10 Conclusions

10.1 Summary of Key Objectives

The objective of the study was to develop and appraise options to address the transport related problems in Dalry for implementation in the short (0-5 years); medium (5-10) years and the long term (10-20 year) horizons.

In addition to the Government's five Objectives (Environment, Safety, Economy, Integration and Accessibility) five Planning Objectives were developed which, in summary, are:

Planning Objective 1:	Targeting stabilization of travel time on the A737.
Planning Objective 2:	Targeting improvement in traffic conditions in the main shopping area in Dalry Town Centre.
Planning Objective 3:	Improve accessibility across the A737 corridor.
Planning Objective 4:	Enhance attractiveness for walking and cycling in Dalry.
Planning Objective 5:	Targeting stabilization of average bus journey times through Dalry.

10.2 Synopsis of Methodology

The key approach adopted was to create and test traffic models of the primary road network in and around Dalry, and to carry out economic assessment using appropriate cost benefit software.

To assess options for Dalry Town Centre an operational assessment was undertaken using S-Paramics, with an economic assessment being undertaken using the costs benefit programme PEARS (Programme for the Economic Assessment of Road Schemes).

To assess the provision of a by-pass, a wider area traffic model was created and traffic forecasts and economic assessment both undertaken using NESA (Network Evaluation from Surveys and Analysis).

10.3 Descriptions of Key Proposals

Two Packages of improvements have been assessed in detail, these are:

10.3.1 Package 1

A set of Town Centre improvement proposals dominated by a modification to the New Street/Townend Street junction to allow concurrent 2-way traffic flow on the A737 which targets reduction of journey times on the A737.

Other component elements to the package include:

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- Introduction of 1-way traffic management in New Street (West) to help alleviate the congestion that currently prevails
- Introduction of an additional set of traffic lights at the Roche Way/Townend Street junction to complement the alteration to the New Street/Townend Street junction.
- A variety of car parking and other initiatives aimed at reducing general congestion
- Introduction PUFFIN crossing on the A737 to improve accessibility across for non-motorised users.
- Introduction of improvements to an existing path to work towards increasing walking and cycling; and the provision secure cycle storage facilities.
- Introduction of green travel plans for the two Primary Schools in Dalry.
- Improvement to bus/train connectivity.

10.3.2 Package 1A

In order to reduce public objections, implementation risk and environmental impact a variant of Package 1, labelled Package 1A, which is identical to Package 1 except that the new traffic signals at New Street/Town End Street will not have 2-way simultaneous through traffic and No 43 New Street will not be demolished, has been introduced.

Full traffic modelling and economic assessment of Package 1A has not been undertaken at this time.

10.3.3 Package 2

The proposal involves the introduction of a by-pass to the east of Dalry running from near Hillend Farm at the south end, to tie-in with the A737 to the northeast of Highfield.

10.4 Key Findings

10.4.1 Traffic and Economic Efficiency

10.4.1.1 Generally

Traffic and Economic Efficiency (TEE) was the prime driver for this study. The TEE assessments of the base model and the proposed interventions have assessed the ability of the road network to cope with future traffic growth, and have concluded that both of the proposed interventions have a positive economic benefit.

Assessments of the existing road network within and surrounding Dalry have shown that it cannot accommodate traffic growth at Central NRTF growth levels beyond 2007. Currently, conditions during peak times can become very congested. This is particularly evident during the weekday PM peak, where southbound traffic on the A737 suffers from heavy delay.

Operational and Economic assessments have been carried out to assess the respective benefits of introducing certain modifications to the study area. Package 1 represented measures which can be implemented over the short - medium term, whilst Package 2 sought to provide a longer term relief to the network.

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10.4.1.2 Package 1

Based on the analysis undertaken during both the STAG Part 1 and Part 2 Assessments, the study team have found that:

- With no intervention, assuming traffic flows rise at a rate consistent with Central NRTF growth levels, the existing road network in and around Dalry is likely to become further congested, resulting in increased queuing and delay, leading to the eventual breakdown of the network. As such, it will be necessary to introduce a scheme which provides appropriate relief to the existing network beyond 2007.

- The Package 1 proposal is expected to introduce considerable benefits to users both in terms of journey time savings, and vehicle efficiency. The economic assessment confirms a Benefit:Cost ratio of 9.22 with a positive NPV of £6.6m.

- The benefits afforded by Package 1 are expected to have diminished by 2015, after which the network will experience high levels of queuing and delay.

- The omission of the simultaneous two way traffic flow through the replacement New Street / Townend Street traffic signals as in Package 1A will mean that the expected benefits that the Package 1A offers will be considerably less than that for the full Package 1. Never the less Package 1A should provide worthwhile short term overall benefits.

10.4.1.3 Package 2

Based on the analysis undertaken during both the STAG Part 1 and Part 2 Assessments, the study team have found that:

- The by-pass can be expected to provide significant relief to Dalry town centre with the traffic volume using Townend Street in 2014 estimate to be only 42% of the 2004 levels.

- The Package 2 proposal is also expected to introduce considerable benefits to users both in terms of journey time savings, and vehicle efficiency. The economic assessment confirms a Benefit:Cost ratio of 4.84 with a positive NPV of £69.4m

10.4.2 Economic Activity and Location Impacts (EALI) Assessment

The EALI assessment of the proposed improvements to the town of Dalry indicates that whilst there would seem to be a very favourable balance of view in respect of the implementation of one or more of the town centre options and the Dalry by-pass, there will simultaneously be a very small or limited anticipated measurable benefit to local businesses and the wider economy in terms of direct employment and economic performance. The improvements would nonetheless provide opportunities for the Dalry community to experience wider qualitative benefits in, for example, scope for enhancing the attractiveness and overall competitiveness of the town centre, in both physical and environmental terms, as well as improving its economic performance.

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10.4.3 Environmental Assessment

10.4.3.1 Package 1/1A

Generally speaking, relieving congestion and encouraging sustainable transport usage is environmentally beneficial. Package 1/1A options can therefore be considered to have an overall positive impact whether individually or in combination. Specific negative aspects are associated with Option 2, which requires demolition of a listed building (major negative effect in terms of cultural heritage and visual amenity and moderate negative in terms of effect on the townscape). If Package 1A was implemented these negative impacts would be removed.. Option 3.1 may also have a minor negative townscape and visual amenity effect in terms of the introduction of increased signage.

10.4.3.2 Package 2

There are both positive and negative environmental effects associated with the proposed bypass. Positive effects specifically relate to alleviating congestion in the centre of Dalry with resulting benefits of reduced noise/vibration and an improvement in air quality (minor to moderate positive effect) for residents and visitors. Although some properties in closer proximity to the bypass will experience increased noise/vibration and reduced air quality, the numbers affected will be lower than those experiencing a positive change (in Dalry) and the overall change will therefore be beneficial. Reduced traffic flows and congestion may also have an overall minor benefit on listed buildings within Dalry through alleviating effects on the setting of these sites.

Negative environmental effects relate to water quality, biodiversity, visual amenity, agriculture and soils and landscape. Overall a moderate negative effect is predicted for these aspects.

10.4.4 Safety

10.4.4.1 Package 1/1A

The assessment concludes that there will be no overall change in accidents. Package 1/1A measures affords benefits to drivers such as increased vehicle speed due to reduced queuing within the network, which may have a negative impact on accident rates. However, this is counter balanced by the introduction of traffic signals at the Roche Way/Townend Street junction, and the partial closure of High Street, which will have a positive impact on accident rates.

10.4.4.2 Package 2

Analysed using NESA, the occurrence of accidents is reduced with the by-pass in place (the total reduction in accidents over the assessment period is 32.8). Large numbers of vehicles are attracted to the by-pass which, because of its nature, will have a lower accident rate than the existing route through Dalry.

Despite the lower accident rate on the by-pass, the higher average speed of traffic will have a bearing on the severity of injuries.

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10.4.5 Integration

10.4.5.1 Package 1/1A

The package is consistent with a number of primary local and regional transport policies. A minor negative impact to transport interchange is foreseen arising from the necessary changes to bus routes.

10.4.5.2 Package 2

This package is also consistent with a number of primary local and regional transport policies. The package has no impact on transport interchange.

10.4.6 Accessibility

10.4.6.1 Package 1/1A

The proposal to introduce one-way traffic management operation in New Street (West) and the associated proposal to relocate the Northbound (through) bus halts from Dalry Cross to a location on Roche Way adversely impacts on accessibility.

However the proposal to introduce new pedestrian crossings of the A737 (at traffic lights at the Roche Way/Townend Street junction, and at Merksworth Avenue junction) has positive impact.

10.4.6.2 Package 2

This will have no direct impact, but the associated resulting reduction in traffic volume passing through Dalry will have a positive impact.

10.4.7 Achievement of Planning Objectives

A summary of the ability of two Packages to meet the Planning Objectives is provided in the following tables:

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Table 10.1: Package 1/1A v's Planning Objectives

Ref	Planning Objective	PACKAGE 1	Comment
1	Stabilize the average peak hour journey time over a prescribed length of the A737 through Dalry throughout the 25 year study horizon using October 2004 conditions as datum; without detriment to conditions in Dalry Town Centre.	**Meets Planning Objective at Short term Horizon (2012).**	Improvement diminishes before Medium Term Horizon is reached based on Central NRTF growth.
2	Achieve 20% reduction in traffic volume in New Street between the Traffic Lights and Dalry Cross without detriment to local traders by 2010 using October 2004 conditions as datum.	**Target reduction in volume is met. Impact on business will need to be monitored.**	Business survey responses confirm 80% of business in favour of proposal.
3	Improve accessibility across the A737 between the Roche Way and Vennel Street junctions for non-motorised road users. For residents in Garnock Street, target at least 1.5 minute reduction in walking time to a controlled crossing point on A737.	**Meets Planning Objective.**	
4	Enhance the attractiveness for walking and cycling in Dalry (access to Schools, Town Centre, Public Transport and Community Facilities). Target to be a 10% increase in the number of pupils regularly arriving on foot or by bicycle by 2010, and 5% increase in numbers of pedestrians or cyclists entering New Street between Traffic Lights and Dalry Cross by 2010.	**Unable to assess overall impact with any accuracy. Schools target expected to be met by School Travel Plans. Most elements of package will make minor contribution.**	
5	Stabilize average bus journey times through Dalry at peak hours in future years using October 2004 as datum.	**Meets Planning Objective at Short term Horizon (2012).**	Improvement diminishes before Medium Term Horizon is reached based on Central NRTF growth.

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Table 10.2: Package 2 v's Planning Objectives

Ref	Planning Objective	PACKAGE 2	Comment
1	Stabilize the average peak hour journey time over a prescribed length of the A737 through Dalry throughout the 25 year study horizon using October 2004 conditions as datum; without detriment to conditions in Dalry Town Centre.	**Meets Planning Objective at Medium and Long term Horizons.**	Traffic flow in Townend Street in 2027 estimated as being only 51% of 2004 levels based on Central NRTF growth.
2	Achieve 20% reduction in traffic volume in New Street between the Traffic Lights and Dalry Cross without detriment to local traders by 2010 using October 2004 conditions as datum.	**Planning Objective is not met.**	The proposal has no direct impact on the volume of traffic in New Street (West).
3	Improve accessibility across the A737 between the Roche Way and Townend Street junctions for non-motorised road users. For residents in Garnock Street, target at least 1.5 minute reduction in walking time to a controlled crossing point on A737.	**Planning Objective is not met.**	The proposal has no direct impact on accessibility across Townend Street although the reduced traffic volumes will make crossing easier providing traffic speed not too high.
4	Enhance the attractiveness for walking and cycling in Dalry (access to Schools, Town Centre, Public Transport and Community Facilities). Target to be a 10% increase in the number of pupils regularly arriving on foot or by bicycle by 2010, and 5% increase in numbers of pedestrians or cyclists entering New Street between Traffic Lights and Dalry Cross by 2010.	**Planning Objective is not met.**	The proposal has no direct impact on walking or cycling although again the reduced traffic volume will lead to the town centre being more user friendly for non-motorised users.
5	Stabilize average bus journey times through Dalry at peak hours in future years using October 2004 as datum.	**Meets Planning Objective at Medium and Long term Horizons.**	Traffic flow in Townend Street in 2027 estimated as being only 51% of 2004 levels based on Central NRTF growth.

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10.5 Deliverability

10.5.1 Package 1/1A

The principal risk to being able to implement Package 1 by 2007 (or early 2008) is delay to the procurement/demolition of No.43 New Street and the flatted accommodation above. There is already strong opposition to the demolition. As discussed in section 8.3 of this report, this opposition may well lead to delays in:

a. completing the Statutory Procedures (TRO's)

b. procuring the properties (CPO)

c. obtaining a Demolition Warrant

If Package 1A is implemented possible delays would be limited to dealing with TRO objections.

10.5.2 Package 2

The programme will be at risk to a certain extent until the Statutory procedures have been completed, but this could be seen as quite normal. Financially there is a project specific risk associated with the historic mine workings – the contingency and optimism bias allowances are however considered reasonable at this stage to cover the cost exposure.

10.6 Conclusions

10.6.1 The Primary Problem

The primary problem identified is the congestion in Dalry Town Centre particularly during peak travel time. The critical factor is the constraint formed by the arrangement of the junction of New Street with Townend Street. Due to the very tight geometric arrangement and the problem that creates for large vehicles, traffic signal controls were installed around 1995 to introduce sequential movements on the A737 through the junction.

With the continuing growth in traffic volume the delays now arising from the sequential operation have become significant, particularly southbound, during the PM peak travel period.

By 2007, based on Central NRTF traffic growth, the existing road network in and around Dalry is likely to become heavily congested, resulting in increased queuing and delay, leading to the eventual breakdown of the network. Therefore, if conditions in Dalry town centre are to be prevented from further deterioration, then an appropriate intervention will need to be introduced by 2007/2008.

The study team has found that there are limited options available to overcome the problem.

10.6.2 Town Centre Improvements (Package 1/1A)

The first option is to carry out a modification to the existing New Street/ Townend Street junction to allow 2-way traffic to flow on the A737 through the junction once

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more. Analysis of this arrangement (in conjunction with a number of other component parts) shows that queuing and delays would be alleviated in the Short term (up to 2015) if Central NRTF growth is assumed.

The assessment confirms that a healthy economic return can be expected with the capital cost (£530,000) being covered by the journey time savings in the first year alone.

Unfortunately, the necessary reconfiguration of the junction to achieve 2-way flow requires the demolition of No.43 New Street which is a Newsagent's corner shop with flatted accommodation above. The building is a Category B listing building. The proposal is opposed by the shop owner, the owner of the flat above the shop, Dalry Community Council and Allan Wilson MSP amongst others.

When taken in isolation, the other town centre improvements which are wrapped together in Package 1 are assessed to have limited impact on the congestion problem. However, each of them has been assessed as contributing to improving the situation in the town centre, and as such each one has been assessed as being suitable for implementation.

The need to carry out demolition to achieve the necessary re-arrangement of the New Street/Townend Street junction has already led to opposition to the scheme being raised from key stakeholders including Dalry Community Council and Allan Wilson MSP. The demolition has been assessed as having a major negative effect in terms of cultural heritage and visual amenity, and moderate negative in terms of effect on the townscape. If this proposal is selected to be progressed then a significant level of objection can be expected which is most likely to introduce delay to the programme.

Generally the stakeholder feedback considers that demolition should not be considered to be an option. The exception to this has been North Ayrshire Council Roads Services who confirm that they would support the proposal.

Given the level of stakeholder objection to the proposal to demolish No 43 New Street, it is thought to be prudent to consider what benefits could be achieved through the implementation of Package 1, but excluding the introduction of simultaneous two way traffic flow through the New Street/Townend Street junction, described as Package 1A.

The introduction of one way traffic flow in New Street (West) from the Cross towards the traffic signals will have the benefit of reducing the number of turning manoeuvres that take place on and off the A937at the traffic signals thus reducing the impediment to the A937 through traffic hence reducing delays.

As with the introduction of the full range of Package 1 measures, the signalisation of the Roche Way/Townend Street junction (linked to the New Street/Townend Street signals) will improve the capacity of this junction and help facilitate the re-routing of traffic seeking to access the Cross as a result of the proposed one way operation in New Street (West).

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If Package 1A (at capital cost of £250,000) measures were implemented, queuing and delays should be improved in the short term if Central NRTF growth is assumed. However the magnitude of the relief to the queuing and delay problems will be considerably less than that anticipated if full Package 1 were to be introduced thus making the need for further intervention more pressing.

10.6.3 Dalry By-pass (Package 2)

The second option to alleviate the queuing and delays in Dalry Town Centre is a by-pass of Dalry to the east of the town, assessed in this Report as Package 2. The by-pass as assessed follows the same general alignment as previously included in the Draft Local Plan. (This alignment has been omitted from the final approved version of the Local Plan).

It is estimated that the by-pass would remove over 50% of the traffic using the A737 from Dalry town centre. In doing so it would resolve the bulk of the problems in the town centre as soon as it is opened. Economically the by-pass (construction value = £22,500,000 including optimism bias) is fully justifiable with a Benefit:Cost ratio of 4.84 and an NPV of £69.44m.

Unfortunately, the by-pass cannot be delivered in the short term. The economic assessment has been carried out on the basis of an opening date of 2012 which was seen as being the very earliest that the scheme could be procured taking account of the Statutory Procedures that must be followed and providing investment commitment could be made by early 2007. More realistically, taking into account the process that will need to be followed, an opening date of late 2015 for the by-pass would be more achievable which means that some form of Short Term intervention is required to bridge the gap until the by-pass can be procured.

If the proposal to modify the New Street/Townend Street junction contained in Package 1 is not taken forward, then a decision on progressing the by-pass must be made promptly.

Similarly if Package 1A measures are implemented then a decision on progressing the bypass must also be taken promptly.

If Package 1 is introduced in full then at least 6 years prior to the end of its lifespan of Package 1 (i.e. by 2009) a decision will have to be made to initiate further intervention to provide relief to Dalry town centre and the A737 over the longer term. This may have to be brought forward depending on the findings of the continuing monitoring and the actual traffic growth rate.

If Package 1A measures are introduced, a decision on further intervention needs to be made earlier within 2 years.

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10.7 Primary Recommendations

In light of the above the recommendations of the study team are:

1. That, given the likely considerable opposition to the demolition of No 43 New Street and the inevitable delay that this will cause to the implementation of Package 1 in full. Package 1 A (estimated capital cost of £250,000) be implemented by mid 2007, at the latest, to provide essential short term relief to the traffic delays through the Town Centre.

2. That, commitment for further intervention should be made within the next 2 years (or earlier, if the actual traffic growth exceeds assumptions) to provide the additional relief necessary to overcome the expected breakdown of the Package 1A measures by 2012.

3. That, based on this study, Package 2 (Dalry Eastern Bypass) at an estimated capital cost of £18m, is likely to be the necessary solution to overcome the problems caused by traffic growth beyond 2012.

10.8 Other Recommendations

1. The road network capacity is very sensitive to illegal or inappropriate parking and loading and the speedy implementation of Package 1A measures are necessary. It is therefore recommended that a Dalry Traffic Forum be established to help facilitate the local consultation, development and implementation of the proposals.

   The membership of this Forum should comprise Scottish Executive, Amey Highways, North Ayrshire Council, Strathclyde Police, Local Councillor, Community Council and local business representatives.

2. That to clarifying the needs, constraints and opportunities relating to bus and train services from/to Dalry Railway Station a Public Transport Forum (possibly led by The Regional Transport Partnership) be established to study in more depth the Public Transport issues involved, and to identify possible solutions.

References:

1. "A737 Dalry STAG Appraisal Traffic Survey Report No. 61979" dated October 2005, as prepared by SIAS Limited.

2. "A737 Dalry STAG Appraisal Model Development Report No. 63918" dated October 2005, as prepared by SIAS Limited.

3. A737 Dalry STAG Appraisal Economic Development Report" dated August 2005, as prepared by Roger Tym and Partners.

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