

<b>Proposal Details</b>			
Proposal Name:	Raigmore Segregated Left Turn		
Proposal Description:	A segregated left turn Lane at Raigmore Interchange from the A9 southbound to the A96 eastbound.	Estimated Total Public Sector Funding Requirement:	Capital costs/grant £6 million (2012 prices excluding VAT)
<b>Background Information</b>			
Geographic Context:	<p>The A96 is a strategic trunk road which connects Inverness to Aberdeen, and the A9 is a strategic trunk road between the Central Belt and Northern Scotland. The A96 is single carriageway as it approaches Inverness but becomes a dual carriageway on approach to the Inverness Retail Park roundabout. The A9 on approach to and around Inverness is dual carriageway.</p> <p>Raigmore Interchange is of strategic importance to Inverness, connecting the A9 and the A96. It was built as a grade separated interchange between the A9, A96 and Milburn Road (B865) and is part of the route that traffic from the East takes into Inverness city centre. The A9 at this point is a dual carriageway road with the national speed limit, the A96 is also dual carriageway with a speed limit of 50mph, as is Milburn road with a speed limit of 40mph.</p> <p>The interchange itself lies in close proximity to the Inverness – Aberdeen and Inverness – Perth railway lines.</p>		
Social Context:	<p>Raigmore Interchange is an important interchange on both the local and strategic network around Inverness. It will have a social impact by affecting the ability of residents to access services and employment opportunities. The area that would be affected by the option is West Seafield.</p>		
Economic Context:	<p>Raigmore is an important interchange on both the local and strategic network around Inverness. It is used daily by commuter traffic from settlements to the East of Inverness and is an important connection between the A9 and A96 trunk roads. Works that improve the operation of Raigmore Interchange by reducing the delay time and curtail approaches would be economically beneficial.</p>		

<b>Planning Objectives</b>	
<b>Objective:</b>	<b>Performance against planning objective:</b>
L1: Improve journey time and increase opportunities to travel, particularly by public transport, between Aberdeen and Inverness.	<p><b>L1 - Minor Benefit</b></p> <p>Modelling output for this option shows that the main movement to benefit from this option is the North to East movement at Raigmore. Journey times between Harbour Road and the A96 reduce by 6 % in the AM Peak and 5% in the PM Peak. The number of vehicles travelling from Inverness city centre to the A96 via Raigmore are also lower in the AM (6%) and PM (5%) Peaks, with trips transferring onto the A82 and travelling via Longman Junction. Journey times for trips from the A82 to the A96 via Longman are shown to reduce by 5% in the AM and 9% in the PM.</p> <p>In the opposite direction the journey time benefits are not realised, via Longman there is a 1% reduction in AM journey times but a 4% increase in PM journey times. Trips to the city centre via Raigmore are 1% quicker in the AM and remain unchanged in the PM.</p> <p>Therefore this option provides some benefits to traffic travelling from Inverness to Aberdeen but would be of no benefit to those travelling from Aberdeen to Inverness.</p>
L2.1: Improve the effectiveness of the road network hierarchy in addressing the conflict between longer distance and local traffic through rationalisation of local movements' use of Trunk Road junctions	<p><b>L2.1 - Neutral</b></p> <p>This option provides a dedicated left turn to traffic travelling from the A9 North to the A96 and reduces the conflict between longer distance and local traffic by providing a segregated lane for trunk road traffic. Modelling of this option has shown that the segregated left turn increases traffic southbound on the A9 between Longman junction and Raigmore Interchange due to the redistribution of some traffic from Millburn Rd to the A82. This increases the conflict between longer distance and local traffic on these parts of the road network.</p>
L2.2: Reduce conflicts for longer distance and local traffic for planned development areas to the east.	<p><b>L2.2 - Minor Benefit</b></p> <p>This option provides a dedicated left turn for traffic travelling from the A9 to the A96, which would give trunk road traffic the priority over local traffic movements at the junction. The segregated left turn reduces delays for the North to East movement at Raigmore Interchange which would benefit traffic travelling to the development areas from the north.</p>
L3: Improve connectivity, particularly by public transport and active travel, between	<p><b>L3 - Neutral</b></p> <p>This option results in minor journey time improvements to vehicles travelling from Inverness city centre to the</p>

<p>Inverness city centre and the growth area to the east including Inverness Airport</p>	<p>A96 via Raigmore and Longman, which would benefit bus services using these routes, however any benefits would be marginal.</p> <p>This option has also been shown to transfer traffic from the local roads to the A9 an A96 and may therefore make the local roads and cycle paths more attractive for active travel.</p>
<p>L4: Improve safety for motorised and non-motorised users by reducing the accident rate at Trunk Road junctions</p>	<p><b>L4 - Minor Benefit</b></p> <p>The dedicated left turn lane will remove one of the conflicts from the roundabout which should improve safety. Once the segregated left turn is in place some of the traffic on the local roads around Raigmore has been shown to use the A82 and A9 instead of Millburn Road. Transferring traffic from the local road network to the trunk road should result in a benefit to safety in the Raigmore area.</p>
<p>L5.1: Improve the operational performance of the Trunk Road network and junctions on the A9 and A96 as they approach Inverness from the Kessock Bridge; south of Inshes and the Smithton Roundabout.</p>	<p><b>L5.1 - Minor Benefit</b></p> <p>Modelling has shown that the largest journey time savings following the implementation of this option are for trips from the Kessock Bridge and Stadium road to the A96 and Barn Church Road, suggesting that the operational performance of Raigmore Interchange will be improved.</p> <p>However the benefits are localised and there is no improvement to journey times in the reverse direction or between the Kessock bridge and the A9 South of Inshes.</p>
<p>L5.2: Improve the operational performance of the secondary network and junctions where this may improve the operation of the Trunk Road network.</p>	<p><b>L5.2 - Neutral</b></p> <p>This option provides improvements to the operation of the secondary road network through a direct improvement to Raigmore Interchange. Therefore this option does not benefit this objective.</p>
<p><b>Implementability Appraisal</b></p>	
<p>Technical:</p>	<p>Due to the size of the circulatory carriageway of Raigmore Interchange, the proposed segregated left-turn layout does not conform to standards in that it is not a flowing left hand radius. There are concerns that it may induce high speeds and that the merge onto the A96 does not provide adequate weaving distance to the retail park roundabout.</p> <p>The segregated left turn lane at Raigmore Interchange would be implemented using proven methods and technology. The proximity of the Inverness to Perth railway requires a 230m long retaining wall and widening to the existing A96 road bridge over the railway. Traffic management during construction would require lane closures at Raigmore Interchange to provide access to construct the works.</p>

Operational:	There are no factors which might adversely affect the ability to operate the proposal over its projected life with major additional costs.	
Financial:	The implementation of this option would be subject to funding availability and other competing priorities throughout Scotland such as Scottish Government, developers or The Highland Council.	
Public:	Implementation of this proposal should be taken forward in consultation with Network Rail.	
<b>STAG Criteria</b>		
<b>Criterion</b>	<b>Assessment Summary</b>	<b>Supporting Information</b>
Environment:  <i>Note – all STAG ratings for individual assessment areas are expressed without mitigation.</i>  <i>Overall STAG Rating - Small Minor Impact.</i>	Global and Local Air Quality – Small Minor Impact	There are a number of residential receptors to the south of this option in Raigmore, and the option lies close to the Inner Moray Firth (SAC), Inner Moray Firth (SPA) and Longman and Castle Stuart Bays (SSSI). The route moves the existing traffic further away from the residential receptors, but closer to the Longman and Castle Stuart Bays SSSI and Inner Moray Firth (SPA) & Ramsar. It is likely that the residential receptors will benefit from the movement of traffic, while there are potential impacts on the SPA/SAC from nitrogen deposits. It is likely that potential impacts can be reduced through mitigation, such as designing the route to minimise distance from receptors and adherence to construction best practice to limit dust creation and dispersal.
	Cultural Heritage – No Benefit or Impact	This option lies within areas that have been previously disturbed so no impact on archaeological remains is predicted. The addition of a left turn lane to the existing road will not impact on the setting of Stoneyfield (a Category B Listed Building) or the historic landscape.
	Noise & Vibration – No Benefit or Impact	There are a number of residential receptors to the south of this option in Raigmore. However, as the route moves the existing traffic further away from these no impacts are expected.

<p>Habitats and Biodiversity – Moderate Impact</p>	<p>Construction activities have the potential to impact on the Moray Firth (SAC), Inner Moray Firth (SPA) and Longman and Castle Stuart Bays SSSI through disruption to foraging patterns and flightlines of qualifying species, and through the increased fine sediment supply and chemical pollution. In addition there is the potential for loss of bat habitat and trees with bat roost potential if mature trees need to be removed during construction. It is likely that potential impacts could be reduced through mitigation such as adherence to SEPA’s Pollution Prevention Guidelines, provision of suitable habitat for bats (e.g. bat boxes), and sympathetic design of any lighting. The proximity to the SPA/SAC, SSSI and Important Bird Area may require more specific mitigation.</p>
<p>Agriculture and Soils – No Benefit or Impact</p>	<p>Land not used for agriculture (existing road /railway).</p>
<p>Landscape &amp; Visual – Small Minor Impact</p>	<p>There are impacts on landscape character (Inverness Urban Fringe and Culloden LCA and Enclosed Firth LCA) due to the introduction of a retaining structure, required to avoid encroachment onto Inverness to Aberdeen and Inverness to Perth railway lines), and through the loss of existing roadside plantation. It is likely that potential impacts could be reduced through mitigation such as sensitive design of the alignment and associated infrastructure (e.g. grading out of embankment slopes) and landscape planting.</p>
<p>Water Quality, Drainage and Flood Defence</p> <ul style="list-style-type: none"> <li>• Water Quality – Small Minor Impact</li> <li>• Flood Risk – No Benefit or Impact</li> </ul>	<p>Construction of this option has the potential to increase fine sediment supply and chemical pollution to the Moray Firth (SAC) and Inner Moray Firth (SPA). In addition temporary increases in peak runoff and volume have the potential to flood risk. Although this has been assessed to be negligible. It is likely that potential impacts could be reduced through mitigation, such as adherence to SEPA’s Pollution Prevention Guidelines and construction best practice and through the provision of Sustainable Drainage Systems (SUDS).</p>

	<p>Geology – Moderate Impact</p>	<p>Contaminated land within the vicinity of the route option includes the Inverness to Aberdeen Railway Line and the former Longman Landfill site. During construction, there is the potential to impact on groundwater quality due to increased fine sediment supply, chemical pollution and potential exposure/disturbance of contaminants from the contaminated sites. In addition impacts may arise from direct interaction and potential off-site removal of made contaminated material. It is likely that potential impacts could be reduced through mitigation such as adherence to construction best practice and establishment of appropriate health and safety measures for working with contaminated land.</p>
	<p>Social Inclusion &amp; Integration – Minor Benefit</p>	<p>A temporary increase in congestion and journey times during construction for roads in the study area is predicted. While the journey times across the network are generally likely to decrease when travelling north to east, there are likely to be little benefits from this option for traffic travelling in the opposite direction. This will generally benefit the local communities and their ability to access local facilities to the east of the option including the Inverness Retail Park, the airport and the facilities and employment opportunities in the consented New Town in Stratton East Inverness when developed. It is likely that potential impacts during construction can be reduced through the use of traffic management systems and adequate signage of diversions.</p>
	<p>Planning and Policies* <i>*Due to the stage of the development proposals it is not possible to identify a STAG rating for planning and policies. The key policies where potential conflicts may occur have been identified.</i></p>	<p>Potential for conflict with Highland Wide Local Development Plan (HWLDP) Policy 5 which states that future supplementary guidance on the development of the Former Longman Landfill Site may include the requirement that developers will provide a 30 metre undeveloped corridor to safeguard the high pressure gas pipeline.</p>

<p>Safety:</p>	<p>Minor Benefit</p>	<p>Between 2000 and 2010 there were 27 slight accidents and 2 serious accidents at or on approach to Raigmore Interchange. Most of the accidents occurred on the gyratory and so by segregating the left turn movement from the A9 North, and removing one of the conflicts between traffic on the circulating carriageway and those entering it, may have a positive impact on the safety of the interchange. However, the segregated left turn may induce higher vehicle speeds and such a revised layout may increase the risk of other types of accident.</p> <p>Traffic modelling has also shown this option to cause the rerouting of some vehicles from the local roads to the A9 and A82 which will improve the safety of the local road network, especially for non-motorised users.</p>
<p>Economy:</p>	<p>Minor Benefit</p>	<p>The journey time savings from this option are only realised for North - East and West – East movements and are modest savings (5-10%) and so the economic benefits associated with this improvement are low.</p> <p>The indicative economic appraisal (TUBA only) shows that the option would provide sufficient economic benefits to justify investment with a Benefit to Cost ratio (BCR) of approximately 1.2.</p>
<p>Integration:</p>	<p>Minor Benefit</p>	<p><u>Transport Integration</u></p> <p>There are almost 200 scheduled buses that use Raigmore Interchange on a daily basis<sup>1</sup>, including 20 in the AM peak period and 21 in the PM peak period. All bus services are in the East to West or West to East direction.</p> <p>Reducing the delays for these movements will have a positive effect on the journey times and reliability of the buses using this junction. More reliable bus times allow for connections to other routes to be made with more certainty and may encourage multi modal travel.</p> <p>However it does not provide the opportunity for new bus routes or active transport networks to encourage non-motorised transport.</p> <p>This option has also been shown to transfer traffic from the local roads to the A9 an A96 and may therefore make the local roads and cycle paths more attractive for active travel.</p>

<sup>1</sup> Stagecoach bus timetables

		<p><u>Transport &amp; Land Use Integration</u></p> <p>This option is well integrated with the Highland Council’s proposed developments to the East of Inverness. It will provide relief to Raigmore Interchange allowing capacity for increased traffic from the developments to the East. However the levels of development anticipated in the area mean that this option alone would not be a large enough intervention to manage the impact of the additional traffic.</p> <p><u>Policy Integration</u></p> <p>This option does not conflict with any national, regional or local transport policy.</p>
<p>Accessibility and Social Inclusion:</p>	<p>Minor Benefit</p>	<p>A temporary increase in congestion and journey times during construction for roads in the study area is predicted. While the journey times across the network are generally likely to decrease when travelling north to east, there is likely to be little benefit from this option for traffic travelling in the opposite direction. This will generally benefit the local communities and their ability to access local facilities to the east of the option including the Inverness Retail Park, the airport and the facilities and employment opportunities in the consented New Town in Stratton East Inverness when developed. The reduction of traffic on the Milburn Road and A96 approaches to Raigmore Interchange contribute to an improvement in the operation of the junction itself by reducing the level of conflicting longer distance and local movements, leading to reductions in journey times for movements passing through the interchange.</p>
<p>Rationale for Selection or Rejection of Proposal:</p>	<p>This option performs well against the transport planning objectives and appraisal criteria. However there are concerns about whether such an arrangement complies with the DMRB and can be developed to address all safety considerations. This option also requires significant engineering structures. As it is unlikely that a suitable layout can be achieved this option is therefore recommended for rejection.</p>	