-feasibility
Location	St Neots to Little Paxton
Baseline	• SSSIs and LNR • Agricultural Land Grade 1 and 2 • Flood Zone 1, 2 and 3 • St Neots AQMA

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	- / +	The new highway may lead to an increase in the number of vehicles in the area which has the potential to reduce air quality and therefore negatively affect the health of the local population. However, by providing an additional link, congestion may be reduced on the wider road network which could result in health benefits through improved air quality.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	- / +	The project has the potential to make the wider road network safer by reducing congestion. However, if there is an increase in vehicle number as a result of the new highway link, the likelihood of accidents will be increased.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	++	The new highway is likely to increase accessibility and reduce journey times between St Neots and Little Paxton therefore opening up opportunities for employment and recreation for residents.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	The additional link between these two areas may result in benefits for the local economy as both will be more accessible for employment and business opportunities.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	- / +	The new highway link may help to reduce traffic congestion on the wider road network roads. However, it could the new road could become congestion if more vehicles are attracted.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / - -	Given the exact location of the new highway link is yet to be determined, effects on biodiversity are uncertain. However, there is potential for negative effects due to the land-take which is likely to be required. There are a number of SSSIs and an LNR around the St Neots and Little Paxton area which could be affected by the new road link.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment has the potential to be affected as a result of the new highway. However, as the exact location of the road is yet to be determined, effects are uncertain.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The project has the potential for negative effects given the new highway is likely to affect the character of the landscape. Effects will be dependent on the location of the highway, project design and mitigation measures.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	The project is likely to require land-take for the new highway link. There is agricultural land of Grade 1 and 2 between St Neots and Little Paxton which may lost, however effects are uncertain given the location is yet to be determined.
10. Protect and enhance the quality of the water environment	? / -	There is potential for negative effects on the water environment as the project is likely to increase the impermeable layer therefore resulting in a potential for contaminated runoff. The River Great Ouse also runs through St Neots and Little Paxton, and the River Kym through Little Paxton. However, effects on the water environment will be dependent on mitigation measures included as part of the project.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	As the project is likely to increase the impermeable layer, there is potential for it in to contribute to the risk of flooding. The project is location is unknown, however there are areas of Flood Zone 2 and 3 in St Neots and Little Paxton, particularly around the rivers, and therefore the project could be at risk of flooding. Appropriate drainage will need to be considered as part of the project.
12. Protect and improve local air quality, particularly in the AQMAs	- / +	The project has the potential to reduce congestion on the wider road network which will therefore result in air quality improvements. There is an AQMQ located in St Neots which could be positively affected if traffic is distributed. However, if the new road results in an increase in vehicle numbers, air quality may be reduced.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	- / +	The project may reduce congestion and therefore reduce GHG emissions, however if there is an increase in the number of vehicles there may be an increase in GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to effect resilience as it is likely to create additional hardstanding areas which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	- / +	The new highway link is likely to maximise the use of the wider road network by making it more efficient. However, it does require the construction of new infrastructure therefore a mixed effect has been identified.

Summary:

The new highway link will likely increase accessibility between St Neots and Little Paxton. This has the potential to relieve congestion on the wider road network, however it may also lead to an increase in vehicle numbers. As a result, mixed effects have been identified for air quality and GHG emissions, health and the safety of the road network. Given that the location of the new highway is yet to be determined, effects on biodiversity, soils, the historic environment, landscape and townscape, flooding and the water environmental are uncertain. However, there is potential for the project to result in negative effects.

Table 57: Wider Huntingdon and St Ives Area Pedestrian/Cycle Network

Intervention name	Wider Huntingdon and St Ives Area Pedestrian/Cycle Network
Further Information	Improvements to the walking and cycling network within Huntingdonshire
Local Authority	Huntingdonshire
Current status	Pre-feasibility
Location	Wider Huntingdon and St Ives
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	By improving the walking and cycling network, the use of active travel as a mode of transport or for leisure will likely be more attractive. This may encourage more people to get active which is will lead to benefits for physical and mental health and wellbeing. The reliance of private car may also be reduced which could lead to improvements in air quality and therefore benefits for health. A moderate positive effect has therefore been identified.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	The improvements will help to make the transport network for pedestrians and cyclists safer therefore moderate positive effects have been identified. There may also be indirect positive effects if the number of vehicles on the road are reduced as a result of more individuals using active forms of transport. A wider objective of the project is to embed a safe systems to achieve Vision Zero – zero fatalities or serious injuries.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	There is likely to be improvements for the accessibility to key services through the walking and cycling networks as a result of this project.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+	There is potential for minor positive effects for the local economy through improvements to the walking and cycling network. The road network is likely to be more efficient if the number of vehicles is reduced.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	Given that the project is likely to promote the use of active travel, moderate positive effects have been identified. This is potential for the number of vehicles on the road to be reduced as a result and therefore congestion could also be reduced.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There may be negative impacts on biodiversity if new infrastructure is required as part of these improvements. There may be associated land-take which can lead to biodiversity loss. There is also potential that the infrastructure could impact on designated sites, however this will be dependent on exact locations. Indirect positive effects may result from the reduction in the number of cars on the road.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment may be negatively affected if this project requires new or improved infrastructure within close proximity to historic assets. However, this will be dependent on the exact location.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The project has the potential to improve the townscape if it leads to a reduction in congestion and the use of cars. However, if there is significant new infrastructure required there may be negative effects on the landscape or townscape.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	There is potential for negative effects from the project if there is new infrastructure required which lead to land-take. This significance of the impact will be dependent on the exact location and extent of works.
10. Protect and enhance the quality of the water environment	? / -	Given that the project may require new infrastructure, there is potential for negative effects for the water environment. Increasing the impermeable surface area has the potential to lead to contaminated run-off. However, drainage could have a potentially positive impact on the quality of the water environment through implementation of sustainable drainage (Sustainable Urban Drainage Systems (SuDS)).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Increasing the impermeable surface area can contribute to the risk of flooding therefore there is a potential for negative effects. If new infrastructure is required, it may be located within areas at a high risk of flooding. Appropriate drainage will need to considered alongside the proposed infrastructure.
12. Protect and improve local air quality, particularly in the AQMAs	++	Moderate positive effects have been identified for air quality given that the project will likely increase the use of the walking and cycle networks. This may lead to a reduction in private cars which help to improve air quality.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	++	The project has the potential to reduce the number of cars on the road by promoting the use of active travel and reduce GHG emissions as a result.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	If the project includes the creation of new walking and cycling transport infrastructure, there will likely be an increase in the impermeable surface area which can contribute to the risk of flooding. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects
15. Maximising the use and lifespan of existing transport infrastructure	+	The use of walking and cycling infrastructure will likely be maximised as a result of this policy. It may also lead to a reduction in the number of vehicles on the road network therefore the efficiency of the road network will likely be improved.

Summary:

The project aims to improve the walking and cycling network in the wider Huntingdonshire and St Ives area. This will likely promote active travel as a means of transport as well as for leisure and will potentially result in health benefits as it is associated with improved physical and mental health and wellbeing. The project aims to improve the safety of cycling and pedestrian routes therefore moderate positive effects have been identified for health and safety. Road traffic congestion and the reliance on private car may be reduced as a result of the project which has the potential to improve accessibility, air quality and GHG emissions, and benefit the local economy. If the project requires the addition of new infrastructure there is potential for negative effects on biodiversity, the historic environment, landscape or townscape, soils, the water environment, flooding and climate resilience. However, will be dependent on the exact location and extent of works required.

H.5 Projects in Fenland

Table 58: Wisbech Garden Town Feasibility Studies

Intervention name	Wisbech Garden Town Feasibility Studies
Further Information	Under plans set out in the Wisbech2020 initiative, Fenland District Council and Cambridgeshire County Council are developing the Garden Town to reduce population pressure on Cambridge. In June 2017, the Cambridgeshire and Peterborough Combined Authority provided funding for feasibility studies: Connectivity Study, Flood Modelling, and Rail Study. This Garden Town is seen as having the potential to bring 10,000-12,000 new homes into the area. This would be together with better transport links, more jobs and improved health, education and skills training for local people. It is hoped that the high levels of deprivation in the area will be reversed through housing growth and a better economy. The Garden Town looks to extend Wisbech rather than creating an entirely new city from scratch. This would involve additional building around areas that are already earmarked for development under the Fenland Local Plan. As part of the Garden Town there will be improved rail and road transport links (such as a Wisbech-Cambridge rail link and A47 improvements)
Local Authority	Fenland
Current status	Feasibility studies
Location	Wisbech
Baseline	• Wisbech Garden Town (East) – 2 Listed Buildings nearby; potential for negative effects – Flood Zone 2; benefits from Flood Defences – Wisbech AQMA No. 1 SO2 – Agricultural Land Grades 1 and 2 • Wisbech Garden Town (South) – River Nene; low potential for negative effects – Flood Zone 2-3 – Agricultural Land Grades 1 and 2 • Wisbech Garden Town (West) – 7 Listed Buildings – 1 Schedule Monument nearby; potential for negative effects – River Nene; low potential for negative effects – Flood Zones 2 and 3 – Wisbech AQMA No. 1 SO2 – Agricultural Land Grade 1

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The project aims to reduce the high levels of deprivation in the area through housing growth and a better economy. Improved transport links and access to improved health, education and skills training will have positive effects for health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	A Rail Feasibility Study and Connectivity Study are part of this project. Wisbech currently suffers from an infrastructure deficit for both road and rail links to the regional and national network and the town and community suffer as a result. By exploring the possibilities of rail and connectivity within Wisbech Garden Town it could help to improve the health and safety of the transport network. This would also have a positive effect by reducing the number of accidents and other incidents currently experienced on the roads. An overall minor positive effect was identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	A Rail Feasibility Study and Connectivity Study are part of this project. Wisbech currently suffers from an infrastructure deficit for both road and rail links to the regional and national network and the town and community suffer as a result. By exploring the possibilities of rail and connectivity within Wisbech Garden Town and the wider area it could help improve connectivity to key services, employment and recreational areas for the wider community. An overall major positive effect was identified
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	+++	A Rail Feasibility Study and Connectivity Study are part of this project. Wisbech currently suffers from an infrastructure deficit for both road and rail links to the regional and national network and the town and community suffer as a result. By exploring the possibilities of rail and connectivity within Wisbech Garden Town it could help to improve the reliability and efficiency of the town and the transport network in and out. This would have a moderate positive effect on supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The Rail Feasibility study could have the potential to improve the rail network to allow the reduction in road traffic, especially within Wisbech Garden Town centre. This have a positive impact on the reliability and efficiency of public transport. Overall, a moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	-	No designated sites are affected by the feasibility studies, however impacts from improving connectivity and rail such as permanent land-take could have a negative impact on biodiversity. Therefore, an overall minor negative effect is anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	- / - -	There are listed buildings within Wisbech Garden Town East and West and one schedule monument. A Rail Feasibility Study and Connectivity Study could result in negative effects on the historic environment. Where the railways need to expand could result in negative impacts to buried archaeology. In addition, Wisbech is home to the most concentrated areas in eastern region of historic buildings, streets and spaces, after Cambridge. Conservation and protection of these historic assets is a high priority of Theme 3 of the 2020 Vision. Therefore, any impacts on the historic assets of the town could have a minor to moderate negative effect, dependent on their location.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	- / - -	There are multiple conservation areas with close proximity of the town which if the feasibility studies conclude updated infrastructure is required could negatively impact these conservation areas. Conservation and protection of the historic assets is a high priority of Theme 3 of the 2020 Vision. Therefore, any impacts on the historic assets of the town could have a minor to moderate negative effect, dependent on their location.

SEA Objectives	Project Assessment	Summary of Effects
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	-	Wisbech is located within prime agricultural land. Wisbech Garden Town is located around Grades 1-2 agricultural land. Any infrastructure developments suggested by the feasibility studies could negatively impact upon this prime agricultural land. Therefore, an overall negative effect has been identified.
10. Protect and enhance the quality of the water environment	++	A Flood Modelling feasibility study makes up part of this project. This would have moderate positive effects on the quality of the water environment.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	+++	A Flood Modelling feasibility study makes up part of this project. This would have moderate positive effects on the transport infrastructure as location/duration and likelihood of flooding could be factored into the rail and connectivity feasibility study to better improve and protect the transport infrastructure for flooding. Currently the town is located within Flood Zones 2 and 3 and the east of the town benefits from flood defences also.
12. Protect and improve local air quality, particularly in the AQMAs	+	There is an AQMA No 1 SO2 within Wisbech Garden Town, by improving the rail and connectivity this could have potential improvements to the air quality of the area by improving the connectivity and reducing the total number of cars within the town centre. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+ / ++	Improving the rail network and transport network in general will help reduce any congestion experienced in the town centre, as well as reduce the number of cars on the roads. This will all positively impact the reduction in GHG emissions. Therefore, a minor to moderate positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	+++	The Flood Modelling feasibility study will have a major positive effect with regard to minimising the risk of flooding to infrastructure and development. Conclusions of the study will indicate the best locations for infrastructure and developments to reduce the likelihood of being affected by flooding.
15. Maximising the use and lifespan of existing transport infrastructure	++	These feasibility studies will help to show where the current transport infrastructure is lacking and needs improving. This will help to maximise the use and lifespan of the infrastructure, allowing only required improvements to occur. A moderate positive effect has been identified.

Summary:

This project aims to complete a Connectivity, Flood Modelling and Rail Feasibility Studies. These studies will help to inform where the infrastructure needs updating or redesigning to become more efficient and effective. This project is expected to have positive effects for the flood risk, and overall connectivity of the transport network as well as improving the reliability and efficiency. There could be potential negative impacts associated with biodiversity and habitats, permanent land-take of prime agricultural land and the protection and conservation of heritage assets and conservation areas.

Table 59: March Area Transport Study

Intervention name	March Area Transport Study
Further Information	A study to identify transportation challenges and opportunities to improve traffic flow and public transport solutions for congestion reduction, improved safety and parking in and around March.
Local Authority	Fenland
Current status	
Location	Area of March Town Centre with spoke road networks south (but not as far south as Chatteris) and north (but not as far as Wisbech)
Baseline	• Nene Washes Ramsar, SAC, SPA and SSSI to the north could impact upon • March Conservation Area and potentially Doddington Conservation Area • Approx. 80 listed buildings (mainly within March town centre): Grades I, II and II* • Two Scheduled monuments 'Moated Bishops' Palace at Manor Farm' and 'The March Sconce: a Civil War fieldwork, 250m south west of Eastwood Burial Ground' • Agricultural Land urban and non-agricultural for area of March, surrounding areas are Grade 1, 2 and 3 • Flood Zones 2 and 3 in area surrounding March town centre • River Nene Old Course through March town centre, Twenty Foot River and River Nene

SEA Objectives	Project Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The project aims to reduce the high levels of deprivation in the area through congestion reduction and improved safety. Improved transport links and access to improved health, education and skills training will have positive effects for health.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	+	A study to identify transportation challenges and opportunities are part of this project. March currently suffers from an infrastructure deficit traffic flow and public transport for the town centre, and the town and community suffer as a result. By exploring the possibilities of transportation and connectivity within March town centre it could help to improve the health and safety of the transport network. This would also have a positive effect by reducing the number of accidents and other incidents currently experienced on the roads. An overall minor positive effect was identified.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+++	Identifying the challenges and opportunities to reduce congestion, improve traffic flow for private and public transport and improve parking in and around the town centre will improve connectivity of the transport links and providing access to key services, employment and recreational areas for the wider community. An overall major positive effect was identified
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	++	A study to identify transportation challenges and opportunities are part of this project. March currently suffers from an infrastructure deficit for private and public transport for the town centre and the town and community suffer as a result. By exploring the possibilities of improved traffic flow in the town centre could help to improve the reliability and efficiency of the town and the transport network in and out. This would have a moderate positive effect on supporting and contributing to local economic growth.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	+ / ++	This project would help to reduce congestion in the town centre by easing traffic flow. This will make public transport more efficient and reliable also. However, there is the risk that improving the road for all traffic in the town centre, could see an increase in private car users. Therefore, a minor to moderate positive effect has been identified.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There is the Nene Washes Ramsar, SAC, SPA and SSSI to the north of the study area which could experience negative impacts. Therefore, an overall minor negative effect is anticipated.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / - -	There are multiple Grades I, II and II* listed buildings within the town centre; two scheduled monuments within 100m of the scheme and the scheme could impact negatively on the March Conservation Area and potentially Doddington Conservation Area. Therefore, any impacts on the historic assets of the town could have a minor to moderate negative effect, dependent on their location.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	Increasing the capacity of the road network in March town centre reduce congestion which may have positive effects on the setting of the landscape. The addition of new infrastructure is required (for example, additional lanes) this will alter the landscape, however, given that there is an existing busy road effects are considered minor. If boundary trees used for screening are removed this may have a bigger effect on the character of the landscape
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	March is surrounded by Grades 2 and 3 agricultural land. Any infrastructure developments suggested by the project could negatively impact upon this prime agricultural land.
10. Protect and enhance the quality of the water environment	? / -	These enhancements are most likely going to increase the impermeable surface area which could lead to an increased risk of contaminated run-off. It is anticipated that the current road network drainage will require updating which, although minor, could have a positive impact on the quality of the water environment through the implementation of sustainable drainage (for example, SuDS).
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	The project is surrounded by Flood Zones 2 and 3. Therefore, given the project would increase the impermeable surface area to allow for better traffic flow, improved drainage on the current infrastructure combined with the fact that the project is on the periphery of a Flood Zone, could result in increased flood risk, therefore a minor negative effect has been identified. Appropriate drainage will need to be considered.
12. Protect and improve local air quality, particularly in the AQMAs	+	There is no AQMA for the project area. However, by improving the town centre traffic flow this could have potential improvements to the air quality of the area by improving the connectivity and reducing the total number of cars within the town centre. Therefore, a minor positive effect has been identified.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+ / ++	Improving the road network and public transport network in general will help reduce any congestion experienced in the town centre, as well as reduce the number of cars on the roads. This will all positively impact the reduction in GHG emissions. Therefore, a minor to moderate positive effect is anticipated.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project is located close to an area identified as being at risk from flooding. Therefore, increasing the impermeable surface area through road network improvements could increase the risk of flooding. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects

SEA Objectives	Project Assessment	Summary of Effects
15. Maximising the use and lifespan of existing transport infrastructure	++	The study to identify transportation challenges and opportunities experienced in the town centre will help to show where the current transport infrastructure is lacking and needs improving. This will help to maximise the use and lifespan of the infrastructure, allowing only required improvements to occur. A moderate positive effect has been identified.

Summary:

This project aims to complete a study to identify transportation challenges and opportunities to improve traffic flow and public transport solutions for congestion reduction, improved safety and parking in and around March. The congestion reduction, improved safety and traffic flow will have the positive effect of reducing private car use, which also allows for positive impacts on the local air quality, minimising GHG emissions and health of the population, improving the health, safety and longevity of the transport system and reducing road traffic allowing for increased reliability of the public transport network and for greater efficiency and reliability of the transport network as a whole. Minor negatives of this scheme are with regard to flooding, townscape, biodiversity and protection of soils. The only potential moderate negative impact will be on the historic environment.

Table 60: Central March Cycle Bridge

Intervention name	Central March Cycle Bridge
Further Information	A new cycle bridge, however the location is currently unknown.
Local Authority	Fenland
Current status	Pre-feasibility
Location	Fenland
Baseline	Not Applicable

SEA Objectives	Assessment	Summary of Effects
1. Improve the health of the population and reduce health inequalities between areas and groups	++	The construction of a new cycle bridge may encourage more people to cycle which will likely result in health benefits. There is potential for a reduction in the use of private car as a result therefore resulting in air quality, however health benefits as a result of this are likely to be negligible.
2. Improve the health and safety of the transport network, reducing the number of accidents and other incidents	++	The safety of the transport is likely to be improved as a result of this project as the bridge will be provide an additional and safe crossing point for cyclists.
3. Improve accessibility to key services, employment and recreational areas for all areas of the community	+	The cycle bridge will likely improve accessibility for cyclists, reducing journey time which may otherwise would have been required to find a safe crossing point.
4. Support and contribute to local economic growth and competitiveness by delivering reliable and efficient transport networks	0	There is unlikely to be any effects on the local economy as a result of this project.
5. Reduce road traffic and congestion through reducing the need to travel by car and improve and promote sustainable modes of transport including public transport, cycling and walking	++	The project will improve cycling infrastructure therefore promoting the use of active travel. This has the potential to reduce the reliance on private car therefore also improving congestion.
6. Protect and enhance biodiversity (including both habitat and species) and geodiversity at all levels	? / -	There is potential for the cycle bridge to encourage cycling as an alternative to private car which may result in indirect positive effects for biodiversity, however this is likely to be negligible. The new cycle bridge may also have negative effects on biodiversity, however the significance of this will be dependent on the exact location.
7. Maintain, protect and enhance the historic environment, including archaeology, and the historic landscape character	? / -	The historic environment may be affected by the new cycle bridge, particularly setting effects during construction. However, this will be dependent on the exact location and design of the bridge.
8. Maintain, protect and enhance the diversity and distinctiveness of the landscape and townscape character	? / -	The townscape setting is likely to be affected by the new cycle bridge, however the effects will be dependent on the design. It may result in improvement to the townscape if it is more accessible for cyclists.
9. Protect and conserve the quality of soils, minimising the loss of agricultural/greenfield land, and seek to remediate contaminated land	? / -	There may be negative effects on soils, however as the bridge is likely to be located within the centre of the town, effects are unlikely to be significant given the area is already likely to be development.
10. Protect and enhance the quality of the water environment	? / -	The cycle bridge and associated access infrastructure has the potential to increase the impermeable surface area therefore increasing the risk of contaminated run off. As the bridge is likely to be located in an urban area and therefore already developed, effects are unlikely to be significant. However, given the exact location is unknown, the effects are uncertain.
11. Reduce the risk of flooding to transport infrastructure and minimise its contribution to flood risk	? / -	Given the cycle bridge is likely to increase the impermeable surface area, it may contribute to the risk of flooding. The exact location is unknown therefore the risk of flooding is undetermined. Appropriate drainage will need to be considered for the project.
12. Protect and improve local air quality, particularly in the AQMAs	++	The new cycle bridge has the potential to encourage more people to cycle which could lead to a reduce in private car usage. This could therefore result in air quality improvements.
13. Minimise GHG emissions and reduce Cambridgeshire and Peterborough's contribution to climate change	+	If the number of vehicles on the road is reduced as a result of the new cycle bridge, there may also be reductions in GHG emissions.
14. Reduce vulnerability to climate change by minimising the risk of flooding and effects from other climate hazards	? / -	The project has the potential to effect resilience as it is likely to create additional hardstanding areas which will increase run-off rates. This combined with severe rainfall events associated with climate change will exacerbate flooding issues. Appropriate measures such as permeable surfacing and SuDS will be required to ensure flood risk is not increased and should be designed to account for future climate change effects.
15. Maximising the use and lifespan of existing transport infrastructure	+	The new cycle bridge is likely to increase access via the cycle network therefore maximising the use of the infrastructure.

Summary:

The construction of a new cycle bridge has the potential to encourage more people to cycle as it will provide a safe crossing point for cyclists. By promoting active travel, there is also potential for health benefits as well as reducing congestion and the number of vehicles on the road. As a result, there may also be improvements in air quality and a reduction in GHG emissions. Given that the exact location of the bridge is unknown, effects are uncertain for biodiversity, the historic environment, landscape and townscape, the water environment, soils, flooding and climate resilience. There is unlikely to be any effects on the local economy as a result of the project.