

## **4d Access to Laurencekirk Study**

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### **o Purpose of Report**

The purpose of this report is to inform members that the Access to Laurencekirk Study has been completed and a draft report submitted for consideration. Approval is being sought to finalise and publish the study and refer it to the appropriate Roads Authorities with a recommendation that further more detailed appraisal is undertaken to develop and implement a preferred solution.

### **o Background**

In December 2013 Nestrans employed CH2MHill to develop a robust evidence case for a preferred option for access to Laurencekirk. Transport Scotland contributed £100,000 to the cost of the study and has been part of the steering group along with Aberdeenshire Council and Tactran, with participation from Angus Council.

The study has been undertaken in accordance with the Design Manual for Roads and Bridges (DMRB) Stage 1 and Scottish Transport Appraisal Guidance (STAG) methodologies.

### **o Summary of Findings**

It is intended that the full draft study report will be uploaded to Member's area of the Nestrans website. An executive summary has been attached in Appendix 1 to give a summary of the work undertaken and the outcomes of the appraisal. This shows that there would be benefit in upgrading the A90/A937 south junction at Laurencekirk to improve network efficiency and safety and help enable economic development. The study has also identified opportunities to improve safety at nearby junctions through closures or access restrictions, although the optimum arrangement will require to be determined through more detailed design work.

### **o Next Stages**

Nestrans commissioned this study; however the appropriate Roads Authorities for the delivery of any projects are Transport Scotland for those involving the Trunk Road network and Aberdeenshire Council for any on local roads.

Nestrans will therefore have to consider the STAG assessment and refer it along with any Nestrans views to the appropriate Roads Authorities for their consideration.

The Minister for Transport and Islands, Derek MacKay has however stated in the joint press release prepared by Nestrans and Transport Scotland regarding the completion of the study that:

“The Scottish Government has been committed to improving the A90 at Laurencekirk and the identification of a grade-separated junction for the route will be welcomed by all those who have campaigned for such an upgrade.

“We will now work with our partners to progress this work further including discussions around funding.”

## o **Recommendations**

It is recommended that the Board:

1. Note and approve the principle of the findings within the draft study to allow the report to be finalised and published.
2. Remit the study to Transport Scotland and Aberdeenshire Council for their consideration with a recommendation that further more detailed appraisal is undertaken to develop and implement a preferred solution.

JA/8 June 2015

## Access to Laurencekirk Study – Executive Summary

### Introduction

CH2MHill was commissioned by Nestrans in December 2013 to develop a robust evidence case for a preferred solution for access between the A90 Trunk Road and Laurencekirk and the north of Angus that is cost effective, improves road safety, allows the efficient operation of Laurencekirk High Street and meets the needs of local businesses and residents. The study was also required to give cognisance to the potential for traffic growth through future development within Laurencekirk and Angus and on the A90 Trunk Road Network. The Client Steering Group for the study consisted of Nestrans, Transport Scotland, Aberdeenshire Council and Tactran, with participation from Angus Council. The study has shown that there is a strong case for intervention to improve the efficiency of the network, support economic growth and reduce the risk of accidents.

### Background

The A90 trunk road was upgraded to dual carriageway standard in the 1980s and is the main strategic link between Aberdeen and Dundee. The settlement of Laurencekirk is approximately 40km south of Aberdeen and is bypassed to the south east by the trunk road. There are three at-grade junctions with the A90 that give access to Laurencekirk, namely the A937 north junction which also has a staggered access to Keilburn farm; the central B9120 staggered junction that gives access to St Cyrus and Garvock Hill; and the A937 south junction, where the staggered southern leg gives access to Marykirk, the A92 and Montrose area.



There are also a number of minor accesses to the A90 in the vicinity of Laurencekirk. The nearest grade separated junctions on the A90 are either 10km south of the Laurencekirk south junction at Stracathro or 21km north of the A937 north junction at Stonehaven.

The A90/A937 south junction is the busiest of the three Laurencekirk junctions and safety improvements were undertaken in 2005 and 2010 on the A90 Trunk Road on the approaches to the south junction, which included the introduction of a 50mph speed limit and the installation of speed cameras.

Although there have been no injury accidents at this location in recent years there is still a strong perception that it is a dangerous junction. The local community are highly engaged and have expressed the strength of their feeling throughout this study. A petition is currently lodged with the Scottish Government, which calls for the construction of a grade separated junction at this location.

### Study Methodology

This study has been undertaken in accordance with the Design Manual for Roads and Bridges (DMRB) Stage 1 and Scottish Transport Appraisal Guidance (STAG) methodologies. This required identification of the key transport problems, issues, opportunities and constraints on the corridor, which was informed through a review of previous studies and stakeholder engagement and evidenced where possible through traffic and data collection.

## Rationale for Intervention

Problems, issues and opportunities within the study area were identified and validated following extensive desktop research, surveys and consultation. This provided an evidence base for the development of Transport Planning Objectives (TPOs) to specify what any transport intervention should seek to achieve. The objectives then provided a framework for appraising alternative options. Each TPO is shown below along with a summary of the key problems, issues and opportunities they are seeking to address:

Key Associated Problem, Issue or Opportunity	Transport Planning Objective
<ul style="list-style-type: none"> <li>• 2 serious accidents at the A90 Laurencekirk centre junction between 2011 and 2013.</li> <li>• Large vehicles observed overhanging the central reserve causing obstruction to trunk road through movements and creating risk of a serious accident.</li> <li>• Speeding on the A90 through the 50mph section and growth trends on the A90 are likely to exacerbate existing problems.</li> </ul>	<p><b>Safety</b></p> <p>To achieve a reduction in accidents at or on immediate approach to the A90 Laurencekirk Junctions and as a result of traffic turning or crossing at the junctions.</p>
<ul style="list-style-type: none"> <li>• Re-routing of vehicles to avoid the A90 Laurencekirk junctions due to delay and perception of poor safety.</li> <li>• Poor driver behaviour when merging onto or crossing the A90.</li> </ul>	<p><b>Driver Behaviour</b></p> <p>To achieve a significant improvement in the attitude towards safety at the A90 Laurencekirk junctions by reducing the delay and improving the opportunities to cross the A90.</p>
<ul style="list-style-type: none"> <li>• Delay to vehicles on the A90 as a result of the 50mph speed constraint.</li> <li>• Delay to vehicles on the A937, especially in peak periods, approaching the A90 south junction from the south and north.</li> <li>• Traffic growth trends on the A90 and further development likely to lead to increased congestion, delays and queuing at the A90/Laurencekirk junctions.</li> <li>• Development in Laurencekirk and north Angus would require improvements to transport infrastructure.</li> </ul>	<p><b>Efficiency of the Network and Economic Development</b></p> <p>To achieve an improvement in network efficiency experienced by traffic travelling on the A90 and accessing and crossing the A90 at the Laurencekirk junctions in order to support sustainable economic growth in the south of Aberdeenshire and the north of Angus.</p>
<ul style="list-style-type: none"> <li>• Opportunities to improve sustainable travel.</li> <li>• Quality of life for local people in Laurencekirk being influenced by the barrier presented by the A90.</li> </ul>	<p><b>Sustainable Travel</b></p> <p>To enable safe crossing of the A90 by sustainable modes.</p>
<ul style="list-style-type: none"> <li>• Parking is an important function on the High Street, but can affect pedestrian crossing visibility and cause delay to vehicles.</li> <li>• Significant increases in traffic volumes could lead to delay and congestion in peak periods.</li> </ul>	<p><b>Laurencekirk High Street</b></p> <p>To contribute to the High Street's role as a central place for the continued vitality of the Laurencekirk community.</p>

A number of constraints have been identified that require to be considered in the development of any transport intervention. The BP Forties Pipeline lies to the east of the A90 and has a corridor of restriction for development. The exclusion zone for infrastructure either side of the pipeline is in the vicinity of the A90/B9120 central junction. The railway line and Laurencekirk Cemetery also limit the opportunity for physical improvements in their proximity.

Constraints are also imposed on option generation, due to the requirement to maintain accessibility for local users of the B9120 Garvock Road both north and south on the A90, as well as various farm properties at the north junction. This principally affects the combinations of central reservation closures that can be considered to be viable.

### Option Generation and Sifting

A range of options were developed which were informed from previous studies, suggestions from the stakeholder workshops, an open day and professional knowledge. The long list of options were considered against the objectives and a number sifted out that did not contribute to the objectives or were unlikely to be delivered due to constraints. The remaining options were categorised as either core or complementary options. Core options consist of those that address the problems and issues central to the study and they were formed into a series of packages for appraisal. The complementary options were insufficient in themselves to significantly address the study objectives

### Option Packages Appraisal

A series of eight packages were developed for appraisal as follows:

<p><b>Package 1 – Minor transport interventions</b></p> <p>This was considered as a low cost alternative to a major intervention and consisted of extending the current 50mph speed restriction on the A90 at the A90/A937 south junction to include the central and north Laurencekirk junctions, with the introduction of average speed cameras. This package did not however fully address the study objectives and was rejected for further assessment.</p>
<p><b>Packages 2 to 7 – Grade Separation</b></p> <p>Package 2 – grade separated junction at south            Package 3 – grade separated junction at south and closure of central reserve at north junction            Package 4 – grade separated junction at south, closure of centre junction and provision of link road between the B9120 and A937 to south of Laurencekirk            Package 5 – grade separated junction at south, closure of central reserve at north junction, closure of centre junction and provision of link road between the B9120 and A937 to south of Laurencekirk            Package 6 – grade separated junctions at south and north            Package 7– grade separated junctions at south and north with part closure of centre junction leaving left in/out from B9120 on the south side only</p>
<p><b>Package 8 – Sustainable travel measures</b></p> <p>Includes improved pedestrian and cycling facilities. This could provide opportunity for increased pedestrian and cycling activity, improving health and wellbeing. Whilst this package does not address many of the objectives and was not fully assessed under the detailed appraisal, it could be considered as a supportive measure to enhance any of the junction improvement packages.</p>

An S-Paramics micro-simulation model of Laurencekirk and the surrounding road network was developed to test the traffic related performance of packages 2 - 7. Future year forecasts of traffic demands for a design year of 2033 were informed from the strategic Aberdeen Sub Area Model and based upon background traffic growth trends and committed developments, excluding those that are conditioned on the provision of an upgrade to the A90/A937 south junction.

Packages 2 – 7 all contain a proposal to grade separate the A90/A937 south junction. The detailed appraisal has shown the significant benefit this would bring. The removal of at-grade crossing movements would provide safer crossing opportunities for all modes and enable the removal of the 50mph speed restriction on the A90 that was introduced as a road safety measure. This provides a positive benefit to cost ratio for the upgrade by reducing journey time and improving network efficiency on the trunk road and removing queuing on the A937 from both Montrose and Laurencekirk. The upgraded junction would safely accommodate increased traffic levels at the south junction generated by planned development in Laurencekirk and north Angus and therefore help enable economic growth. Upgrade of the south junction alone however does not reduce the risk of accidents at the north or centre junctions.

Appraisal to date suggests that there is benefit in closing the central reserve at the north junction to improve safety and remove the queue of southbound vehicles on the A90 waiting to turn right into Laurencekirk in the PM that are otherwise predicted to exceed the current stacking and deceleration lane in future years. The optimum arrangement of any further combination of closures or access restrictions however will require to be determined in subsequent work.

Provision of a second grade separated junction at the A90/A937 north junction does not provide a significant level of additional benefit with committed development only, that is those developments which have been granted planning permission.

#### Risk and Uncertainty Testing

A number of tests were undertaken to assess the impact on the option appraisal given some outcomes that cannot at this stage be predicted with any certainty. A sensitivity test was undertaken to test the impact should vehicles that are reported to be diverting from using the A90/A937 south junction transfer to an upgraded junction. The results indicate that a grade separated junction would safely accommodate any traffic attracted back to this junction that is currently re-routing due to safety concerns and delays. This would give the opportunity to further improve safety by allowing consideration to be given to the closure of the central reserves at the at grade junctions to the south of the A937, such as the A90/Landends/Unnamed road and the A90/B974.

The performance of the various packages have been tested under a 2033 future year scenario that was based upon background traffic growth forecasts and committed developments. As there is uncertainty over the rate that future development, as allocated in Local Development Plans, may be progressed, a number of scenarios were tested as a sensitivity test. This has indicated that there would be benefit in providing a grade separated junction at the A90/A937 north junction in addition to grade separation of the south junction should the M1 development allocated in the Local Development Plan for Laurencekirk be fully progressed. The requirement for this upgrade is related to potential future levels of development in Laurencekirk and should therefore be developer led.

This study has not sought to determine at what level of development it becomes necessary to provide an upgrade to the north junction and this will have to be determined through the planning process, although it is recognised that the low build rates in this area may affect the viability of development within Laurencekirk to meet the costs of a significant junction upgrade along with other local infrastructure requirements, such as education, water and waste water within the current Strategic Development Plan period.

#### Access Around Laurencekirk

Any changes in access between Laurencekirk and the A90 have the potential to change traffic flow levels on the High Street in Laurencekirk. Rationalisation of parking on the High Street would provide a clearer road layout for all users and improve the environment and safety for pedestrians. Although current parking availability would be altered, parking surveys have shown there is parking availability on the High Street and side streets. There is a risk

however that removal of pinch points may lead to increased speed, but traffic management could enable any changes to be better accommodated on the High Street.

Constructing a western distributor road between the A90/A937 south and north junction was shown to reduce benefits due to the significant increase in trip length and journey time that would be involved for those using the route and indicate that it is unlikely to attract traffic from the High Street. The high cost of this route, which would require rail crossings, would reduce value for money and cannot be justified.

The appraisal has identified that no immediate measures are required to address any changes in traffic flows on the High Street as a result of any improvements on the A90 trunk road, but that Aberdeenshire Council monitor any impact on the vitality of the High Street in Laurencekirk and consider local traffic management measures such as rationalisation of parking in future if required.

### Summary of Key Findings

In conclusion, a viable case has been made for intervention at the A90/A937 south junction to address current problems. Upgrade of this junction would improve network efficiency and safety and enable economic development that is currently being constrained to proceed. It could also provide the opportunity to improve safety through closures or access restrictions at nearby junctions, although the optimum arrangement will require to be determined through further appraisal. The public consultation that has been undertaken has revealed a very clear preference for junction improvement strategies that include grade separation of the south junction.

Further development of these proposals in accordance with the DMRB stages 2 and 3 will be required. In the longer term there may be a requirement to upgrade the A90/A937 north junction to be grade separated, but this requirement is associated with potential future levels of development within Laurencekirk and would be determined through the planning process.