

Appendix A – Appraisal Summary Tables

Appendix A – Appraisal Summary Tables

Red Route Option

Table 1 Red Route Option Assessment Summary Table

Scheme Option – Buncrana Road – A2 Red Option		Description – On-line carriageway widening to provide two lanes of traffic in each direction from Pennyburn Roundabout to the Skeoge Roundabout.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £																		
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT																		
ENVIRONMENT	Noise	Qualitative noise impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 100m</td> <td>340</td> <td>340</td> </tr> <tr> <td>100m – 200m</td> <td>356</td> <td>356</td> </tr> <tr> <td>200m – 300m</td> <td>312</td> <td>312</td> </tr> </table> <p>Further quantitative assessment will be undertaken at Stage 3.</p>	No of Properties	Do	Scheme		Min		0 – 100m	340	340	100m – 200m	356	356	200m – 300m	312	312	N/A at this stage.			
	No of Properties	Do	Scheme																			
		Min																				
	0 – 100m	340	340																			
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	Local Air Quality	Qualitative air quality impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 50m</td> <td>175</td> <td>165</td> </tr> <tr> <td>50m – 100m</td> <td>162</td> <td>166</td> </tr> <tr> <td>100m – 150m</td> <td>169</td> <td>164</td> </tr> <tr> <td>150m – 200m</td> <td>183</td> <td>182</td> </tr> </table> <p>Further quantitative assessment will be undertaken at Stage 3.</p>	No of Properties	Do	Scheme		Min		0 – 50m	175	165	50m – 100m	162	166	100m – 150m	169	164	150m – 200m	183	182	N/A at this stage.
	No of Properties	Do	Scheme																			
	Min																					
0 – 50m	175	165																				
50m – 100m	162	166																				
100m – 150m	169	164																				
150m – 200m	183	182																				
Greenhouse Gases	Climate change assessment will be undertaken at Stage 3.	N/A	N/A at this stage.																			
Landscape	N/A	N/A	N/A																			
Townscape	The small section of traditional townscape at Collon Terrace would be lost. Setting of St Patrick's Church adversely affected by larger road at frontage. Trees that screen the industrial /commercial areas of Springtown would also be lost. There would be marginal encroachment on Templemore Sports Complex. Trees and front gardens may be lost in Messines Park area and west of Sports Complex. Replacement street tree planting may be possible along new footways/cycleways. Tree planting essential in demolition areas and along relocated boundary of Templemore Sports Complex.	N/A	Large Adverse																			
Heritage of Historic Resources	Four archaeological sites will be impacted by the proposed scheme: a site associated with the Siege of Derry, a section of dismantled railway, a lamp post and there will be a visual impact on St Patrick's Church. The other sites are located sufficiently for enough away to remain unaffected.	N/A	Large Adverse																			
Biodiversity	Field work in the area has confirmed that the environment surrounding the scheme contains few area of semi-natural vegetation or other areas with significant biodiversity. The most interesting ecological features along much of the route corridor are the semi-mature trees surrounding playing fields and planted screening between the road and adjacent industrial estates. In a few places areas of waste ground have begun to scrub over and this increases their biodiversity interest. Detailed vegetation survey, mammal surveys, hedgerow survey, breeding bird survey and wintering bird surveys have all been completed and no nationally or internationally protected species or habitats were recorded along the Red Route; although a badger sett has been recorded outside the study area to the north. The impact of this should be low if effectively mitigated through compensatory measures, such as a dedicated mammal crossing.	N/A	Moderate Adverse																			

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Red Option		Description – On-line carriageway widening to provide two lanes of traffic in each direction from Pennyburn Roundabout to the Skeoge Roundabout.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Water Environment	<p>The Red Route Option would cross or is located adjacent to a number of watercourses including the River Foyle, Skeoge River, Ballymagrorty Stream and Pennyburn Stream as well as smaller streams and field drains. Construction works in the vicinity of these watercourses has the potential to release pollutants and sediments and thus impact upon the chemical and biological water quality of surface waters as well as impact on aquatic and riparian habitats. Adoption of appropriate mitigation measures as well as adherence to Pollution Prevention Guidance (PPGs) and the guidance contained within CIRIA Document C650 "Environmental Good Practice on Site" would maintain existing water quality and mitigate potential pollution impacts resulting from construction.</p> <p>During operation, the Red Route Option will increase the impermeable highway area and consequently generate greater volumes of surface runoff. In the absence of mitigation, increased runoff rates have the potential to impact on the existing hydrological regime and result in flooding and impact on riparian and aquatic habitats. In addition, surface runoff could contain oils, fuels and sediment. Drainage based on Sustainable Urban Drainage Systems (SUDS) would be installed to attenuate, treat and discharge carriageway runoff and minimise the significance of such effects.</p> <p>A number of watercourses in the study area are designated under the terms of the Drainage (Northern Ireland) Order 1973. Any works, for example installation of new culverts, extension of existing culverts or land drainage, that may affect surface watercourses will require the prior consent and approval of the Rivers Agency. In addition the discharge of surface water would require to be licensed with the Northern Ireland Environment Agency Water Management Unit (EHS WMU).</p> <p>Surface waters within the area are important salmonid waters; both the Skeoge River and Ballymagrorty Stream are designated salmonid under the Freshwater Fish Directive whilst the River Foyle is an important migratory route. The release of pollutants and sediments to these surface waters could adversely impact upon fish populations, however, the implementation of mitigation would reduce the potential for adverse effects.</p> <p>The overall effect of the scheme will be to increase the impermeable area along the A2 corridor, with resultant increases in surface water runoff and the potential for pollutant loaded runoff to enter watercourses. However, taking into account the proposed mitigation measures to be incorporated during construction and operation, the overall impact is considered to be reduced to low significance.</p>	N/A	Low Significance
	Physical Fitness	<p>The on-line widening of the A2 would be unlikely to encourage further movements by pedestrians and cyclists, nor is it likely to discourage such movements. The route is provided for motorised transport to get into Londonderry from the west and the proposed widening may make it unattractive and more hazardous for pedestrians and cyclists to use. However, careful design may improve crossing facilities which may encourage pedestrian movements between residential areas on the one side of the carriageway and the commercial, employment and education facilities on the other. Likewise, cycle lanes may be provided to encourage continued / new cycle use of the area.</p>	N/A	Neutral
	Journey Ambience	<p>Any road improvements will have a neutral effect on travellers stress because road improvements will be in pace with projected traffic growth. The improvements will impact on more than 10,000 motorists, the effect being largely beneficial.</p>	N/A	Large Beneficial
SAFETY	Accidents	<p>Pedestrian facilities at junctions and wider footways / cycleways will improve safety for pedestrians and cyclists.</p> <p>However, accident disbenefits are likely to arise due to additional and revised junctions to signalised layouts.</p>	-£1.48m	Moderate Negative
	Security	<p>Reduced fear at stop-lines, removal of 'partially concealed' areas.</p>	N/A	Moderate Beneficial

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Red Option		Description – On-line carriageway widening to provide two lanes of traffic in each direction from Pennyburn Roundabout to the Skeoge Roundabout.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
ECONOMY	Public Accounts	The Red Route performs well, despite a PVC of £23.7m, a high BCR and NPV is achieved.	BCR 9.98 NPV £213.3m	Moderate Beneficial
	Business Users & Providers	Benefits in terms of time savings, delay savings and vehicle operating costs.	£121.6m	Moderate Beneficial
	Consumer Users	Benefits in terms of time savings, delay savings and vehicle operating costs.	£123.8m	Moderate Beneficial
	Reliability	Improved reliability as widened road will provide more capacity and hence more consistent journey times. Performs first out of three routes in terms of junction operation at Racecourse Rd & Springtown Rd junctions.	N/A	Slight Beneficial
	Wider Economic Impacts	Assists delivery of Area Plan developments and enhances Cross-Border links.	N/A	Moderate Beneficial
ACCESSIBILITY	Option values	No significant change.	N/A	Neutral
	Severance	Additional lane in each direction may make crossing Buncrana Road more difficult for pedestrians but this is offset to a certain extent by improved provision for pedestrians.	N/A	Slight Negative
	Access to the Transport System	No significant change.	N/A	Neutral
INTEGRATION	Transport Interchange	No significant change.	N/A	Neutral
	Land-Use Policy	The A2 is designated as a protected route transport corridor. The study area is a mix of residential, commercial, industrial, agricultural, amenity and green belt land uses. At local and regional level, planning policies advocate the protection of lands within the greenbelt but there is also an emphasis on updating transport links to improve infrastructure so that sustainable transport policies can be created. The on-line Red option will improve regional transport links between Northern Ireland and the Republic of Ireland in the north west. However, in the section from Pennyburn Roundabout to the Skeoge Roundabout, the widening of the road would be detrimental to the surrounding residential and commercial environment.	N/A	Beneficial
	Other Government Policies	The scheme facilitates the 'Shaping Our Future – Regional Development Strategy For Northern Ireland 2025' in relation to improving infrastructure to turn Londonderry into a hub city for the North West. The Regional Development Strategies promotes improved rural integration and development of transport routes, including public transport route. The scheme may develop public transport routes by ensuring consistent journey times, however, it is possible that community severance will be increased if community crossings are not integrated into road design.	N/A	Beneficial Effect

Blue Route Option

Table 2 Blue Route Option Assessment Summary Table

Scheme Option – Buncrana Road – A2 Blue Option		Description – Predominantly on-line carriageway widening from Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with an off-line diversion between Pennyburn Pass and Springtown Road for west (country) bound traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £																				
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT																				
ENVIRONMENT	Noise	Qualitative noise impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 100m</td> <td>340</td> <td>340</td> </tr> <tr> <td>100m – 200m</td> <td>356</td> <td>356</td> </tr> <tr> <td>200m – 300m</td> <td>312</td> <td>312</td> </tr> <tr> <td colspan="3">Further quantitative assessment will be undertaken at Stage 3.</td> </tr> </table>	No of Properties	Do	Scheme		Min		0 – 100m	340	340	100m – 200m	356	356	200m – 300m	312	312	Further quantitative assessment will be undertaken at Stage 3.			N/A at this stage		
	No of Properties	Do	Scheme																					
		Min																						
	0 – 100m	340	340																					
	100m – 200m	356	356																					
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	Further quantitative assessment will be undertaken at Stage 3.																							
Local Air Quality	Qualitative air quality impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 50m</td> <td>175</td> <td>177</td> </tr> <tr> <td>50m – 100m</td> <td>162</td> <td>180</td> </tr> <tr> <td>100m – 150m</td> <td>169</td> <td>178</td> </tr> <tr> <td>150m – 200m</td> <td>183</td> <td>200</td> </tr> <tr> <td colspan="3">Further quantitative assessment will be undertaken at Stage 3.</td> </tr> </table>	No of Properties	Do	Scheme		Min		0 – 50m	175	177	50m – 100m	162	180	100m – 150m	169	178	150m – 200m	183	200	Further quantitative assessment will be undertaken at Stage 3.			N/A at this stage
No of Properties	Do	Scheme																						
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0 – 50m	175	177																						
50m – 100m	162	180																						
100m – 150m	169	178																						
150m – 200m	183	200																						
Further quantitative assessment will be undertaken at Stage 3.																								
Greenhouse Gases	Climate change assessment will be undertaken at Stage 3.	N/A	N/A																					
Landscape	N/A	N/A	N/A																					
Townscape	New section of one-way road through industrial area increases the spread of major roads. Environment on existing road from Collon Terrace to Springtown Road would improve due to reduced traffic, however with new impacts to rear of buildings. Setting of St Patrick’s Church adversely affected by larger road at frontage. Roadside trees that screen the industrial /commercial areas of Springtown would be lost. Probable loss of some trees and front gardens on Buncrana Road west of Templemore Sports Complex. Replacement street tree planting may be possible along new footways/cycleways.	N/A	Moderate Adverse																					
Heritage of Historic Resources	Four archaeological sites will be impacted by the proposed scheme: a site of the Siege of Derry, a section of the dismantled railway and a lamp post and there will be a visual impact on St Patrick’s Church. The other sites are located sufficiently distant to remain unaffected.	N/A	Large Adverse																					
Biodiversity	Field work in the area has confirmed that the environment surrounding the scheme contains few area of semi-natural vegetation or other areas with significant biodiversity. The most interesting ecological features along much of the route corridor are the semi-mature trees surrounding playing fields and planted screening between the road and adjacent industrial estates. In a few places areas of waste ground have begun to scrub over and this increases their biodiversity interest. Detailed vegetation survey, mammal surveys, hedgerow survey, breeding bird survey and wintering bird surveys have all been completed and no nationally or internationally protected species or habitats were recorded along the Blue Route. Although a badger sett has been recorded outside the study area to the north. The impact of this should be low if effectively mitigated through compensatory measures, such as a dedicated mammal crossing.	N/A	Moderate Adverse																					

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Blue Option		Description – Predominantly on-line carriageway widening from Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with an off-line diversion between Pennyburn Pass and Springtown Road for west (country) bound traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Water Environment	<p>The Blue Route Option would cross or is located adjacent to a number of watercourses including the River Foyle, Skeoge River, Ballymagrorty Stream and Pennyburn Stream as well as smaller streams and field drains. Construction works in the vicinity of these watercourses has the potential to release pollutants and sediments and thus impact upon the chemical and biological water quality of surface waters as well as impact on aquatic and riparian habitats. Adoption of appropriate mitigation measures as well as adherence to Pollution Prevention Guidance (PPGs) and the guidance contained within CIRIA Document C650 “Environmental Good Practice on Site” would maintain existing water quality and mitigate potential pollution impacts resulting from construction.</p> <p>During operation, the Blue Route Option will increase the impermeable highway area and consequently generate greater volumes of surface runoff. In the absence of mitigation, increased runoff rates have the potential to impact on the existing hydrological regime and result in flooding and impact on riparian and aquatic habitats. In addition, surface runoff could contain oils, fuels and sediment. Drainage based on Sustainable Urban Drainage Systems (SUDS) would be installed to attenuate, treat and discharge carriageway runoff and minimise the significance of such effects.</p> <p>A number of watercourses in the study area are designated under the terms of the Drainage (Northern Ireland) Order 1973. Any works, for example installation of new culverts, extension of existing culverts or land drainage, that may affect surface watercourses will require the prior consent and approval of the Rivers Agency. In addition the discharge of surface water would require to be licensed with the Northern Ireland Environment Agency Water Management Unit (EHS WMU).</p> <p>Surface waters within the area are important salmonid waters; both the Skeoge River and Ballymagrorty Stream are designated salmonid under the Freshwater Fish Directive whilst the River Foyle is an important migratory route. The release of pollutants and sediments to these surface waters could adversely impact upon fish populations, however, the implementation of mitigation would reduce the potential for adverse effects.</p> <p>The overall effect of the scheme will be to increase the impermeable area along the A2 corridor, with resultant increases in surface water runoff and the potential for pollutant loaded runoff to enter watercourses. The increase in impermeable area is slightly greater for the Blue Route due to construction of the one-way off-line section and as a result it will generate slightly more runoff. However, taking into account the proposed mitigation measures to be incorporated during construction and operation, the overall impact is considered to be reduced to low significance.</p>	N/A	Low Significance
	Physical Fitness	<p>The widening of the A2, utilising part of the road as one of the carriageways would result in the present non motorised user situation to remain, however it may result in an improved safety perceptions because it will have all the traffic moving in one direction around the residential areas. The on-line section of widening of the A2 would be unlikely to encourage further movements by pedestrians and cyclists, nor is it likely to discourage such movements. The route is provided for motorised transport to get into Londonderry from the west and the proposed widening may make it unattractive and more hazardous for pedestrians and cyclists to use. However, careful design may improve crossing facilities which may encourage pedestrian movements between residential areas on the one side of the carriageway and the commercial, employment and education facilities on the other. Likewise, cycle lanes may be provided to encourage continued / new cycle use of the area.</p>	N/A	Neutral
	Journey Ambience	<p>Any road improvements will have a neutral effect on travellers stress because road improvements will be in pace with projected traffic growth. The improvements will impact on more than 10,000 motorists, the effect being largely beneficial</p>	N/A	Large Beneficial

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Blue Option		Description – Predominantly on-line carriageway widening from Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with an off-line diversion between Pennyburn Pass and Springtown Road for west (country) bound traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
SAFETY	Accidents	Pedestrian facilities at junctions and wider footways / cycleways will improve safety for pedestrians and cyclists. However, accident disbenefits due to additional and revised junctions to signalised layouts	-£24.5m	Moderate Negative
	Security	Reduced fear at stop-lines, removal of 'partially concealed' areas	N/A	Moderate Beneficial
ECONOMY	Public Accounts	The Blue Route performs fairly well, despite a PVC of £27.7m, a moderate BCR and NPV is achieved.	BCR 7.57 NPV £181.9m	Moderate Beneficial
	Business Users & Providers	Benefits in terms of time savings, delay savings and vehicle operating costs.	£120.2m	Moderate Beneficial
	Consumer Users	Benefits in terms of time savings, delay savings and vehicle operating costs.	£119.6m	Moderate Beneficial
	Reliability	Improved reliability as widened road will provide more capacity and hence more consistent journey times. Performs second out of three routes in terms of junction operation at Racecourse Rd & Springtown Rd junctions.	N/A	Slight Beneficial
	Wider Economic Impacts	Assists delivery of Area Plan developments and enhances Cross-Border links.	N/A	Moderate Beneficial
ACCESSIBILITY	Option values	No significant change	N/A	Neutral
	Severance	Increased severance at Collon Terrace. Length of walk and cycle distances increased. Additional pedestrian crossings at signalised junctions improve wait times.	N/A	Slight Negative
	Access to the Transport System	No significant change	N/A	Neutral
INTEGRATION	Transport Interchange	No significant change	N/A	Neutral
	Land-Use Policy	The A2 is designated as a protected route transport corridor. The study area is a mix of residential, commercial, industrial, agricultural, amenity and green belt land uses. At local and regional level, planning policies advocate the protection of lands within the greenbelt but there is also an emphasis on updating transport links to improve infrastructure so that sustainable transport policies can be created. The Blue option will improve regional transport links between Northern Ireland and the Republic of Ireland in the north west.	N/A	Beneficial
	Other Government Policies	The scheme facilitates the 'Shaping Our Future – Regional Development Strategy For Northern Ireland 2025' in relation to improving infrastructure to turn Londonderry into a hub city for the North West. The Regional Development Strategies promotes improved rural integration and development of transport routes, including public transport route. The scheme may develop public transport routes by ensuring consistent journey times, however, it is possible that community severance will be increased if community crossings are not integrated into road design.	N/A	Beneficial

Purple Route Option

Table 3 Purple Route Option Assessment Summary Table

Scheme Option – Buncrana Road – A2 Purple Option		Description – Predominantly on-line carriageway widening from the Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with on off-line diversion between Pennyburn Pass and Springtown Road for two way traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £																				
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT																				
ENVIRONMENT	Noise	Qualitative noise impact assessment for webTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 100m</td> <td>18</td> <td>18</td> </tr> <tr> <td>100m – 200m</td> <td>46</td> <td>46</td> </tr> <tr> <td>200m – 300m</td> <td>30</td> <td>30</td> </tr> <tr> <td colspan="3">Further quantitative assessment will be undertaken at Stage 3.</td> </tr> </table>	No of Properties	Do	Scheme		Min		0 – 100m	18	18	100m – 200m	46	46	200m – 300m	30	30	Further quantitative assessment will be undertaken at Stage 3.			N/A at this stage		
	No of Properties	Do	Scheme																					
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Local Air Quality	Qualitative air quality impact assessment for webTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>Do</td> <td>Scheme</td> </tr> <tr> <td></td> <td>Min</td> <td></td> </tr> <tr> <td>0 – 50m</td> <td>175</td> <td>118</td> </tr> <tr> <td>50m – 100m</td> <td>162</td> <td>176</td> </tr> <tr> <td>100m – 150m</td> <td>169</td> <td>164</td> </tr> <tr> <td>150m – 200m</td> <td>183</td> <td>221</td> </tr> <tr> <td colspan="3">Further quantitative assessment will be undertaken at Stage 3.</td> </tr> </table>	No of Properties	Do	Scheme		Min		0 – 50m	175	118	50m – 100m	162	176	100m – 150m	169	164	150m – 200m	183	221	Further quantitative assessment will be undertaken at Stage 3.			N/A at this stage
No of Properties	Do	Scheme																						
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0 – 50m	175	118																						
50m – 100m	162	176																						
100m – 150m	169	164																						
150m – 200m	183	221																						
Further quantitative assessment will be undertaken at Stage 3.																								
Greenhouse Gases	Climate change assessment will be undertaken at Stage 3.	N/A	N/A at this stage																					
Landscape	N/A	N/A	N/A																					
Townscape	New dual carriageway through industrial area, but environment on existing road from Collon Terrace to Springtown Road would greatly improve due to removal of through traffic. Potential for landscape measures to further improve the streetscape. Roadside trees that screen the industrial /commercial areas of Springtown would be lost. Probable loss of some trees and front gardens on Buncrana Road west of Templemore Sports Complex. Replacement street tree planting may be possible along new footways/cycleways. Setting of St Patrick’s Church adversely affected by larger road at frontage.	N/A	Minor Adverse																					
Heritage of Historic Resources	Four archaeological sites will be impacted by the proposed scheme: a site associated with the Siege of Derry, the route of the dismantled railway, a lamp post and there will be a visual impact on St Patrick’s Church. The other sites are located sufficiently far enough away to remain unaffected.	N/A	Large Adverse																					
Biodiversity	Field work in the area has confirmed that the environment surrounding the scheme contains few areas of semi-natural vegetation or other areas with significant biodiversity. The most interesting ecological features along much of the route corridor are the semi-mature trees surrounding playing fields and planted screening between the road and adjacent industrial estates. In a few places areas of waste ground have begun to scrub over and this increases their biodiversity interest. Detailed vegetation survey, mammal surveys, hedgerow survey, breeding bird survey and wintering bird surveys have all been completed and no nationally or internationally protected species or habitats were recorded along the Purple Route. Although a badger sett has been recorded outside the study area to the north. The impact of this should be low if effectively mitigated through compensatory measures, such as a dedicated mammal crossing.	N/A	Moderate Adverse																					

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Purple Option		Description – Predominantly on-line carriageway widening from the Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with on off-line diversion between Pennyburn Pass and Springtown Road for two way traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Water Environment	<p>The Purple Route Option would cross or is located adjacent to a number of watercourses including the River Foyle, Skeoge River, Ballymagrorty Stream and Pennyburn Stream as well as smaller streams and field drains. Construction works in the vicinity of these watercourses has the potential to release pollutants and sediments and thus impact upon the chemical and biological water quality of surface waters as well as impact on aquatic and riparian habitats. Adoption of appropriate mitigation measures as well as adherence to Pollution Prevention Guidance (PPGs) and the guidance contained within CIRIA Document C650 “Environmental Good Practice on Site” would maintain existing water quality and mitigate potential pollution impacts resulting from construction.</p> <p>During operation, the Purple Route Option will increase the impermeable highway area and consequently generate greater volumes of surface runoff. In the absence of mitigation, increased runoff rates have the potential to impact on the existing hydrological regime and result in flooding and impact on riparian and aquatic habitats. In addition, surface runoff could contain oils, fuels and sediment. Drainage based on Sustainable Urban Drainage Systems (SUDS) would be installed to attenuate, treat and discharge carriageway runoff and minimise the significance of such effects.</p> <p>A number of watercourses in the study area are designated under the terms of the Drainage (Northern Ireland) Order 1973. Any works, for example installation of new culverts, extension of existing culverts or land drainage, that may affect surface watercourses will require the prior consent and approval of the Rivers Agency. In addition the discharge of surface water would require to be licensed with the Northern Ireland Environment Agency Water Management Unit (EHS WMU).</p> <p>Surface waters within the area are important salmonid waters; both the Skeoge River and Ballymagrorty Stream are designated salmonid under the Freshwater Fish Directive whilst the River Foyle is an important migratory route. The release of pollutants and sediments to these surface waters could adversely impact upon fish populations, however, the implementation of mitigation would reduce the potential for adverse effects.</p> <p>The overall effect of the scheme will be to increase the impermeable area along the A2 corridor, with resultant increases in surface water runoff and the potential for pollutant loaded runoff to enter watercourses. The increase in impermeable area is greatest for the Purple Route due to construction of the two-way off-line section and as a result it will generate slightly more runoff. However, whilst of all the Options, the Purple Route is likely to generate the greatest volume of runoff and also has a greater potential for pollutant loaded runoff to enter surface waters it is considered that with the adoption of appropriate mitigation measures, the overall impact can be reduced to low significance.</p>	N/A	Low Significance
	Physical Fitness	The off line widening of the A2 would encourage non motorised users to use the existing/on-line section. However for the on-line section of the widening non motorised users would be dissuaded from using the main carriageway. The route is provided for motorised transport to get into Londonderry from the west and the proposed widening may make it unattractive and more hazardous for pedestrians and cyclists to use. However, careful design may improve crossing facilities which may encourage pedestrian movements between residential areas on the one side of the carriageway and the commercial, employment and education facilities on the other. Likewise, cycle lanes may be provided to encourage continued / new cycle use of the area.	N/A	Neutral
	Journey Ambience	Any road improvements will have a neutral effect on travellers stress because road improvements will be in pace with projected traffic growth. The improvements will impact on more than 10,000 motorists, the effect being largely beneficial	N/A	Large Beneficial
SAFETY	Accidents	Pedestrian facilities at junctions and wider footways / cycleways will improve safety for pedestrians and cyclists. However, accident disbenefits will result due to junctions revised to signalised layouts.	-£14.3m	Moderate Negative

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Purple Option		Description – Predominantly on-line carriageway widening from the Pennyburn Roundabout to the Skeoge Roundabout to provide two lanes of traffic in each direction with on off-line diversion between Pennyburn Pass and Springtown Road for two way traffic.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Security	Reduced fear at stop-lines, removal of 'partially concealed' areas.	N/A	Moderate Beneficial
ECONOMY	Public Accounts	The Purple Route performs poorly.	BCR 5.58 NPV £142.7m	Slight Beneficial
	Business Users & Providers	Benefits in terms of time savings, delay savings and vehicle operating costs.	£96.0m	Slight Beneficial
	Consumer Users	Benefits in terms of time savings, delay savings and vehicle operating costs.	£97.5m	Slight Beneficial
	Reliability	Improved reliability as widened road will provide more capacity and hence more consistent journey times. Performs third out of three routes in terms of junction operation at Racecourse Rd & Springtown Rd junctions. Section of 'old' Buncrana Road would improve reliability for bus services.	N/A	Slight Beneficial
	Wider Economic Impacts	Assists delivery of Area Plan developments and enhances Cross-Border links.	N/A	Moderate Beneficial
ACCESSIBILITY	Option values	No significant change	N/A	Neutral
	Severance	Removes much of the existing traffic away from the 'old' Buncrana Road. Slight increase in pedestrian walk/cycling distances.	N/A	Slight Beneficial
	Access to the Transport System	No significant change	N/A	Neutral
INTEGRATION	Transport Interchange	No significant change	N/A	Neutral
	Land-Use Policy	The A2 is designated as a protected route transport corridor. The study area is a mix of residential, commercial, industrial, agricultural, amenity and green belt land uses. At local and regional level, planning policies advocate the protection of lands within the greenbelt but there is also an emphasis on updating transport links to improve infrastructure so that sustainable transport policies can be created. The Purple option will improve regional transport links between Northern Ireland and the Republic of Ireland in the north west.	N/A	Beneficial
	Other Government Policies	The scheme facilitates the 'Shaping Our Future – Regional Development Strategy For Northern Ireland 2025' in relation to improving infrastructure to turn Londonderry into a hub city for the North West. The Regional Development Strategies promotes improved rural integration and development of transport routes, including public transport routes. The scheme may develop public transport routes by ensuring consistent journey times, however, it is possible that community severance will be increased if community crossings are not integrated into road design.	N/A	Beneficial Effect

Navy Route Option

Table 4 Navy Route Option Assessment Summary Table

Scheme Option – Buncrana Road – A2 Navy Option		Description – Predominantly on-line carriageway widening between the Skeoge Roundabout to the border with the Republic of Ireland to provide two lanes of traffic in each direction with a roundabout at the entrance of Elagh Business Park.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £																				
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT																				
ENVIRONMENT	Noise	Qualitative noise impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No Properties</td> <td>of</td> <td>Do Min</td> <td>Scheme</td> </tr> <tr> <td>0 – 100m</td> <td></td> <td>18</td> <td>18</td> </tr> <tr> <td>100m – 200m</td> <td></td> <td>46</td> <td>46</td> </tr> <tr> <td>200m – 300m</td> <td></td> <td>30</td> <td>30</td> </tr> </table> <p>Further quantitative assessment will be undertaken at Stage 3.</p>	No Properties	of	Do Min	Scheme	0 – 100m		18	18	100m – 200m		46	46	200m – 300m		30	30	N/A at this stage				
	No Properties	of	Do Min	Scheme																				
	0 – 100m		18	18																				
	100m – 200m		46	46																				
	200m – 300m		30	30																				
	Local Air Quality	Qualitative air quality impact assessment for WebTAG assessment will be undertaken at Stage 3.	<table border="1"> <tr> <td>No of Properties</td> <td>of</td> <td>Do Min</td> <td>Scheme</td> </tr> <tr> <td>0 – 50m</td> <td></td> <td>2</td> <td>2</td> </tr> <tr> <td>50m – 100m</td> <td></td> <td>16</td> <td>16</td> </tr> <tr> <td>100m – 150m</td> <td></td> <td>19</td> <td>19</td> </tr> <tr> <td>150m – 200m</td> <td></td> <td>27</td> <td>27</td> </tr> </table> <p>Further quantitative assessment will be undertaken at Stage 3.</p>	No of Properties	of	Do Min	Scheme	0 – 50m		2	2	50m – 100m		16	16	100m – 150m		19	19	150m – 200m		27	27	N/A at this stage
	No of Properties	of	Do Min	Scheme																				
0 – 50m		2	2																					
50m – 100m		16	16																					
100m – 150m		19	19																					
150m – 200m		27	27																					
Greenhouse Gases	Climate change assessment will be undertaken at Stage 3.	N/A	N/A																					
Landscape	Most of the area between Londonderry and the Border has been zoned for development in Derry Area Plan 2011. Widening Buncrana Road would make a slight adverse effect on the landscape of this attractive valley, but the proposed Elagh Roundabout and link to Coshquin Road are sited on one of the remaining sections of Green Belt land between the city and the Border.	N/A	Moderate Adverse																					
Townscape	N/A	N/A	N/A																					
Heritage of Historic Resources	Five archaeological sites will be impacted by the proposed scheme, three direct impacts the possible location of a flax dam, the location of a small building and a stone bridge and two visual impacts on the gardens of Glengallagh House and the scheduled monument of Castle Aileach. The context of a souterrain will also be negatively impacted. The other sites are located sufficiently far enough away to remain unaffected.	N/A	Large Adverse																					
Biodiversity	Field work in the area has confirmed that the environment surrounding the scheme contains a few areas of semi-natural vegetation or other areas with significant biodiversity. The most interesting ecological features along much of the route corridor are the semi-mature trees along filed margins and streams. Adjacent to the Elagh Business park, waste ground has begun to scrub over and this has increased the biodiversity interest of this site. Detailed vegetation survey, mammal surveys, hedgerow survey, breeding bird survey and wintering bird surveys have all been completed and a number of nationally or internationally protected species we recorded along the route. Since Stage 1 newts have been recorded as occurring in the ponds to the west of the Elagh Road and bats from the trees along the Elagh stream and mature trees near Benview Road. Newts are protected under the Wildlife (Northern Ireland) Order 1985 and bats are protected under the Conservation (Natural Habitats etc.) Regulations (Northern Ireland) 1995 and The Conservation (Natural Habitats, etc.) (Amendment) Regulations (Northern Ireland) 2007.	N/A	Moderate Adverse																					

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Navy Option		Description – Predominantly on-line carriageway widening between the Skeoge Roundabout to the border with the Republic of Ireland to provide two lanes of traffic in each direction with a roundabout at the entrance of Elagh Business Park.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Water Environment	<p>The Navy Route Option would cross or is located adjacent to a number of watercourses including the Skeoge River and Ballymagrorty Stream as well as smaller streams and field drains. Construction works in the vicinity of these watercourses has the potential to release pollutants and sediments and thus impact upon the chemical and biological water quality of surface waters as well as impact on aquatic and riparian habitats. Adoption of appropriate mitigation measures as well as adherence to Pollution Prevention Guidance (PPGs) and the guidance contained within CIRIA Document C650 “Environmental Good Practice on Site” would maintain existing water quality and mitigate potential pollution impacts resulting from construction.</p> <p>During operation, the Navy Route Option will increase the impermeable highway area and consequently generate greater volumes of surface runoff. In the absence of mitigation, increased runoff rates have the potential to impact on the existing hydrological regime and result in flooding and impact on riparian and aquatic habitats. In addition, surface runoff could contain oils, fuels and sediment. Drainage based on Sustainable Urban Drainage Systems (SUDS) would be installed to attenuate, treat and discharge carriageway runoff and minimise the significance of such effects.</p> <p>The Navy Option will require significant earthworks and as such an earthworks management plan will form the basis of mitigation to prevent sediment entering surface watercourses.</p> <p>A number of watercourses in the study area are designated under the terms of the Drainage (Northern Ireland) Order 1973. Any works, for example installation of new culverts, extension of existing culverts or land drainage, that may affect surface watercourses will require the prior consent and approval of the Rivers Agency. In addition the discharge of surface water would require to be licensed with the Environment and Heritage Service Water Management Unit (EHS WMU).</p> <p>Surface waters within the area are important salmonid waters; both the Skeoge River and Ballymagrorty Stream are designated salmonid under the Freshwater Fish Directive. The release of pollutants and sediments to these surface waters could adversely impact upon fish populations, however, the implementation of mitigation would reduce the potential for adverse effects.</p> <p>The overall effect of the scheme will be to increase the impermeable area along the A2 corridor, with resultant increases in surface water runoff and the potential for pollutant loaded runoff to enter watercourses. The increase in impermeable area is slightly greater for the Navy Route due to construction of the one-way off-line section and as a result it will generate slightly more runoff. However, taking into account the proposed mitigation measures to be incorporated during construction and operation, the overall impact is considered to be reduced to low significance.</p>	N/A	Low Significance
	Physical Fitness	The on-line dualling and off-line roundabout placement would dissuade non motorised users from using the carriageway. The route is provided for motorised transport to get into Londonderry from the west and the proposed dualling may make it unattractive and more hazardous for pedestrians and cyclists to use. However, careful design may improve crossing facilities which may encourage pedestrian movements between residential areas on the one side of the carriageway and the commercial, employment and education facilities on the other. Likewise, cycle lanes may be provided to encourage continued / new cycle use of the area.	N/A	Neutral
	Journey Ambience	Any road improvements will have a neutral effect on travellers stress because road improvements will be in pace with projected traffic growth. The improvements will impact on more than 10 000 motorists, the effect being largely beneficial	N/A	Large Beneficial

Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2		Description – Predominantly on-line carriageway widening between the Skeoge Roundabout to the border with the Republic of Ireland to provide two lanes of traffic in each direction with a roundabout at the entrance of Elagh Business Park.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
SAFETY	Accidents	Improvement in the form of central reservation and left-in/left-out junctions, better standard of road.	£3.7m	Moderate Beneficial
	Security	No significant change	N/A	Neutral
ECONOMY	Public Accounts	The Navy Route performs well, despite a PVC of £11.6m, a high BCR and NPV is achieved.	BCR 10.56 NPV £111.2m	Moderate Beneficial
	Business Users & Providers	Benefits in terms of time savings, delay savings and vehicle operating costs.	£71.7m	Moderate Beneficial
	Consumer Users	Benefits in terms of time savings, delay savings and vehicle operating costs.	£60.9m	Moderate Beneficial
	Reliability	Improved reliability as widened road will provide more capacity and hence more consistent journey times.	N/A	Slight Beneficial
	Wider Economic Impacts	Assists delivery of Area Plan developments and enhances Cross-Border links.	N/A	Moderate Beneficial
ACCESSIBILITY	Option values	No significant change	N/A	Neutral
	Severance	Limited severance at present may be worsened by development of Area Plan zones with increased pedestrian demand.	N/A	Slight Negative
	Access to the Transport System	No significant change	N/A	Neutral
INTEGRATION	Transport Interchange	No significant change	N/A	Neutral
	Land-Use Policy	The A2 is designated as a protected route transport corridor. The study area is a mix of residential, commercial, industrial, agricultural, amenity and green belt land uses. At local and regional level, planning policies advocate the protection of lands within the greenbelt but there is also an emphasis on updating transport links to improve infrastructure so that sustainable transport policies can be created. The Navy option will allow better access into the existing industrial lands and residential communities which are adjacent to Buncrana Road, it will however, infringe upon the area of green belt which is to the east of the study area.		Beneficial
	Other Government Policies	The scheme facilitates the 'Shaping Our Future – Regional Development Strategy For Northern Ireland 2025' in relation to improving infrastructure to turn Londonderry into a hub city for the North West. The Regional Development Strategies promotes improved rural integration and development of transport routes, including public transport routes. The scheme may develop public transport routes by ensuring consistent journey times, however, it is possible that community severance will be increased if community crossings are not integrated into road design.		Beneficial Effect

Worksheet 1: Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Existing Route Option

Table 5 Do Nothing Option Assessment Summary Table

Scheme Option – Buncrana Road – A2 Existing Option		Description – Existing single carriageway from Pennyburn Roundabout to the RoI border.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £																		
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT																		
ENVIRONMENT	Noise	Qualitative noise impact assessment will be undertaken at Stage 2.	<table border="1"> <tr> <td>No of Properties</td> <td>Do Min</td> <td>Scheme</td> </tr> <tr> <td>0 – 100m</td> <td>340</td> <td></td> </tr> <tr> <td>100m – 200m</td> <td>356</td> <td>340</td> </tr> <tr> <td>200m – 300m</td> <td>312</td> <td>356</td> </tr> <tr> <td></td> <td></td> <td>312</td> </tr> </table>	No of Properties	Do Min	Scheme	0 – 100m	340		100m – 200m	356	340	200m – 300m	312	356			312	Neutral			
	No of Properties	Do Min	Scheme																			
	0 – 100m	340																				
	100m – 200m	356	340																			
	200m – 300m	312	356																			
			312																			
	Local Air Quality	Qualitative local air quality assessment will be undertaken at Stage 2.	<table border="1"> <tr> <td>No of Properties</td> <td>Do Min</td> <td>Scheme</td> </tr> <tr> <td>0 – 50m</td> <td>175</td> <td></td> </tr> <tr> <td>50m – 100m</td> <td>162</td> <td>175</td> </tr> <tr> <td>100m – 150m</td> <td>169</td> <td>162</td> </tr> <tr> <td>150m – 200m</td> <td>183</td> <td>169</td> </tr> <tr> <td></td> <td></td> <td>183</td> </tr> </table>	No of Properties	Do Min	Scheme	0 – 50m	175		50m – 100m	162	175	100m – 150m	169	162	150m – 200m	183	169			183	Neutral
	No of Properties	Do Min	Scheme																			
	0 – 50m	175																				
	50m – 100m	162	175																			
100m – 150m	169	162																				
150m – 200m	183	169																				
		183																				
Greenhouse Gases	Climate change assessment will be undertaken at Stage 3.	N/A	N/A																			
Landscape	Most of the area between Londonderry and the Border has been zoned for development in Derry Area Plan. The immediate landscape effect of the Do Nothing option is No Change. In future years, traffic on the Buncrana Road could become busier and more congested, and this may result in a minor adverse impact on the landscape and local views.	N/A	Neutral																			
Townscape	Most of the area between Londonderry and the Border has been zoned for development in Derry Area Plan. The immediate landscape effect of the Do Nothing option is No Change. In future years, traffic on the Buncrana Road could become busier and more congested, and this may result in a minor adverse impact on the landscape and local views.	N/A	Neutral																			
Heritage of Historic Resources	Under existing conditions there is a slight adverse impact on the context of a souterrain.	N/A	Slight Adverse																			
Biodiversity	Biodiversity impacts will only relate to an increased number of collisions between animals traversing the road resulting from the higher projected traffic flow along the road.	N/A	Slight Adverse																			
Water Environment	The water environment will only be affected if increased traffic results in unattenuated road runoff and spillages resulting from collisions brought on by increased traffic.	N/A	Slight Adverse																			
Physical Fitness	Non motorised road users would still have their existing amenities. There are existing pedestrian facilities on the A2 Buncrana Road, however if there is a projected increase in traffic, non motorised users may be dissuaded from using the carriageway.	N/A	Neutral																			
Journey Ambience	Any road improvements will have a neutral effect on travellers stress because road improvements will be in pace with projected traffic growth. More than 10,000 motorists will be affected by not upgrading the Buncrana Road infrastructure.	N/A	Large Adverse																			
SAFETY	Accidents	The existing route has a relatively high recorded rate of collisions.	N/A	Moderate Adverse																		
	Security	Traffic congestion on the existing route leads to fear for road users and non-motorised users crossing the road.	N/A	Moderate Adverse																		
ECONOMY	Public Accounts	Congestion on the road has a cost to the government in terms of lost working hours and an environmental cost in terms of noise and air pollution.	N/A	Moderate Adverse																		

Worksheet 1: Appraisal Summary Tables (AST) A2 Buncrana Road Stage 2

Scheme Option – Buncrana Road – A2 Existing Option		Description – Existing single carriageway from Pennyburn Roundabout to the RoI border.	Problems – Existing single carriageway lacks capacity becoming congested at peak hours.	Present Value Cost £
OBJECTIVE	SUB-OBJECTIVE	QUALITATIVE IMPACTS	QUANTITATIVE MEASURE	ASSESSMENT
	Business Users & Providers	Business users particularly experience cost due to delays and operating costs due to congestion, as their value of time is higher than for Consumer users.	N/A	Moderate Adverse
	Consumer Users	Consumer users (typically commuters) experience costs in the form delays and operating costs.	N/A	Moderate Adverse
	Reliability	Road users suffer from poor journey reliability due to congestion and occasional incidents.	N/A	Moderate Adverse
	Wider Economic Impacts	The local and wider economy suffers as a result of poor transport conditions along the corridor.	N/A	Moderate Adverse
ACCESSIBILITY	Option values	Transport options are fairly limited to private car use along the corridor.	N/A	Moderate Adverse
	Severance	Communities along the corridor suffer from a degree of severance due to traffic congestion and limited opportunities for pedestrians to cross the road.	N/A	Moderate Adverse
	Access to the Transport System	Very few public transport services on Buncrana Road severely limit access for people who do not have access to a car.	N/A	Moderate Adverse
INTEGRATION	Transport Interchange	Not applicable.	N/A	N/A
	Land-Use Policy	The A2 is designated as a protected route transport corridor. The study area is a mix of residential, commercial, industrial, agricultural, amenity and green belt land uses. At local and regional level, planning policies advocate the protection of lands within the greenbelt but there is also an emphasis on updating transport links so that a better infrastructure can exist so that sustainable transport policies can be created.	N/A	Neutral
	Other Government Policies	The existing road does not enhance regional development.	N/A	Neutral