

**The Moray Council**



## **ETM - Elgin Western Distributor Road Main Issues Report**

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## EXECUTIVE SUMMARY

### Background

In response to decisions taken by The Moray Council based on previous studies, further assessment work has been undertaken to assess the options, implications and benefits associated with a Western Distributor Road serving the south-west area of Elgin. This scheme development work is being undertaken in a staged manner, with an initial stage focusing on consideration of the options as broad corridors, allowing main effects to be identified; the following stage entailing consideration of a number of variants within those corridors, allowing a preferred route to be identified; and the final stage involving refinement of that preferred route to a level of detail enabling statutory consents to be obtained.

At this time the initial stage of work has been completed, and the findings from this work are documented in three reports:

- A Stage 1 Scheme Assessment Report, prepared in accordance with the Design Manual for Roads and Bridges (DMRB) Stage 1 process;
- A Report containing Scottish Transport Appraisal Guidance (STAG) Part 1 Appraisal Summary Tables, prepared in accordance with the STAG documentation; and
- A Main Issues Report (this document), summarising the key findings from the assessment work carried out.

### Alternative Options Considered

The assessment work undertaken at this time compares three options against a standard reference case. The options considered are:

- Existing Network Enhancements Option: entailing improvements to the existing road network;
- Urban (Inner) Corridor Option: based on the previously identified 'Option A', providing a new crossing of the Aberdeen-Inverness Railway Line connecting to Wittet Drive; and
- Rural (Outer) Corridor Option: based on the previously identified 'Option B', providing a new distributor road outside the south-west edge of Elgin.

The standard reference case is termed the Do-nothing scenario, which takes account of any committed improvement measures to the existing road network, including the provision of access to the housing proposed north of Edgar Road. The issues associated with adopting a Do-nothing approach have also been considered to place the need for improvements within context. These impacts are negative in the context of the Elgin Traffic Management (ETM) objectives, and in particular it should be recognised that adopting a Do-Nothing approach is likely to result in increased levels of congestion and delay, with the subsequent negative economic impacts. It should be noted that the alternative options should be considered as broad corridors at this time rather than as definitive final proposals.

### Key Findings: Environmental

The options have differing environmental effects generally associated with the degree to which they introduce change to their respective baseline environment. In that regard the Existing Network Enhancements Option is considered to have generally lesser environmental effects, as its existing environment is already used for a transport corridor. The Rural (Outer) Corridor Option is considered to have generally greater environmental effects, due to both a greater extent of construction being entailed by this option, and the fact that this option affects a largely undeveloped environment.

### Key Findings: Engineering

All three options are effective in providing reductions in congestion and journey times, although further optimisation is required for the Existing Network Enhancement option during the PM peak period. Traffic volumes that would be removed from the A96 and A941 by either the Urban (Inner) Corridor Option or the Rural (Outer) Corridor Option are relatively limited. The distributor road provided by the Rural (Outer) Corridor Option is predicted to have a relatively low Annual Average Daily Traffic flow of some 2,000 vehicles.

The options have significantly different engineering implications, with the Existing Network Enhancements Option requiring the least extensive construction works, but being likely to result in the greatest impact on road users during construction. The Rural (Outer) Corridor option requires the most extensive construction works, including significant structural works, but is likely to result in the least impact on road users during construction.

While early in the process, assessment of the deliverability of the schemes indicates the need for a partnership approach with Transport Scotland to deliver the Existing Network Enhancements. The deliverability risks associated with the Urban (Inner) corridor option focus on the impacts on third party land. The issue of third party land is also an important challenge to deliverability for the Rural (Outer) corridor option, but there are also significant engineering challenges to this route.

### Key Findings: Economics

The scheme cost estimates for the three options, including preparatory costs, construction costs, utilities costs and risk and optimism bias allowances are:

- Existing Network Enhancements Option: £5.1m
- Urban (Inner) Corridor Option: £12.7m
- Rural (Outer) Corridor Option: £74.4m

The significantly greater cost of the Rural (Outer) Corridor Option is associated with the structural works required by this option, including three crossing of the River Lossie, a viaduct structure over the River Lossie flood plain; and a crossing of the Aberdeen-Inverness Railway Line.

While all three options provide transport economic benefits, the cost of the Rural (Outer) Corridor Option results in this scheme not offering value for money. The Existing Network Enhancement Option and the Urban (Inner) Corridor Option do offer value for money. The economic performance of each of the options is summarised below in terms of Net Present Value of Benefits (NPVB), Net Present Value of Costs (NPVC) and Benefit to Cost Ratio (BCR):

<b>Option</b>	<b>NPVB</b>	<b>NPVC</b>	<b>BCR</b>
Existing Network Enhancements	£7.77m	£3.08m	2.52*
Urban (Inner) Corridor	£9.75m	£7.79m	1.25*
Rural (Outer) Corridor	£8.48m	£44.95m	0.19*

\* Scheme development during the DMRB process is likely to lead to changes in the BCR as engineering costs and operational performance become better defined, and optimism bias reduces.

Assessment of the wider economic effects of the proposed options indicates that they will all provide minor benefit to the wider local economy, with the Rural (Outer) Corridor Option also having the potential to contribute to the wider economy by supporting land use for development purposes.

Key Findings: Planning Objectives

All three options are considered to largely perform positively against the previously identified planning sub-objectives. In terms of the overall planning objective, while all three options are considered to support the provision of a quicker, safer and more reliable transport system in and around Elgin, and accommodate the traffic growth associated with future development, it is considered that only the Rural (Outer) Corridor option has the potential to directly support the physical implementation of future development, although delivery of development is likely to be impacted by other physical constraints.

Both the Existing Network Enhancements Option and the Urban (Inner) Corridor Option are considered to be largely neutral in terms of the wider objectives set out in the Moray Local Plan Settlement Statement for Elgin. While the Rural (Outer) Corridor Option has the potential to directly support objectives relating to supporting additional development, this option could also prejudice the objective of advancing the case for a bypass of Elgin, by preventing future development of the corridor for such a purpose and not fulfilling that purpose if multiple development accesses were to be incorporated.

Conclusions

The key environmental, engineering, economic and planning findings are summarised in the table below:



	<b>Existing Network Enhancements</b>	<b>Urban (Inner) Corridor</b>	<b>Rural (Outer) Corridor</b>
<b>Environmental</b>	Minor negative impacts / Minor benefits	Moderate negative impact	Moderate negative impact
<b>Engineering/ Operation</b>	Moderate benefit	Moderate benefit	Minor benefit
<b>Economics</b>	High Value for Money	Low Value for Money	Poor Value for Money
<b>Planning Objectives</b>	Minor benefit	Minor benefit	Minor negative impacts / minor benefits

### Recommendations

It is recommended that during DMRB Stage 2/STAG Part 2 scheme assessment work the following issues are addressed in detail:

- The Existing Network Enhancement Option should be tested incrementally to determine the best balance between cost and benefits for the measures included within that package;
- The Urban (Inner) Corridor Option should consider variants for the junction between Wittet Drive and the A96 that minimise the effects on residential property;
- The Rural (Outer) Corridor Option should be subject to a value engineering review to establish the extent to which significant cost reductions can be achieved. This work should include review of the interaction of this option with the River Lossie flood plain, which will require a flood model acceptable to Scottish Environment Protection Agency to be prepared for this area if it is not already available; and
- The potential development value that can be realised by the Rural (Outer) Corridor Option should be evaluated to support a more detailed consideration of the contribution this option may make to the wider economy.

As noted in the study methodology, it is anticipated that the findings of the DMRB Stage 2/STAG Part 2 scheme assessment work will be documented in an Interim Report, following which they will form the basis of public consultation. The feedback from that public consultation will then be reflected in the final reporting on the DMRB Stage 2/STAG Part 2 scheme assessment work, enabling a decision to be taken on the preferred route.

# 1 INTRODUCTION

## 1.1 Background

Work has been undertaken over a number of years to assess the options, implications and benefits associated with a Western Distributor Road (WDR) serving the south-west area of Elgin. In 2009 The Moray Council approved continued investigations into options then identified as Option A and Option B. The Moray Council has since commissioned Jacobs Consultancy to undertake this further assessment work.

## 1.2 Study Methodology

The methodology agreed for this study combines the process set out in the Design Manual for Roads and Bridges (DMRB) with the process set out in the Scottish Transport Appraisal Guidance (STAG) documents. This methodology adopts a staged approach to scheme development, involving:

- Preparation of a Stage 1 Scheme Assessment Report in accordance with the DMRB, together with preparation of STAG Part 1 Appraisal Summary Tables (ASTs). At this stage the options will be considered as broad corridors, enabling the general effects of each option to be identified. This is the stage of assessment work that is being reported at present;
- Preparation of a Stage 2 Scheme Assessment Report in accordance with the DMRB, together with preparation of STAG Part 2 ASTs. At this stage variants within each corridor will be assessed and reported, and public consultation will be undertaken in respect of the options under consideration. On completion of this work a preferred option will be recommended for approval by The Moray Council;
- Further work is dependent on the selection of a preferred option by The Moray Council, and would involve preparation of a Stage 3 Scheme Assessment Report in accordance with the DMRB, which would detail the development of the preferred option to a level of detail sufficient to enable statutory consents to be sought for the proposed scheme. This work would also include identification of any land required to enable the scheme to be implemented. Arrangements for construction of the preferred option would be undertaken following successful completion of the statutory consent process.

## 1.3 Study Objectives

The objectives for the study remain consistent with the previous work undertaken, and comprise one overall objective and 7 sub-objectives. The overall objective is:

- To provide a quicker, safer and more reliable transport system in and around Elgin while accommodating future development.

The sub-objectives are:

- To reduce average junction delay times by introducing junction time improvements on the A96 and A941 for traffic egressing and accessing key junctions from the base year scenario;



- To minimise delay and disruption to all mode users caused by the conflict of modes on key routes in and around Elgin;
- To improve safety for all road users by reducing the number of road accidents in and around Elgin;
- To improve the management of parking in Elgin;
- To encourage modal shift from private car to public transport, cycling and walking;
- To mitigate the risks of adverse environmental impacts caused by motorised vehicular traffic in and around Elgin; and
- To ensure integration of land use and transport.

Reference has also been made to the objectives set out in the Moray Local Plan Settlement Statement for Elgin.

#### **1.4 Report Purpose**

The reporting format adopted for the first stage of the scheme assessment activities is as follows:

- A Main Issues Report, identifying key findings from the assessment work carried out;
- A DMRB Stage 1 Scheme Assessment Report, providing information in accordance with the reporting procedure set out in the DMRB; and
- A Report containing the STAG Part 1 ASTs, providing information in accordance with the reporting procedure set out in the STAG documentation.

This report is the Main Issues Report, which presents a summary of key findings arising from the DMRB and STAG assessment processes. Details of all findings are presented in the other reports noted above, which should be read in conjunction with this Main Issues Report.

## 2 DESCRIPTION OF ALTERNATIVE SCHEMES

### 2.1 Overview

The options to be assessed in this study have been developed based on a review of previous work undertaken and decisions made following consideration of that work by The Moray Council. That review led to the identification of four scenarios for assessment purposes, as follows:

- ‘Do-nothing’ scenario: this has been identified to provide a reference case against which each of the options involving infrastructure improvements can be assessed;
- ‘Existing Network Enhancements’ Option: this has been identified to test the extent to which congestion and journey time reductions are capable of being delivered by adapting the existing road network infrastructure;
- ‘Urban (Inner) Corridor’ Option: this option is based on the alternative previously termed ‘Option A’ as developed during previous studies undertaken; and
- ‘Rural (Outer) Corridor’ Option: this option is based on the alternative previously termed ‘Option B’ as developed during previous studies undertaken.

Further details in respect of each of these assessment scenarios are provided below. In considering these alternatives it is important to note that each should be considered as a conceptual proposal at this time. While indicative proposals have been developed for the purposes of the assessment documented in this and other reports, the options as described at this time should not be taken to be definitive final proposals for the scenario concerned.

The proposals are subject to significant refinement at later stages of the design development process, as is consistent with the DMRB process being followed.

### 2.2 Do-nothing Scenario

This scenario assumes that there are no road network infrastructure improvements brought into place beyond those already confirmed at this time. While it therefore takes account of some modifications to the existing road network, it only includes such modifications as are already committed to for a range of purposes beyond providing general reductions in congestion and journey times.

The locations of the network modifications providing access to the Bilbohall housing zone included in this scenario are shown on Figure 1 included in Appendix A to this report. This access to the proposed affordable housing meets the planning objective to ensure integration of land use and transport.

The Do-Nothing scenario is not assessed against the criteria, as the objectives of the study are based on identification of issues and problems that require interventions. It is however important to understand the implications of adopting a Do-Nothing position. This would fail against all three key parts of the overall objective for ETM in that it would not provide a “quicker, safer, more reliable transport system”. Rather, it would see growth in traffic demand on the network

leading to an increase in journey times and congestion. The nature of the network in and around Elgin means that its ability to absorb increases in demand are limited, particularly as there are key junctions that control the overall traffic capacity of large sections of the network. Were these impacts to be significant, then there is the potential for it to impact negatively on the local economy. Additional demand on the existing network is also likely to increase conflict between different modes, reducing the effectiveness of investment in supporting sustainable modes. Negative impacts on road safety and environmental impact are also likely outcomes.

### 2.3 Existing Network Enhancements Option

This option was developed to evaluate the extent to which the existing road infrastructure could be developed to provide transport benefits. While, in essence, this is therefore a 'Do-minimum' approach to addressing the issues of concern, it should be noted that some of the measures proposed are likely to require the acquisition of land and the promotion of statutory orders to enable their implementation. The measures considered were identified following review of a number of previous studies undertaken, including;

- Elgin WDR Junction Assessments & Design – Halcrow Group Ltd 2008;
- Elgin Active Travel Audit – Halcrow Group Ltd 2009; and
- Elgin Traffic Review – Jacobs Consultancy 2009.

The additional measures beyond the do-nothing scenario tested as part of this option are:

- A linked signalised arrangement at the A941 / Edgar Road and A941 / Station Road junctions;
- Signalisation of the Moray Street / A941 Hay Street junction, relocating the existing controlled pedestrian facilities to align with pedestrian desire lines.
- Amendments to South Street to provide a one-way westbound route from Hay Street to West Road;
- Geometric Improvements to Dr Gray's Roundabout and amendments to accommodate the one-way arrangement on South Street;
- Re-design of the Tesco Roundabout to three arm with alternate access provisions to Tesco;
- Dualling of A96 Alexandra Road between the Tesco and Halfords Roundabouts providing a 3.0m shared surface footway cycleway along this link that requires lengthening and revisions to the entrance layout on the northern side of the existing underpass; and
- Roundabout at Wittet Drive to improve access to and from the A96 and provide improved access to the south of Elgin.

The measures proposed as part of this option are shown on Figures 2a and 2b included in Appendix A to this report.

## 2.4 Urban (Inner) Corridor Option

This option corresponds to the Option A developed during previous work undertaken, and tests the implications of providing a distributor route for the south west quadrant of Elgin within the developed area, in keeping with the nature of the distributor routes already in existence in the three other quadrants. This option involves the provision of a new crossing of the Aberdeen-Inverness Railway Line, which enables the access road to be provided for proposed housing zones south of the railway line to be linked with Wittet Drive north of the railway line. Specific elements of this option are:

- Extension of the access from Edgar Road to serve proposed housing zones northwards towards the Aberdeen-Inverness railway line;
- Provision of a new road bridge over the Aberdeen-Inverness Railway Line;
- Connection into the southern end of Wittet Drive with the consequential need to stop up the western end of Wards Road;
- Carriageway improvement and road marking works, including parking management, as necessary on Wittet Drive;
- Improvement measures to manage the operation of the junction between Wittet Drive and the B9010 Pluscarden Road, such as traffic signal control; and
- Provision of a new roundabout at the A96/Wittet Drive Junction.

The measures proposed as part of this option are shown on Figure 3 included in Appendix A to this report.

## 2.5 Rural (Outer) Corridor Option

This option corresponds to the Option B developed during previous work undertaken, and tests the implications of providing a distributor route for the south west quadrant of Elgin outside the developed area. This option involves the provision of three crossings of the River Lossie and a new crossing of the Aberdeen-Inverness railway line, which enables Edgar Road to be linked directly with the A96 at Morriston Road. Specific elements of this option are:

- Extension of the access from Edgar Road to proposed housing zones in a westerly direction towards a proposed junction for future development and / or a future bypass. A local footpath is crossed approximately half-way between proposed junctions.
- Continuation of the route in a westerly direction to cross the River Lossie approximately 400m south east of the proposed B9010 Pluscarden Road. This section of the route crosses a local access road and a local footpath.
- Continuation of the route in a north-westerly direction to cross the B9010 Pluscarden Road at which point an at-grade roundabout is provided;
- Continuation of the route in a north-westerly direction to cross over the Aberdeen-Inverness Railway approximately 300m north west of the proposed B9010 Pluscarden Road junction.

- Continuation of the route in a northerly direction to cross the River Lossie approximately 300m south west of the nearby distillery.;
- Continuation of the route in a northerly direction to cross a local access road which serves farms west of the nearby distillery.
- Continuation of the route in a northerly direction to cross the River Lossie south of the caravan park; and
- Continuation of the route in a northerly direction to connect to the A96 at Morriston Road at which point an at-grade roundabout is provided.

The measures proposed as part of this option are shown on Figure 4 included in Appendix A to this report.

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## 3 KEY FINDINGS: ENVIRONMENTAL

### 3.1 Existing Network Enhancement Option

Key environmental assessment findings for the Existing Network Enhancements Option are:

- This option is considered likely to have minor impacts on air quality, cultural heritage resources, ecology and nature conservation receptors, landscape and visual receptors, land use, noise and vibration, the water environment and geology, land contamination and groundwater, although some contaminated land may be encountered;
- This option is considered to provide minor benefits to driver stress levels for vehicle travellers; and
- This option is considered to provide benefits for non motorised road users, such as the provision of additional facilities.

### 3.2 Urban (Inner) Corridor Option

Key environmental assessment findings for the Urban (Inner) Corridor Option are:

- This option is considered likely to have minor impacts on air quality, pedestrians, cyclists, equestrians and community effects, driver stress for vehicular travellers, the water environment and geology, land contamination and groundwater;
- While no direct impacts have been identified on cultural heritage resources, there is potential for unknown sites to be affected;
- This option is considered to have a moderate impact on the Wards Wildlife site, a locally designated non-statutory nature conservation site to the east of the corridor.
- This option affects residential properties on Wittet Drive, some of which will require demolition; and
- This option will lead to a redistribution of traffic, resulting in noise increases and noise reductions where traffic levels increase or reduce.

### 3.3 Rural (Outer) Corridor Option

Key environmental assessment findings for the Rural (Outer) Corridor Option are:

- This option is considered likely to have minor impacts on air quality, pedestrians, cyclists, equestrians and community effects, driver stress of vehicular travellers, and geology, land contamination and groundwater;
- This option impacts on the green field areas surrounding Elgin that contain known archaeological sites, and there is consequently potential for unknown sites to be affected;



- This option results in significant impacts associated with severance of areas of ancient woodland and the introduction of three crossings of the River Lossie, which is designated a salmonid river. A range of protected species are considered to be potentially present within this corridor, including badger, otter, bat, water voles and red squirrel. Historical records also identify freshwater pearl mussels, slow worm, newts and adder in the vicinity;
- The introduction by this option of a number of structures crossing the River Lossie flood plain will result in intrusion in a settled landscape with limited opportunity for mitigation;
- This option traverses close to the rural properties Bruceland House and Sunningdale, and it also severs the Riverside Caravan Park. The option affects a number of the Bruceland and Billbohall Farms fields introducing severance to agricultural land;
- This options leads to increased traffic volumes in a rural environment and therefore increased noise for the few receptors in close proximity to the corridor; and
- This option involves three crossings of the River Lossie, requiring new drainage discharges. As its footprint is within the floodplain, it has the potential to reduce existing flood storage capacity without the adoption of a viaduct crossing and/or the introduction of compensatory measures. The scheme would also have to be developed in a manner to avoid any potential impact on the proposed Elgin Flood Alleviation Scheme and downstream flood risk.

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## 4 ENGINEERING

### 4.1 Existing Network Enhancement Option

Key engineering assessment findings for the Existing Network Enhancement Option are:

- This option results in a generally lesser extent of engineering works than other options require, as a consequence of its on-line nature. In particular there is a considerably reduced extent of structural works required by this option;
- However, it is anticipated that the construction works associated with this option are likely to result in a generally greater degree of disruption to road users, due to the on-line nature of this option;
- Operationally this option delivers congestion and journey time reductions in the AM peak period by improving the efficiency of junctions within the existing road network. This is achieved by a combination of physical measures to increase capacity and the introduction of control measures such as traffic signals to optimise junction performance. The current modelling work carried out suggests that this option does not yet deliver benefits within the PM peak period, although it is considered that there is scope to optimise the design proposals which may result in benefits also being achieved within the PM peak period;
- As this option is an on-line improvement, it does not provide any relief in terms of traffic volumes using the A96, nor does it provide any distributor road function within the south-west quadrant of Elgin;
- In terms of deliverability, this option would require a partnership approach with Transport Scotland to deliver improvements on the trunk road and this represents a risk to deliverability, but a potential benefit in terms of financial risk. From an engineering standpoint, as these upgrades are on the existing network, they have a higher level of deliverability than the other options.

### 4.2 Urban (Inner) Corridor Option

Key engineering assessment findings for the Urban (Inner) Corridor Option are:

- This option is significantly physically constrained by a number of factors, including: the Wards Wildlife Site, immediately east of the corridor; the requirement to cross the Aberdeen-Inverness Railway Line in proximity to properties immediately north of the railway line; the presence of residential properties on both sides of Wittet Drive throughout its length; and the difference in height between the A96 and land immediately north of the A96 at its junction with Wittet Drive, with the land to the north being significantly lower than the A96. These constraints restrict the range of options available within this corridor;
- Operationally this option delivers congestion and journey time reductions by providing an additional crossing of the Aberdeen-Inverness Railway Line, allowing a re-distribution of traffic away from other parts of the existing road network. However, it should be noted that the majority of users of the corridor

have destinations within Elgin itself, and therefore the route provides limited reductions in traffic on the A96 and the A941;

- The new crossing of the Aberdeen-Inverness Railway Line is forecast to attract an annual average daily traffic volume of some 7,400 vehicles in the opening year (2014), rising to 7,500 vehicles in the design year (2029); and
- The deliverability of the inner option would largely be within the control of the Council, allowing for agreement with Transport Scotland on connection to the A96. However, as there are likely to be third party land requirements, which introduces a risk to deliverability. It is likely, in terms of financial deliverability, that all costs would lie with the Council.

### 4.3 Rural (Outer) Corridor Option

Key engineering assessment findings for the Rural (Outer) Corridor Option are:

- This option is significantly larger in extent than the other options considered, and therefore results in a considerably greater volume of engineering works. In particular, this option requires three crossings of the River Lossie, in addition to the crossing of the Aberdeen-Inverness Railway Line, resulting in more structural works being required;
- In addition to the river crossings, this option also crosses part of the River Lossie flood plain. It has been assumed at this stage of the study that it will be necessary to use a viaduct structure when crossing the flood plain to avoid removing flood flow/flood storage capacity. Consideration will be given to other options during the Stage 2 scheme assessment work to be undertaken. These options could include a culverted embankment or a standard embankment, both of which are likely to require the provision of different extents of compensatory flood storage. However, in the absence of any information at this time on the physical extent of or the availability of suitable land for such compensatory flood storage, it has not been considered appropriate to rely on such an approach being deliverable;
- Construction of this option is likely to result in the least disruption to existing road users, due to it being off-line in nature;
- Operationally this option delivers congestion and journey time reductions in a generally similar manner to the Urban (Inner) Corridor Options, by providing an additional crossing of the Aberdeen-Inverness Railway Line. However, the majority of traffic making use of this option is traffic travelling between the A96 west of Elgin and the A941 south of Elgin, which is a relatively low volume of traffic. While this results in limited reductions in traffic on the A96 and the A941, it does not result in significant re-distributions of traffic from other parts of the existing road network, and the option does not provide an efficient route for traffic having both an origin and destination within Elgin;
- The new distributor route is forecast to attract an annual average daily traffic volume of some 2,000 vehicles in both the opening year (2014) and the design year (2029); and
- The deliverability of the outer option would largely be within the control of the Council, allowing for agreement with Transport Scotland on connection to the A96. The nature of the route means that there are significant risks to



deliverability stemming from land, constraints and engineering. It is likely, in terms of financial deliverability, that all costs would lie with the Council.

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## 5 KEY FINDINGS: ECONOMIC

### 5.1 Existing Network Enhancement Option

Key economic assessment findings for the Existing Network Enhancement Option are<sup>1</sup>:

- The scheme cost estimate for this option is £5.1m, at Q2 2010 rates. This includes preparatory costs, works costs, utilities costs, risk costs and optimism bias adjustment;
- The transport economic assessment of this option shows that this scheme is value for money, with a Benefit to Cost Ratio of 2.52, as summarised in the table below:

Net Present Value of Benefits	£7.77m
Net Present Value of Costs	£3.08m
Benefit to Cost Ratio	2.52*

\* Scheme development during the DMRB process is likely to lead to changes in the BCR as engineering costs and operational performance become better defined, and optimism bias reduces.

- The Economic and Location Impact Assessment carried out as part of the STAG Part 1 assessment process indicates that this option, in keeping with the other options, would have minor positive wider economic benefits at a local level, although it would not provide wider economic benefits in respect of land uses, although it will be important to monitor interaction of this issue with the Elgin City of the Future project as they are occurring concurrently.

### 5.2 Urban (Inner) Corridor Option

Key economic assessment findings for the Urban (Inner) Corridor Option are:

- The scheme cost estimate for this option is £12.7m, at Q2 2010 rates. This includes preparatory costs, works costs, utilities costs, risk costs and optimism bias adjustment. This scheme cost estimate is broadly similar to that developed in previous studies, when allowance is made for the differences between the schemes in terms of physical extent;
- The transport economic assessment of this option shows that this scheme is value for money, with a Benefit to Cost Ratio of 1.25, as summarised in the table below:

Net Present Value of Benefits	£9.75m
Net Present Value of Costs	£7.79m
Benefit to Cost Ratio	1.25*

\* Scheme development during the DMRB process is likely to lead to changes in the BCR as engineering costs and operational performance become better defined, and optimism bias reduces.

<sup>1</sup> Economic results have been calculated using AM peak hour journey time results from VISSIM models, factored to represent savings during peak operations and annualised by 253 days to represent a full year. NPV costs in Tables have been discounted to 2002.

- The level of transport benefits associated with this option are broadly comparable with the level of benefits reported in previous studies, however they are slightly lower. This is considered to be largely attributable to the stopping up of Wards Road in this updated work to reflect engineering requirements associated with the proposed bridge.
- The Economic and Location Impact Assessment carried out as part of the STAG Part 1 assessment process indicates that this option, in keeping with the other options, would have minor positive wider economic benefits at a local level, although it would not provide wider economic benefits in respect of land uses.

### 5.3 Rural (Outer) Corridor Option

Key economic assessment findings for the Rural (Outer) Corridor Option are:

- The scheme cost estimate for this option is £74.4m, at Q2 2010 rates. This includes preparatory costs, works costs, utilities costs, risk costs and optimism bias adjustment. This scheme cost estimate is significantly greater than that developed in previous studies. The key reason for the difference between the previous and the current cost estimate is considered to be the effects of the incorporation within the scheme of a viaduct across the River Lossie flood plain, resulting in a significantly higher cost for structures. The effect of this difference is accentuated by the risk and optimism bias adjustments that are applied to the base estimate for construction works.
- The transport economic assessment of this option shows that this scheme is not value for money, with a Benefit to Cost Ratio of 0.19, as summarised in the table below:

Net Present Value of Benefits	£8.48m
Net Present Value of Costs	£44.95m
Benefit to Cost Ratio	0.19*

\* Scheme development during the DMRB process is likely to lead to changes in the BCR as engineering costs and operational performance become better defined, and optimism bias reduces.

- The BCR noted above is lower than previously reported due to the effects of the significant increase in the scheme cost estimate. However, the level of transport benefits associated with this option are broadly comparable with the level of benefits reported in previous studies.
- The Economic and Location Impact Assessment carried out as part of the STAG Part 1 assessment process indicates that this option, in keeping with the other options, would have minor positive wider economic benefits at a local level. Unlike the other options this option is considered to provide wider economic benefits in respect of land uses, by enabling access to be taken to development sites around the south-western edge of Elgin. However, the development value that can be realised from these sites is unlikely to be greater than the difference between the cost of this option and the transport



benefits that this option provides. It should also be noted that the developable area of these sites will be constrained by factors such as the presence of the River Lossie and its associated flood plain. It is also important to note that while this option makes use of a corridor identified for a potential future Elgin Bypass, the incorporation of multiple development accesses could prejudice the future use of this option for bypass purposes, as the general approach adopted on the Trunk Road network is to limit junctions to key strategic points as far as possible.

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## 6 KEY FINDINGS: PLANNING OBJECTIVES

### 6.1 Existing Network Enhancements

Key findings of the assessment of the Existing network Enhancement option against the planning sub-objectives developed in previous work are:

- The option is considered to reduce junction delay times on the A96 and A941 by improving the operational efficiency of junctions;
- The option is considered to provide some benefits in minimising delay and disruption associated with modal conflict through the incorporation of formalised non-motorised user crossing facilities at a number of locations;
- This option is considered to provide some benefits in improving safety through the inclusion of formalised non-motorised user crossing facilities at a number of locations;
- The option is considered to be neutral in terms of effects on the management of parking in Elgin;
- The option is considered to encourage modal shift by providing improved facilities for non-motorised road users, and by providing benefits to public transport services by reducing congestion and journey times;
- The option is considered to be largely neutral in terms of adverse environmental impacts caused by motorised vehicular traffic in and around Elgin, in that while reductions in congestion will provide minor local benefits, future growth in traffic volumes will continue to focus on the existing road network; and
- The option is considered to be neutral in terms of supporting the integration of land use and transport.

The assessment of this option against the overall planning objective previously developed is therefore that it would enable the provision of a quicker, safer and more reliable transport system in and around Elgin, but that while it would accommodate the traffic growth associated with future development, it would not directly support the physical implementation of future development, although the potential interaction with Elgin City of the Future project is noted and this will be monitored.

In terms of the wider objectives set out in the Moray Local Plan Settlement Statement for Elgin, this option is largely neutral against most of these objectives, but is considered to support the objective of promoting economic activity.

### 6.2 Urban (Inner) Corridor Option

Key findings of the assessment of the Urban (Inner) Corridor Option against the planning sub-objectives developed in previous work are:

- The option is considered to reduce junction delay times on the A96 and A941 by the re-distribution of traffic from these routes;

- The option is considered to provide some benefits in minimising delay and disruption associated with modal conflict through the limited reduction of traffic on the A96 and A941;
- This option is considered to be neutral in terms of improving safety throughout the network as a whole;
- The option is considered to have a minor adverse effect on the management of parking in Elgin, due to the need to incorporate parking management on Wittet Drive;
- The option is considered to encourage modal shift to non-motorised modes by reducing modal conflict, and by providing benefits to public transport services by reducing congestion and journey times;
- The option may provide some benefits in terms of adverse environmental impacts caused by motorised vehicular traffic in and around Elgin, although the traffic volume reductions may not provide significant environmental benefit;
- The option is considered to provide benefits in terms of supporting the integration of land use and transport.

The assessment of this option against the overall planning objective previously developed is therefore that it would enable the provision of a quicker, safer and more reliable transport system in and around Elgin, but that while it would accommodate the traffic growth associated with future development, it would not directly support the physical implementation of future development.

In terms of the wider objectives set out in the Moray Local Plan Settlement Statement for Elgin, this option is largely neutral against most of these objectives, but is considered to support the objective of promoting economic activity.

### **6.3 Rural (Outer) Corridor Option**

Key findings of the assessment of the Rural (Outer) Corridor Option against the planning sub-objectives developed in previous work are:

- The option is considered to reduce junction delay times on the A96 and A941 by the re-distribution of traffic from these routes;
- The option is considered to provide some benefits in minimising delay and disruption associated with modal conflict through the limited reduction of traffic on the A96 and A941;
- This option is considered to be neutral in terms of improving safety throughout the network as a whole;
- The option is considered to be neutral in terms of effects on the management of parking in Elgin;
- The option is considered to encourage modal shift to non-motorised modes by reducing modal conflict, and by providing benefits to public transport services by reducing congestion and journey times;
- The option is considered to be largely neutral in terms of adverse environmental impacts caused by motorised vehicular traffic in and around

Elgin, although there will be changes in where impacts occur due to changes in traffic distributions;

- The option is considered to be neutral in terms of supporting the integration of land use and transport.

The assessment of this option against the overall planning objective previously developed is therefore that it would enable the provision of a quicker, safer and more reliable transport system in and around Elgin, and that it would both accommodate a significant proportion of the traffic growth associated with future development, and have the potential to directly support the physical implementation of future development.

In terms of the wider objectives set out in the Moray Local Plan Settlement Statement for Elgin, this option is largely neutral against most of these objectives. It is considered to support the objective of promoting economic activity, and it also has the potential to support the objectives relating to the identification of land for housing, industrial/commercial, and business park uses. However, it is considered that it could prejudice the objective of advancing the case for a bypass of Elgin by preventing future development of the corridor for such a purpose and not fulfilling that purpose if multiple development accesses were to be incorporated.

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## 7 CONCLUSIONS AND RECOMMENDATIONS

### 7.1 Conclusions

The conclusions of the DMRB Stage 1 and the STAG Part 1 assessment work carried out are:

- Each option gives rise to different environmental effects, which are generally considered to be capable of effective mitigation, although there are a number of environmental effects that are likely to have adverse residual impacts. The nature of these adverse effects varies with the option under consideration;
- Each of the options identified at this time is considered technically feasible in engineering terms and they all provide operational benefits in reducing congestion and journey times;
- The Existing Network Enhancement Option and the Urban (Inner) Corridor Option provide value for money in terms of the transport economic assessment. The Rural (Outer) Corridor Option does not provide value for money and significant costs are associated with addressing the need for this option to cross the River Lossie flood plain;
- The Economic and Location Impact Assessment study carried out suggests that wider economic benefits associated with each of the options will be limited to the local level and be minor in extent;
- Each of the options is generally supportive of the planning objective and sub-objectives established in previous work. The Existing Network Enhancement Option and the Urban (Inner) Corridor Option are largely neutral against the Moray Local Plan Settlement Statement objectives. The Rural (Outer) Corridor Option is more supportive of the Moray Local Plan Settlement Statement objectives, but also is potentially prejudicial to the objective of advancing the case for a bypass of Elgin.

### 7.2 Recommendations

It is recommended that during DMRB Stage 2/STAG Part 2 scheme assessment work the following issues are addressed in detail:

- The Existing Network Enhancement Option should be tested incrementally to determine the best balance between cost and benefits for the measures included within that package with particular reference to Elgin City of the Future;
- The Urban (Inner) Corridor Option should consider variants for the junction between Wittet Drive and the A96 that minimise the effects on residential property;
- The Rural (Outer) Corridor Option should be subject to a value engineering review to establish the extent to which significant cost reductions can be achieved. This work should include review of the interaction of this option with the River Lossie flood plain, which will require a flood model acceptable to

Scottish Environment Protection Agency to be prepared for this area if it is not already available; and

- The potential development value that can be realised by the Rural (Outer) Corridor Option should be evaluated to support a more detailed consideration of the contribution this option may make to the wider economy.

As noted in the study methodology, it is anticipated that the findings of the DMRB Stage 2/STAG Part 2 scheme assessment work will be documented in an Interim Report, following which they will form the basis of public consultation. The feedback from that public consultation will then be reflected in the final reporting on the DMRB Stage 2/STAG Part 2 scheme assessment work, enabling a decision to be taken on the preferred route.

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## APPENDIX A DRAWINGS

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