7 Part 2 (Detailed) Project Appraisal

7.1 Introduction

This Chapter 7 provides a more detailed investigation and appraisal of the proposals carried forward from the Part 1 Appraisal. The chapter is sub-divided into sections including those corresponding to the principal areas of appraisal, namely; the Planning Objectives, Implementability and the Government's 5 Objectives. The final sections assess the cost to Government and the Monetised Summary.

7.2 Proposal Details

The proposals taken forward from the Part 1 Appraisal, and issued for consultation during the Part 2 Appraisal process are as listed below. Given the small scale nature of several of the proposals, for the purposes of the Part 2 Appraisal, it has been determined that it would be appropriate to combine the various Town Centre Improvement Options into Package 1. The proposed by-pass (option 4) forms Package 2.

7.2.1 Package 1 Proposals as issued for Consultation

The proposals are listed below in the following table. Drawings identifying the location of the proposals (as cross referred to in the following Table 7.2.1) are provided in **Appendix D** to this Report.

Table 7.2.1: PACKAGE 1 PROPOSALS (Consultation)

OPTION 2: TRAFFIC MANAGEMENT INTERVENTIONS (Refer to drawing 716/004/025/1)		
Reference	**Location**	**Intervention**
2/1	Existing Traffic Light Junction	Junction arrangement converted and new traffic signal controls installed to allow simultaneous 2-way traffic flow on A737.
2/2	Roche Way / Townend Street Junction	Traffic signal control introduced to junction and parking restriction applied to east kerbline of Townend Street in vicinity of junction to allow provision of south bound right turn lane. Signage to be reviewed including high load divert route.
2/3	New Street (West)	Converted to 1-way (south bound) operation from Dalry Cross to the Traffic Signal
OPTION 3: CAR PARKING ETC INTERVENTIONS (Refer to drawing 716/004/025/2)		
Reference	**Location**	**Intervention**
3/1 applies generally	Approach roads to Town Centre	Introduction of a comprehensive set of signage to advise motorists of the route to, and size of, off-street car parking. The rationale for the signing is to direct drivers to car parks such that they do not have to travel on New Street between the traffic signals and The Cross.
3/2	New Street (East & West)	The replacement of the now non-compliant signs showing time limited parking restrictions on New Street.
3/3	New Street (West)	The reconstruction of the existing (wide) footway outside the Library/Bookmakers in New Street to allow a shared footway/vehicle unloading area plus installation of bollards to limit the area taken by unloading vehicles.

Table 7.2.1: PACKAGE 1 PROPOSALS (continued)

OPTION 3: CAR PARKING ETC INTERVENTIONS (continued)		
Reference	**Location**	**Intervention**
3/4	Main Street	The introduction of one-way (east or west bound) traffic operation on Main Street between North Street and Kirk Close, and the removal of the current parking restrictions on the north channel of Main Street on the same section.
3/5	Courthill Street / North Street Junction	The installation of bollards on the footway on the north radius at the junction between Courthill Street and North Street to prevent illegal unloading practices. Alternative unloading area provided in Main Street as 3/4 above.
3/6	Townend Street / New Street Junction	Refreshing the double yellow lines on the radii of the Townend Street / New Street Junction.
3/7	New Street (West)	The allocation of part of the existing time limited parking area to a "loading only" area on west channel of New Street (West) (e.g. between the Co-op and the Hotel) to overcome the current difficulties for delivery vehicles finding suitable unloading areas. This could be limited to specific time periods. (Possibly led through focus group of New Street shopkeepers).
3/8	New Street (West) / Roche Way	The removal of the through Service buses from New Street onto Roche Way. Local (smaller) feeder bus services would still be permitted to stop at the Cross to give access to shops etc.
3/9 applies generally	All Town Centre routes	Introduction of effective enforcement of the parking restrictions – this would require discussion and agreement with North Ayrshire Council and Strathclyde Police.
OPTION 5: NEW PEDESTRIAN CROSSING (Refer to drawing 716/004/025/1)		
Reference	**Location**	**Intervention**
5/1	On Townend Street, just south of Merksworth Avenue Junction	Installation of new pedestrian crossing (Puffin type) across Townend Street to link with Health Clinic footpath.
OPTION 6: IMPROVE CYCLE PATH + SECURE BIKE STORAGE (Refer to drawing 716/004/025/1)		
Reference	**Location**	**Intervention**
6/1	Existing path from Railway Station	Improve footpath/cycle way south west from Railway Station into Dalry
6/2	Railway Station, and Town Centre	Provision of cycle racks / secure storage in Town Centre and Railway Station
OPTION 7: GREEN TRAVEL PLANS		
Reference	**Location**	**Intervention**
N/A Applies generally	N/A	Preparation and implementation of school travel plans with view to reducing car borne pupils.
OPTION 8: BUS SERVICE TO RAILWAY STATION		
Reference	**Location**	**Intervention**
N/A Applies generally	New Street, Bridgend	Improve bus services from town centre to Train Station to ensure reasonable connectivity with train services.

7.2.2 Package 2 Proposal as issued for Consultation

The proposal is listed below in the following table. The drawing identifying the location of the proposal (as cross referred to in the following table) is provided in **Appendix D** to this Report.

Table 7.2.2: PACKAGE 2 PROPOSAL (Consultation)

OPTION 4 : DALRY EASTERN BY-PASS (Refer to drawing 716/004/025/3)		
Reference	**Location**	**Intervention**
N/A	East Dalry	Construction of new by-pass from Hillend to Highfield

7.2.3 Development of Proposals

The two principal proposals, Options 2 & 4, have been subject to design development to look in more detail at the workability and appropriateness of the proposals.

7.2.3.1 Option 2, reference 2/1 (modification to existing junction)

As part of the Part 1 Appraisal a revised arrangement of the New Street/Townend Street Junction was developed within the available land at the junction. A preliminary analysis of the swept paths of suitable vehicles on a modified junction layout indicated that it would be possible to achieve 2-way flow on the main movement north/south on the A737 through the junction.

A more detailed analysis of the junction during the Part 2 Appraisal following the consultation process found that whilst a viable arrangement to achieve 2-way traffic flow within the available land can be identified, the arrangement does not meet the requirements for forward sight distance (of signal heads) and inter-visibility of stop lines. Further analysis found that the only way of achieving an arrangement compliant with the applicable standards is to assume the demolition of the No.43 New Street which is a well established corner shop unit with flatted accommodation above.

Further investigation has determined that as well as being a valuable facility within Dalry, No.43 New Street is a Category B Listed Building. Consultation with the North Ayrshire Council Legal and Protective Services Department indicates that strong objection might be expected to an application to demolish this building.

For the purposes of this appraisal it has been assumed that a workable solution can be found. An allowance has been made in the costings for the procurement, if necessary, of No.43 New Street.

7.2.3.2 Option 4 (Dalry By-pass)

The concept arrangement for the proposed by-pass has been developed to provide a preliminary horizontal and vertical alignment with suitable junctions (roundabouts, based on projected turning counts) assumed at the north and south tie-ins with the A737. The developed alignment has remained within the study corridor indicated on the consultation drawing.

The cross section of the by-pass has been assumed as a standard 2-lane carriageway, 7.3 metre wide, with additional 1 metre wide running strips either side. The vertical alignment averages approximately 2% (falling north to south) over the majority of its length.

A key feature of the by-pass is the necessity to cross both the River Garnock and the Glasgow-Ayr Railway line. It has also been considered necessary to span the low-lying flood plain on the east and west banks of the River Garnock to minimise future risk from flooding. A structure some 265 metres in length at an elevation of approximately 14 metres above the river level has been allowed for in the design/costing.

7.2.4 Key Stakeholder Consultation Feedback

Continuing consultation with the key stakeholders is an essential element of the Part 2 Assessment. Details of the options under consideration for Part 2 Assessment were issued to the key stakeholders in June 2005. This was followed by a Public Meeting at Dalry Community Centre on 13th September and a final circular letter regarding Option 2 on 22nd September.

The Public Meeting on 13th September was attended by over 100 interested parties from Dalry. In preparing this section of the Report account has been taken of the issues raised at the meeting (a copy of the detailed notes of the meeting is provided in Appendix K to this Report).

The following sections summarise the key issues raised with respect to the various options.

7.2.4.1 Option 2 (Improvement to New Street Junction)

The crux of the improvement is to achieve concurrent two-way traffic flow on the A737 through the New Street/Townend Street junction. Analysis has shown that the only way to introduce a safe arrangement would require the demolition of the corner shop (No.43 New Street) at this location and flatted accommodation above (No.2 Aitken Street). The following photograph shows the building which is a Category B Listed Building.

The proposal involving demolition is strongly opposed by the owners, the Community Council, Local Councillor for Dalry, Allan Wilson MSP and others. Their summary view being that the end does not justify the means – they do not consider that it should be an option if it means demolishing another key building in the centre of Dalry.

North Ayrshire Council Roads Services has however expressed general support for the proposal albeit that they wish to be appraised of the plans for Aitken Street and Garnock Street.

Photograph of No.43 New Street and accommodation above

The other primary elements of this option are (a) the introduction of one-way traffic management in New Street (West), and (b) the introduction of an additional set of traffic control signals at the Roche Way/Townend Street Junction. There has been relatively little feedback relating to these aspects with the exception of concerns regarding the additional traffic load on Roche Way and the possible impact on the access to, and school crossing patrols serving, St Palladius Primary School.

Given that this Option is apparently capable of providing significant relief to the congestion and delays through the junction, the option is being taken forward for detailed assessment where the issue of demolition will be taken into full account. As part of this exercise the operational sensitivity and implementability of Option 2, but excluding the need to demolish No 43 New Street ie no simultaneous 2-way traffic flow element through the junction, will be considered.

7.2.4.2 Option 3 (Car Parking etc)

There has been little direct feedback relating to the car parking proposals. In fact the strongest response, received from Dalry Business Club, sought consideration of extending the existing car park at Kirk Close (with a one-way entry and new exit onto Roche Way), and offered suggestions for additional parking behind the Library. We have reviewed the proposal prepared and presented by the Dalry Business Club. The car park at Kirk Close could possibly be extended, but it would not be acceptable to form an exit onto Roche Way (because of proximity to other junctions, and possibly due to the potential gradient) nor would it be possible to make provision for buses as proposed because of the restrictions of the access route.

There are land ownership issues and pedestrian access problems (to New Street) with the sites behind the Library. The scheme proposed by the Business Club involving housing could overcome the ownership problem, but a suitable pedestrian access to

New Street would still have to be found - we believe that a previous application to form a pedestrian access past the hall at No.14 New Street was denied by the owners.

Whilst extension of the car parking is not a matter for STAG in this instance, North Ayrshire Council has confirmed that they will look into the above matters in due course although no commitment can be given at this time.

On a separate issue, consultation feedback has sought consideration of pedestrianisation of New Street (West) and Main Street. However, taking account of the need to provide access to Courthill Street, the constraint imposed by the narrowing of North Street, and the need to service the shops in Main Street and New Street West, our assessment is that pedestrianisation is not an option.

The Public Meeting also provided feedback regarding the proposal to relocate the bus stops for the through service buses from the Cross to Roche Way.

This proposal arose from two issues:

a. the desire to reduce congestion through New Street (West), and

b. the introduction of one-way traffic management in New Street (West).

Consultation with Thistle Bus Company confirms that they do not consider the introduction of the one-way traffic management in New Street (West) to be a problem. They would be content to divert their normal northbound route via Roche Way, and confirmed that they had been obliged to use this route previously when there were roadworks in New Street (West) and advised that there had been no adverse reaction from the public.

Consultation feedback from Stagecoach has indicated that they would prefer to maintain the southbound Bus Halt at Dalry Cross for departures to Kilwinning etc, and the one-a-day service to Glasgow via the A737, and the Stoopshill Crescent service. Northbound services to Kilbirnie/Glasgow as proposed would depart from a lay-by in Roche Way. This is seen as being a reasonable compromise.

SPT are not in favour of the proposal generally since it causes a detrimental effect on accessibility to public transport. SPT have drawn to attention that a greater proportion of bus passengers have mobility issues when compared with the overall population whether it is an older person carrying shopping, or a young mother with a baby-buggy or similar. The primary driver for this proposal is the proposed introduction of one-way traffic in New Street (West) which is unavoidable if significant improvement is to be made to the existing traffic light junction.

Feedback from St Palladius Primary School during the Public Meeting identified concerns at the potential conflict in the use of the existing bus lay-by on Roche Way near the entrance to the school. School buses are not permitted to enter the school grounds and as such currently use the lay-by. It was confirmed that buses to secondary Roman Catholic schools also use the lay-by. The feedback also indicated

that buses in the lay-by obscures sight lines and limits visibility for the school crossing patrol across Roche Way near the school entrance.

Further consultation with North Ayrshire Council Roads Services suggests that the potential problem of conflict with the School needs is not insurmountable, but that further discussion is required on the issue before a package suitable for service and school transport buses can be agreed. In view of this, and the existence of other potentially suitable locations for a bus lay-by along Roche Way, it is proposed to allow this option to go forward.

7.2.4.3 Option 4 (Dalry By-pass)

Throughout the consultation process there has been widespread support for a by-pass although there have been quite widely differing opinions on its possible extent and alignment.

One of the strongest representations was made for the by-pass to link directly to the Three Towns Bypass via a route following the B714 Dalry to Saltcoats Road (which is now being used much more frequently by road users now that the Three Towns By-pass is open).

This proposal may have potential merit, however an appropriate assessment of such an option would require a wider strategic study to be carried out which could look at the needs and constraints of the corridor as a whole.

The scope of this study has been set to match the original brief which means that this study is not able to address this wider issue.

Feedback has also queried the likely routing of West Kilbride traffic (probably still through Dalry) and that traffic using the B714 Saltcoats to Dalry road (assumed that the bulk of that traffic will use the bypass the avoid having to journey through Dalry).

Concerns have also been raised by property owners/residents who may be affected by the new by-pass. This will be a matter for the detailed route option appraisal that will follow if the scheme is approved.

This is a key option and is taken forward for detailed appraisal.

7.2.4.4 Option 5 (Pedestrian Crossing)

There has been little significant feedback on this option other then to seek consideration of introducing traffic lights at the Vennel Street/A737 junction where a pedestrian phase could be included.

The results of the various traffic modelling exercises have not identified a particular problem at the junction to merit traffic signal controls. In addition, if the crossing point were moved to the Vennel Street junction, this would take it to the southern limit of the housing area the crossing is targeted at – the crossing at Merksworth Avenue is more central and follows a strong desire line.

The option is therefore taken forward for detailed appraisal.

7.2.4.5 Option 6 (Cycle path + Cycle Storage)

Feedback from key stakeholders on Option No.6 (to improve existing path from Railway Station to suit combined cycle path/footpath use & installation of cycle racks/storage) has not been supportive. Comments have included the following:

a. Path seen as being remote/secluded and likely to be considered unsafe.
b. Use of cycling in Dalry is too limited to justify. Likely to be considered as being too dangerous (unsafe).
c. Public likely to be apprehensive about using cycle racks / cycle storage.
d. Seen as being a complete waste of money and an invitation for vandalism
e. Option would be a waste of money. Path would be used by boy racers.
f. No culture or practice of cycling to the station.
g. Provision of bike storage would be a waste of money.

This generally negative attitude was also evident at the public meeting on 13 September.

Other consultations have determined that the existing path currently serves a number of uses: a leisure path for pedestrians and cyclists; a track used by farm vehicles to access fields; by the angling club to stock the river; and as a venue for anti-social motor-cyclists.

North Ayrshire Council (NAC) Roads Services have also commented that the route is relatively remote and may be considered unsafe during the hours of darkness. NAC also drew attention to the need to clarify future responsibility for the path. Funding for the capital cost for such a walking/cycling initiative is likely to be available from the Scottish Executive (desirably as part of a multi-agency funding including Scottish Enterprise and NAC). However funding for maintenance of such a scheme is not normally available from the Scottish Executive, and it would be normal to expect the local Council (NAC) take on the maintenance responsibilities.

The question of whether to provide lighting to the path has generated differing responses from the key stakeholders. Apart from the cost of installation and maintenance, the primary issue is one of personal security along a relatively secluded route. A relatively high level of lighting would be required to provide adequate lighting for walkers and cyclists, but this may give the night-time walker or cyclist a false sense of security in this countryside walk. Environmentally, the introduction of lighting along such a rural path would have a negative impact. It would seem appropriate at this stage, until the level of use of the improved path is proven, to assume that walkers and cyclists will prefer to use public road network (which is already lit) during the hours of darkness.

The suggested provision of secure cycle parking facilities has also been met with some resistance. The primary problem is a lack of confidence in the security of any such

provision especially at the unmanned train station. The provision of CCTV at the train station could lead to improved confidence, but unless it is properly monitored then it would serve little purpose (as has been evidenced elsewhere). Clearly, if modal shift is to be achieved then secure bike storage facilities at the Train station must be provided. The primary aim should be to locate such facilities at the train station in an open site with good lighting provision to try to discourage people loitering in the area.

During the period of this study First ScotRail has installed a number of cycle hooped stands at the Train Station which allows passengers to chain/padlock their bicycle to a secure stand. This is seen as supporting Option 6.

Conventional cycle parking (Sheffield hooped stands or similar, or cycle racks) is seen as being appropriate for the Town Centre.

Notwithstanding the lack of support described above, it would seem evident that the improvement of the path has the potential to work towards the Government objectives of modal shift (from the road network) and encouraging healthy living. It would provide an attractive off-road alternative for residents of the Blair housing, and users of the train services, to access the south part of Dalry without having to negotiate New Street (at least during daylight hours).

In conclusion therefore it is proposed that this option is carried forward with the caveat that there are issues that will need to be addressed in detail before the scheme can be implemented. These include negotiations with farmers on the use of the path; land acquisition; maintenance burden; safety and security.

7.2.4.6 Option 7 (School Travel Plans)

There has been little significant feedback on this option and it is proposed that this option is carried forward for detailed appraisal.

7.2.4.7 Option 8 (Improve Bus services to the Train Stations)

Consultation feedback has generally been in support of this proposal – mostly for improved connections throughout the day; there has been little indication of a latent demand for improved peak hour connections.

Feedback from SPT questioned the effectiveness and practicality of this option noting that whilst connectivity is desirable, all of the local buses are currently operated on a commercial basis. SPT highlight that, outside London, Transport Authorities have no power to coordinate public transport. SPT also drew attention to the fact that there is no incentive for Stagecoach to improve connectivity since that could adversely affect the business of their competing “trunk” services. SPT also queried the scale or nature of the problem this option seeks to address.

The issue regarding connectivity is demonstrated by the information in the following table which is based on the current scheduled time tables.

Table 7.2.3: Bus Connectivity

Bus Service connections to Dalry Train Station for services to Glasgow			
	First Bus	**Last Bus**	**Typical Connection time**
Thistle Buses	08:23	16:53	24 minute wait
Stagecoach	10:10	18:10	37 minute wait
Bus Service connections from Dalry Train Station for services from Glasgow			
	First Bus	**Last Bus**	**Typical Connection time**
Thistle Buses	08:32	17:02	13 minute wait
Stagecoach	08:59	16:59	10 minute wait

As can be seen there are no buses before 08:23 in the morning meaning that there are no bus connections suitable for commuters who start work by 9am in Glasgow. Equally there are no bus services available for normal 9-5 commuters arriving in Dalry from Glasgow. It should be noted that the Stoopshill Crescent stop for the Stagecoach service (25/34) is the first scheduled stop in Dalry i.e. it does not pick up from any of the Dalry housing estates, or Dalry Cross, before stopping near Dalry station. As noted above Stagecoach has no incentive to improve the connections since it could adversely impact on their business.

Thistle buses operate a single bus and driver on the Dalry service – any move to provide earlier/later services would necessitate employment of a second driver which would have considerable impact on the viability of the business. Feedback from Thistle confirms that notwithstanding the above, they do not consider that there is a significant early morning demand for bus services to the Station with frequent car sharing of journeys to Glasgow.

The potential impact of additional services were they to be introduced, is difficult to assess since the peak hour trains are already heavily used and there is often standing room only for Dalry departures – the current lack of seating capacity on the trains is likely to limit the potential impact.

In summary:

a. The suggested improvement in services is not supported by SPT or the operators.

b. SPT do not consider that there is a problem to be solved

c. Any additional hours of operation by Thistle Bus Company would require an additional driver to be employed

d. There is no available capacity on the current peak hour trains to/from Glasgow (we have been advised that the primary constraint to increased capacity is the infrastructure between Glasgow and the Airport).

e. There has been limited public support for the proposal.

Notwithstanding the above however, there is an opportunity to make the connectivity better to improve the integration of the public transport services in Dalry. If successful it can be expected to contribute to a modal shift from road to rail resulting in a win-win situation for the residents of Dalry with an improved public transport system and reduction in road traffic volume.

During peak travel hours the scale of the benefit can be expected to be limited until such time as additional capacity on the train services from Dalry to Glasgow is available.

During off-peak hours the connectivity could be substantially improved by an apparently relatively simple re-programming of the bus services. Dalry residents would benefit most from the Thistle Bus Service being expanded.

The proposal however cannot be delivered in isolation. This study has only looked at the problems in Dalry, and even then has been severely restricted due to the lack of bus patronage information made available. It was also accepted at an early stage that this study could not take into consideration the needs of the transport corridor as a whole, and it would be inappropriate to make any recommendations without detailed knowledge of the wider picture.

We would recommend the creation of a multi-agency partnership or similar to study the issues involved relating to public transport needs, and to identify possible solutions.

7.2.5 Package 1 Proposals for Detailed Appraisal

In summary therefore the proposals taken for forward for detailed appraisal remain unchanged and are as listed in Table 7.2.1. However as part of this exercise the operational sensitivity and implementability of Option 2, but excluding the need to demolish No 43 New Street ie no simultaneous 2-way traffic flow element through the New Street / Townhead Junction, will be considered. This variant will be reported on as on Package 1A.

7.2.6 Package 2 Proposal for Detailed Appraisal

In summary therefore the proposals taken for forward for detailed appraisal remain unchanged and are as listed in Table 7.2.2.

7.2.7 Appraisal Reference Cases

To ensure that the outcome from the appraisal for each package is directly comparable, they have both been tested against the same existing (do-nothing) situation.

7.2.8 Scheme Opening Years

Based on the application of Central NRTF growth, it was concluded during the Part 1 Appraisal that the Base network could not accommodate growth beyond 2007. Doing so led to the development of queues and delays which would not realistically materialise. Faced with such delays, drivers would be likely to make their trip at a different time of day, or on a different route.

As such, it was deemed necessary to provide relief to the network by introducing the measures contained in Packages 1 and 2.

Should a decision be taken to proceed with Package 1 in full (necessitating the procurement and demolition of No. 43 New Street) then taking into account the time likely to be taken to obtain the relevant Orders (possible Compulsory Purchase Order, Demolition Warrant and Traffic Regulation Orders required to enforce the traffic management changes), and the procurement of the design and construction services, and being mindful of the relatively low cost measures proposed, it was assumed that Package 1 would have an opening date of no sooner than 2007.

Given the required procurement process and nature of the works associated with the by-pass, an opening year of no sooner than 2012 has been assumed for Package 2.

7.3 Planning Objectives

Assessment of the proposals against the 5 No. Planning Objectives is provided below:

7.3.1 Planning Objective 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.

Package 1: Journey time analyses demonstrate that for each of the 4 main routes through town the anticipated average journey times in 2012 are less than or essentially equal to the 2004 journey times before intervention. This applies equally for the AM peak, the PM peak, and over the full 12 hour model period. Thus Planning Objective 1 is robustly met at the 2012 (Short Term Horizon) when Central NRTF growth is assumed (equates to 14% traffic growth over 2004 levels).

Sensitivity testing was carried out to assess the performance/benefit beyond 2012. The application of Central NRTF growth to the future years 2012, 2014 and 2016 highlighted that queuing and delay within the network was critical by 2016. A further assessment suggested that Central NRTF growth to 2015 levels was the absolute maximum that could be accommodated before conditions became unmanageable. On this basis it must be concluded that the serviceability of Package 1 measures will not extend as far as the Medium Term Horizon (2017) if traffic growth continues at Central NRTF growth levels.

If the Package 1A variant was to be implemented queuing and delays should be lessened in the short term. However the magnitude of the relief will be considerably less than that anticipated for the full Package 1.

Package 2: Based on the available information, and assuming that the bulk of the B741 (Saltcoats to Dalry road) will choose to use the by-pass rather than pass through Dalry Town Centre, the predicted traffic volume using the A737 through Dalry once the by-pass is opened reduces to approximately 42% of the 2004 levels by 2014 (reduced from 9,700 vehicles over 12 hours in 2004 to 4,100 vehicles in 2014). The quoted percentage applies to 2-way traffic flow on Townend Street in front of the Post Office.

Whilst this will only directly affect the A737 trunk road, it will provide considerable relief of the traffic congestion in Dalry at year of opening, and would therefore be able to meet this Planning Objective at short term horizon at 2012 if opened at that time.

The Long Term Horizon for this appraisal is 20 years (2027) by which time traffic growth at Central NRTF growth levels will have increased by approximately 22% over 2014 levels. All else being equal, this would result in the 2-way traffic flow in Townend Street of 1.22 x 4,100 = 5,000 vehicles which is still only 51% of the 2004 traffic levels. It would be unsafe to make any strong case on this projection, but it does give a good indication of the ability of this proposal to meet this Planning Objective over the full assessment period.

7.3.2 Planning Objective 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

Package 1: Traffic flow predictions on New Street (West) show the 2-way traffic flow of 3,200 vehicles over a 12 hour period in 2004 reducing to 1,900 1-way traffic flow in 2012 which represents a 40% reduction in traffic on New Street (West) thereby robustly meeting the targeted traffic reduction.

How successful the Package will be in achieving the second part of the Objective "without detriment to local traders" is difficult to forecast. The outcome of the Business Survey found that:

- 80% of Dalry businesses were in favour of Option 2 (which introduces the changes to the traffic conditions)
- 76% of Dalry businesses considered that Option 2 would have a stabilising effect upon business turnover, and
- 80% of Dalry businesses considered that this option would have a stabilising or positive effect upon business employment.

Overall the EALI assessment for the Package 1 measures concludes that a "moderate" positive impact can be expected to the local economy.

In view of the above it is considered reasonable to project that the proposal will not be to the detriment of the local traders, and that consequently Package 1 meets Planning Objective 2.

Package 2: The package does not meet this Planning Objective since the implementation of the by-pass provides no relief to the traffic conditions in New Street (West).

7.3.3 Planning Objective 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.

Package 1: Planning Objective is met since the proposed new pedestrian crossing of Townend Street to the south of Merksworth Avenue significantly reduces the walking distance to a controlled crossing point for some Dalry residents – see section 7.10.2 of this Report.

Package 2: The package does not meet this Planning Objective since the implementation of the by-pass has no impact on this Planning Objective.

7.3.4 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.

Package 1: Considering each element of Package 1 in turn:-

a. Option 2 – traffic management related – neutral impact expected. Reduced congestion will make walking and cycling more attractive, but this is countered by the anticipated increased speed of traffic.

b. Option 3 – Planning Objective unlikely to be met by any one element of the package, but minor benefits can be expected from a number of the individual elements considered in turn below:

- element 3/1 – car park signs improvements. Minor positive impact arising from more use of off-street car parks
- element 3/2 – car parking restrictions – no impact
- element 3/3 – vehicle unloading in front of library – no impact
- element 3/4 – one way in Main Street – no impact
- element 3/5 – bollards at Courthill street – no impact
- element 3/6 – double yellow markings – no impact
- element 3/7 – loading bay near co-op – no impact
- element 3/8 – bus halt relocation. Minor positive impact due to obligation for some bus passengers to walk farther to reach the new bus stop location
- element 3/9 – effective parking enforcement. Minor positive impact due to obligation for some car drivers/passengers to walk farther from a legal car park location.

c. Option 5 – new pedestrian crossing improves accessibility and will make it easier for local residents to walk across town. Minor positive impact.

d. Option 6 – improved foot / cycle way and cycle storage can be expected to lead to increased walking and cycling and result in a minor positive impact.

e. Option 7 – Expected to be met with respect to School targets. No impact on the New Street (West) targets.

Package 2: Planning Objective unlikely to be met. No direct impact, but the Town Centre will experience traffic relief if by-pass is opened which will make the Town Centre more attractive again for walking and cycling. This will be partially countered by increased traffic speeds.

7.3.5 Planning Objective 5

Stabilize average bus journey times through Dalry at peak hours in future years using October 2004 as datum.

Package 1: As Planning Objective 1 – see 7.3.1 above.

Package 2: As Planning Objective 1 – see 7.3.1 above.

7.4 Implementability Appraisal

7.4.1 Technical

Package 1 /1A No abnormal technical risks have been identified in this package of solutions. The demand responsive traffic signals proposed at each of the two main junctions uses tried and tested systems and controls and will be able to be re-programmed should the need arise in the future if traffic patterns vary.

Package 2 Towards the southern end of the by-pass a structure or structures totalling approximately 265m in length will be required to carry the by-pass across the River Garnock (and its flood plain on the east and west banks) and the Glasgow-Ayr Railway Line (on a 30° skew). Tried and tested design and construction materials are proposed, and no abnormal risk has been identified.

Old mapping indicates “Blair Iron Works” approximately 500m west of the proposed alignment where it crosses Blair Road with an Ironstone Pit to the south and Coal Pits to the north. The historic mapping also shows a Lime Kiln on the line of the proposed by-pass alignment just south of Blair Road.

From the crossing of Blair Road northwards the proposed by-pass alignment traverses an area which has a history of coal mining with 8no. mine entries identified by the Coal Authority, typically located along the west boundary of the proposed corridor. Detailed records of the treatment of the mine entries are not held by the Coal Authority. The Coal Authority also confirms that other mine entries may exist in this locality. In addition to allowing £500,000 for an extensive ground investigation, a £1,000,000 contingency has been allowed in the costing to cover ground preparation/consolidation works that might be required arising from this source.

The River Garnock and the Railway line towards the south of the corridor will form a barrier to haulage of materials along the full length of the corridor. Construction of a temporary crossing of the railway line and river to act as a haul route is not considered practical, both in terms of buildability and cost (and such a crossing has not been allowed for in the costing). Since it will be important to minimise the construction traffic passing through the Town Centre (by imposing a ban or similar on construction/ haulage vehicles) this will mean that either the permanent river and railway crossing will have to be constructed at an early stage in the contract to provide the contractor with a haul route to the south end of the scheme, or the contractor will have to locate a source of suitable fill material to the south of Dalry (for the earthworks south of the River crossing).

The Environmental Appraisal has identified that the watercourses in the area are classified by SEPA as Class A1, A2 or B; it has also classified the sensitivity of the water resources as high/medium. As such, for Package 2, specific pollution prevention measures will need to be developed as part of any scheme design and employed during construction/operation to protect water quality and aquatic ecology. This is not an uncommon requirement in current schemes and is not considered an abnormal risk although it is an area of the project which could have significant impact if not properly addressed.

In respect of biodiversity the Environmental Appraisal has found there to be no European or Nationally designated sites within the survey area for the by-pass. However it has identified that appropriate mitigation measures need to be included so that any negative impacts to the existing flora and fauna are minimised.

7.4.2 Operational

Package 1 /1A There are no factors identified which are likely to adversely affect the ability to operate the proposal over its projected life without major additional costs.

Package 1A will of course have a shorter projected life than the full Package 1 and therefore will require further intervention at an earlier date.

The success of the parking proposals will rely on an enhanced ongoing partnership between Strathclyde Police, Scottish Executive , North Ayrshire Council and local businesses to ensure that illegal parking does not adversely affect the through flow of traffic.

Package 2 Providing the historic mine workings described above were properly dealt with at the time of original abandonment, or are suitably treated during construction, there are no factors foreseen which might adversely affect the ability to operate the proposal over its projected life without major additional costs.

7.4.3 Financial

Package 1 The funding for this package is expected to be primarily split between the Scottish Executive and North Ayrshire Council (depending on whether the works are trunk road related or not) with a contribution from Strathclyde Passenger Transport (SPT) if subsidy required for Option 8):

Table 7.4.1: Expected Funding responsibility (Package 1)

Element (See table 7.1)	2/1	2/2	2/3	3/1	3/2	3/3	3/4	3/5
SE Funding	all	all	all	part	part	-	-	-
NAC Funding	-	-	-	part	part	all	all	all
Other								

Element (See table 7.1)	3/6	3/7	3/8	3/9	5/1	6/1 & 2	7	8
SE Funding	all	-	Physical costs	-	all	-	-	-
NAC Funding	-	all	-	-	-	All, but possibly via grant aid funding	-	Part if subsidy required
Other	-	-	-	-	-	-	-	SPT part if subsidy required

Package 2 The funding for the by-pass would be the responsibility of the Scottish Executive.

7.4.4 Public

Package 1 The proposals were made public during the Part 2 Consultation process.

The need to take down No. 43 New Street and the accommodation above has been met with strong resistance. Consultation feedback has been received which argues strongly against the proposal (if it needs demolition). As well as being an established corner shop business with accommodation above, it is a Category B listed building. If the proposal is accepted for implementation, and the property cannot be secured by negotiation, then it would be necessary to procure the building by way of a Compulsory Purchase Order which would adversely impact on the programme.

Otherwise the proposals subject to detailed assessment have generally been well received although some adverse comment was made regarding the proposal to introduce one-way operation in Main Street, and the proposal to introduce a loading bay area in New Street (West) (taking space from on-street parking). The adverse comments regarding the Main Street one-way system are limited; the adverse comments regarding the introduction of the loading bay (and loss of car parking space) were more comprehensive.

Traffic Regulation Orders (TROs) will be required to be made to cover the proposed changes at the junction and the introduction of one-way traffic management in New Street (West) and Main Street. A new TRO will also be required to introduce on-street parking restriction on Townend Street opposite Roche Way junction. As such there will be the opportunity for members of the public to raise objections to the proposals which, if unable to be resolved, could lead to a Public Local Inquiry. The consequences of such delays are discussed in section 8.4 of the Report.

There could also be objection to the necessary change in the routes for the service buses.

Package 2 The corridor of study for the proposed by-pass was made public during the Part 2 Consultation process. Support of the proposal has generally been widespread albeit with reservations regarding the scope of the by-pass study. A concern has been raised however regarding the proximity of the proposed route to the housing in Baidland Avenue and Kerse Avenue with a request made for any future alignment to be moved further away. Concerns have also been expressed from property owners and residents living near the north and south tie-ins with the A737. As noted elsewhere the final alignment of the by-pass, if accepted for implementation, will be subject to a detailed design exercise including a detailed assessment of possible route options.

7.5 Environmental Appraisal

7.5.1 Introduction

A strategic level environmental assessment of transport proposals within Package 1 (Options 2, 3, 5, 6, 7 and 8) and Package 2 (Option 4) has been undertaken in accordance with the requirements of the STAG Part 2 appraisal. Relevant sections of the Part 2 AST have also been completed for each Package with supporting background environmental information referenced as necessary. Significance criteria follow that outlined in the STAG manual (i.e. the seven point scale). To provide reasoning behind the determination of significance levels, definitions of sensitivity and magnitude criteria are also provided.

7.5.2 Methods

7.5.2.1 Collation of Baseline Information

Existing information on the current baseline environmental conditions within Dalry and the surrounding area have already been gathered through the STAG Pre-appraisal and Part 1 appraisal process. During the Part 2 appraisal process this information has been updated where appropriate through additional consultations with statutory and non-statutory consultees and field survey.

Relevant information and issues raised through the consultation process carried out during July and August 2005 have been taken into consideration as part of the assessment. Published information on habitat and species importance was also taken from the UK Biodiversity Action Plan (UKBAP) and the Ayrshire Local Biodiversity Action Plan (LBAP).

7.5.2.2 Environmental Evaluation

STAG requires that the basis for the determination of impact significance should be clearly set out. The determination of impact significance commonly involves the interaction of impact magnitude and receptor sensitivity. These criteria vary for each environmental topic and therefore Tables 7.5.1, 7.5.2 and 7.5.3 below provide definitions of receptor sensitivity to the type of development proposed, the magnitude of anticipated impact on these receptors and the overall combined significance of impact (as specified in the AST). It should be noted that these criteria are very much indicative based on a strategic, mainly qualitative assessment.

At this stage it has not been possible to apply air quality and noise significance criteria. The Part 2 STAG appraisal aims to consider the general possible benefits and dis-benefits of a scheme; however it does not include the detailed quantification of air pollutant concentrations and noise levels, which generally take place later when assessing a scheme at a local project level.

Consequently although the receptor sensitivity for noise and air quality does vary between more sensitive receptors (i.e. hospitals, schools, nursing homes etc) and sensitive receptors (i.e. residential properties); the magnitude of impacts cannot be assessed for each of these receptors because at this stage only strategic information is available. However, a general indication of likely level of significance has been provided.

Table 7.5.1 Descriptions of Receptor Sensitivity.

Topic	Receptor Sensitivity			
	High	**Medium**	**Low**	**Negligible/Neutral**
Water Quality	Hydrological characteristics considered susceptible to relatively small changes and associated with sites of international or national biological importance and watercourses and waterbodies of a high water quality (SEPA River Classification Scheme Class A1 and A2).	Hydrological characteristics considered reasonably tolerant of change associated with sites of local biological importance and watercourses and waterbodies of moderate water quality (SEPA River Classification Class B).	Watercourses and waterbodies of poor water quality (SEPA River Classification Class C) considered potentially tolerant of moderate change.	Watercourses and waterbodies which suffer from pollution and/or are in a degraded condition (SEPA River Classification Class D) considered tolerant of substantial change.
Geology	Nationally or internationally designated geological site and/or non-substitutable or highly sensitive geological attributes. Many small or some large areas of specific contamination. Potentially difficult to treat and/or high risk to human health.	Regionally or locally designated sites and/or of geological attributes with limited potential for substitution or moderate sensitivity. Several small or some large areas of less significant contamination, more easily removed/treated. Moderate risk to human health.	Non-designated sites and/or of geological attributes easily substitutable or with low sensitivity. Potentially small areas of low-level contamination. Low risk to human health.	Non-designated sites and/or geological attributes of no particular sensitivity. No known contamination present.
Biodiversity	Feature of international, national or regional nature conservation value, important for its rarity or habitat quality. Includes statutory protected sites, Ramsar Sites, Special Area of Conservation, Special Protection Area, Site of Special Scientific Interest. Highly sensitive as loss of, or significant impacts on, such a feature would be to the detriment of the European/national resource.	Feature of nature conservation value at up to a district or county context and may be designated as a non-statutory Site of Importance for Nature Conservation (SINC) or the equivalent. Loss of such a feature would have some nature conservation implications and should be avoided where possible.	Feature of local nature conservation value only, with insufficient value to merit a nature conservation designation. Value of such a feature is based on a degree of local rarity, and it may be widespread outside the local area. Loss would be unlikely to have nature conservation implications except at the local or site level.	Commonplace feature of little or no specific nature conservation value. Loss of such a feature not detrimental to the ecology of the area.
Landscape	Landscape or landscape elements of particular distinctive character, highly valued - national importance, or of particular importance locally with strong positive character and/or rarity and in particularly good condition. Considered susceptible to relatively small changes.	Undesignated but attractive landscape, element or feature in relatively good condition or of regional or particular importance locally. Considered reasonably tolerant of change	A landscape, element or feature with of low valued characteristics or negative character and in a poor or degraded condition. Considered potentially tolerant of substantial change.	A landscape of low valued characteristics considered tolerant of substantial change.

Topic	Receptor Sensitivity			
	High	**Medium**	**Low**	**Negligible/Neutral**
Visual	Where the landscape in the view is considered to be of high value and importance to the receptor and any change would be noticeable and would affect visual amenity, e.g. residential properties/footpaths.	Receptors where the landscape in the view is not perceived as a major element in the overall view and not crucial to their visual amenity, e.g. sporting/recreational facilities.	Receptors where the landscape in the view is unimportant and/or the users are not particularly sensitive to change, e.g. Industry/ places of work.	Receptors where the view has little or no impact, e.g. because of distance.
Agriculture and Soils	Agricultural land of Prime Quality, including Grade 1 to Grade 3.1. Presence of non-substitutable or highly sensitive soil attributes.	Agricultural land assessed to be of Grades 3.2 to 5.3. Presence of soil attributes with limited potential for substitution or moderate sensitivity.	Agricultural land assessed to be of Grades 6.1 to 6.3. Presence of soil attributes easily substitutable or with low sensitivity.	Land of no, or limited (Grade 7), agricultural value. Presence of poor quality soils which are easily substitutable.
Cultural Heritage	Sites of international or national importance including World Heritage Sites, Scheduled Monuments and Listed Buildings, Category A.	Sites of regional importance including Archaeological Sites of Regional Interest (ASRIs) and Listed Buildings, Category B.	Sites of local importance including Archaeological Sites of Local Interest (ASLIs) and Listed Buildings, Category C (S).	Sites that have been badly damaged or destroyed, or where their historic value is insufficient to justify their inclusion in a higher class.

Table 7.5.2 Descriptions of Magnitude.

Topic	Magnitude			
	Major	**Moderate**	**Minor**	**Neutral**
Water Quality	Major shift away from baseline conditions, fundamental change to water quality condition either by a relatively high amount for a long-term period or by a very high amount for an episode such that watercourse ecology is greatly changed from the baseline situation. E.g. equivalent to change from Class A to C or D, or vice versa.	A significant shift from the baseline conditions that may be long-term or temporary. Results in a change in the ecological status of the watercourse. Equivalent to change in one class, for example from C to D or vice versa.	Minor shift away from the baseline conditions. Changes in water quality are likely to be relatively small, or be of a minor temporary nature such that watercourse ecology is slightly affected. Equivalent to minor but measurable change within a class.	No measurable change.
Geology	Partial (greater than 50%) or total alteration of geological site/ attributes, or where there would be complete severance of a site such as to affect the value of the site. Major permanent or long term change to groundwater quality or available yield affecting resource use upon. Changes to quality or water table level will impact upon local ecology.	Alteration of part (between approximately 15% to 50%) of geological site/attributes, major severance, major effects to setting, or disturbance such that the value of the site would be affected, but not to a major degree. Changes to the local groundwater regime are predicted to impact slightly on resource use but not rule out any existing supplies. Minor impacts on local ecology may result.	Minimal effect on the geological site/attributes (up to 15%) or a medium effect on setting, or where there would be a minor severance or disturbance such that the value of the site would not be affected. Changes to groundwater quality, levels or yields do not represent a risk to existing resource use or ecology.	No measurable change.
Biodiversity	Major effects on the feature, which would have a sufficient impact to alter the nature of the resource and possibly affect its viability.	Effects detectable in short and long-term, but would not alter the viability of the system.	Minor effects, either of sufficiently small scale or of short duration to cause no long-term impact to the feature or the environmental resource.	No measurable change.
Landscape	The proposals dominate the view and fundamentally change its character and components.	The proposals are noticeable in the view, affecting its character and altering some of its components and features.	The changes are only a minor element of the overall view that are likely to be missed by the casual observer and/or scarcely appreciated.	No measurable change.

Topic	Magnitude			
	Major	Moderate	Minor	Neutral
Visual	The proposals dominate the view and fundamentally change its character and components.	The proposals are noticeable in the view, affecting its character and altering some of its components and features.	The changes are only a minor element of the overall view that are likely to be missed by the casual observer and/or scarcely appreciated.	No measurable change.
Agriculture and Soils	A major loss or alteration of land use or where there would be complete severance of important parts of a site such as to significantly affect the post-development value of the site.	A loss, alteration or severance of land use such that the post-development value of a site would be diminished but to a minor degree.	Minimal loss, alteration or severance of land use such that there would be a measurable change but this would not significantly affect the use of land from pre-construction conditions.	No measurable change.
Cultural Heritage	Complete or partial demolition or loss (over 50%) of a site, or where there would be complete severance of important parts of a site such as to significantly affect the value of the site.	Loss of part (between approximately 15% and 50%) of a site, major severance, major effects on setting, or substantial increases in noise or disturbance such that the value of a site would be diminished but to a minor degree.	Minimal effect on a site (up to 15%) or a medium effect on its setting, or where there would be minor severance, increases in noise, vibration, disturbance or amenity such that there would be no effect on its value.	No measurable change.

Table 7.5.3 Determination of Impact Significance.

Receptor Sensitivity	Magnitude			
	Major	Moderate	Minor	Neutral
High	Major	Major	Moderate	Minor
Medium	Major	Moderate	Minor	No impact
Low	Moderate	Minor	Minor	No impact
Negligible/ Neutral	No impact	No impact	No impact	No impact

7.5.3 Noise and Vibration

7.5.3.1 Overview

STAG recommends that the Stage 2 Strategic level noise assessment should be carried out using the method described in GOMMMS. For each of the identified zones, the average noise emissions have been estimated using the Technical Memorandum 'Calculation of Road Traffic Noise' 1988 (CRTN). The zones have been determined by the traffic flow data provided by SIAS. In carrying out the predictions changes in average noise levels, numbers of people exposed and change in population annoyed, have been assessed.

7.5.3.2 Package 1

The Package 1 transport improvements have been assessed qualitatively to indicate the likely impact on noise levels in Dalry. Package 1 options are likely to have a neutral effect on the noise levels in Dalry. The measures will potentially reduce congestion and the amount of braking and acceleration and they may also result in a reduction in the overall number of vehicle movements. However the higher average speeds may increase noise levels in some areas and the overall impact on noise is likely to be neutral.

7.5.3.3 Package 2

The proposed Dalry Eastern bypass will result in a reduction in noise levels in those areas adjacent to the existing A737 as it passes through the Town. The total increase in people annoyed is likely to be less than the total decrease in people annoyed.

The change in population annoyed has been assessed for each zone. A zone was identified in accordance with the traffic data supplied by SiAS. The results of the Strategic Level assessment of Package 2 indicate:

- Approximately 900 people would experience a reduction in noise levels and in total approximately 130 people would experience a decrease in annoyance.
- Approximately 144 people would experience an increase in noise levels and in total approximately 60 people would experience an increase in annoyance.

Based on current information, this is assessed to be of **Minor to Moderate Positive** significance.

7.5.4 Global Air Quality (Carbon Dioxide (CO_2)) and Local Air Quality (Particulates (PM_{10}))

7.5.4.1 Overview

STAG recommends that the Stage 2 Strategic level air quality assessment should be carried out using the method described in GOMMMS 4.4.18 and the Regional assessment methodology contained in DMRB 11.3.1. This can estimate the total emissions likely to be generated in the study area on a zonal basis. The zones have been determined by the traffic flow data provided by SiAS.

The background air pollutant concentrations in Dalry, have been taken from default concentration maps produced periodically by the National Environmental Technology

Centre (NETCEN), on behalf of the Department for Environment Food and Rural Affairs (Defra). The relevant background air pollutant concentrations for nitrogen dioxide (NO_2) and particulate matter (PM_{10}) are currently well below the National Air Quality Standard (NAQS) objectives for both the existing year 2005, and the proposed opening year of the by-pass scheme 2012.

North Ayrshire Council has carried out routine air quality monitoring. This has shown exceedences of the annual mean NO_2 objective at two locations near the town of Irvine (both in 2003). Predictions carried out by the Council have indicated that one exceedence will remain in 2005; but all monitoring locations are predicted to be in compliance with the objective by 2010. At this time, the Council has not declared any Air Quality Management Areas (AQMAs) within North Ayrshire.

7.5.4.2 Package 1

Package 1 options have been assessed qualitatively to indicate the likely impact on air quality. Package 1 options are likely to improve the air quality of Dalry due to reduced congestion, higher average speeds and a reduction in the overall number of vehicle movements. Although the impact on air quality is likely to be one of overall improvement, the impact will be minor.

7.5.4.3 Package 2

The proposed Dalry Eastern bypass as defined in Package 2 will result in an overall improvement in air quality. The number of people likely to be better off due to the bypass scheme will be greater than the number of people likely to be worse off. The results of the Strategic Level assessment of Package 2 indicate:

- Approximately 1950 people would experience a reduction in air pollutant concentrations (both PM_{10} and NO_2). These people are therefore classified as 'better off'.
- Approximately 530 people will experience an increase in air pollutant concentrations (both PM10 and NO2). These people are therefore classified as 'worse off'.

Based on current information, this is assessed to be of **Minor to Moderate Positive** significance.

The net change in CO_2 with the proposed bypass in place has been calculated as 161 tonnes per year, which is considered to relate to a **Minor Positive** significance level.

7.5.5 Water Quality, Drainage and Flood Defence

7.5.5.1 Overview

Watercourses within the study area comprise the River Garnock, Rye Water, Caaf Water, Dusk Water, Putyan Burn and smaller unnamed tributaries and ditches. The first five of these are classified by SEPA as Class A1, A2 or B.

The Putyan Burn runs through Dalry itself although this watercourse is not monitored and has therefore not been classified by SEPA. SEPA has advised that local springs are present in the area and may be exploited by local residents in the area surrounding Dalry.

No significant inputs to the watercourses such as from industry or effluent from sewage/water treatment works have been identified to date. The Putyan Burn may be affected by traffic related pollutant to some extent. It is possible that the industrial site located to the northeast of Dalry centre may have consent to discharge to the River Garnock. The towns of Dalry, Beith and Kilbirnie are connected by the Garnock Valley Sewer system, which flows to Stevenson Sewage Treatment Works.

In terms of flood defence, no specific surveys have been undertaken although it is anticipated that some form or protection has been created through Dalry.

In accordance with Table 7.5.1, the sensitivity of water resources has been assessed as high/medium.

7.5.5.2 Package 1

The proposed improvements incorporated in Package 1 are all located within the urban town centre environment. It is possible that there may be a reduction in vehicle related pollutant accumulation on the road surface due to the improved through-flow of traffic for Package 1 options and therefore an increase in the quality of surface water run-off. However, such benefits are predicted to be minimal, and considered to have an overall neutral level of magnitude mainly on the medium sensitivity Putyan Burn. The significance of environmental benefit is therefore categorised as **No Impact** in accordance with STAG criteria.

7.5.5.3 Package 2

The eastern bypass proposed in Package 2, would incorporate a bridge crossing of the River Garnock and likely crossings of other un-named minor watercourses, bridged or culverted. This may result in a change in the physical characteristics of these watercourses through possible in-channel construction works including bank alterations and diversions. There is also the potential for indirect adverse effects relating to the risk of pollution of watercourses through the input of sediments, oils, fuels, etc. from both construction phase run-off and from road run-off/accidental spillage once the bypass is operational. Due to the sensitivities of the River Garnock, specific pollution prevention measures would be developed as part of any scheme design and employed during construction/operation to protect water quality and aquatic ecology.

At this stage, Package 2 is predicted to have a minor level of impact magnitude with appropriate mitigation measures in place. The significance of impact with mitigation is therefore assessed as **Minor Negative**. The risk of adverse effects would be higher without mitigation (potentially Major Negative significance).

An increased flood risk is also a concern with run-off from new roads, however this cannot be quantified at this stage.

7.5.6 Geology (including contaminated land)

7.5.6.1 Overview

Based on the baseline information collated as part of the STAG Pre-appraisal and Part 1 appraisal process, and using the definitions provided in Table 7.5.1, the existing geological conditions in the Dalry area are assessed as low sensitivity.

Due to the potential presence of pockets of contaminated land, particularly to the north and east of Dalry, relating to past mining and quarrying activities, unknown spoil heaps and some ex-foundry sites (as identified in Appendix H) the sensitivity of the area outwith the town centre in terms of contaminated land is assessed as medium. There may be some areas of contamination with Dalry associated with past activities although consultation has not highlighted any particularly sensitive sites.

Geological maps for the Dalry area show the soils consist of granular alluvial deposits and as such may contain shallow groundwater, which has the potential to be locally exploited. Local springs may also occur in the area.

7.5.6.2 Package 1

Due to the fact that there would be no significant ground disturbance associated with Package 1 options, no predicted effects on existing geological conditions are predicted. Significance is therefore categorised as **No Impact** in accordance with STAG criteria. Although there are likely to be some areas of contamination with Dalry, no implications with regard to the proposed transport improvements are predicted. No groundwater effects are envisaged.

7.5.6.3 Package 2

The eastern bypass proposed in Package 2, would result in disturbance to geological attributes due to anticipated substantial earthworks required during construction. There would also be potential for disturbance to groundwater resources. Based on low sensitivity and major to moderate magnitude of impact, the significance is predicted as **Moderate to Minor Negative** depending on construction techniques employed.

Package 2 may result in disturbance to areas of potentially contaminated land/old mine workings to the north and east of Dalry. It is envisaged that such areas will either be avoided through design and location of the route alignment or areas removed/treated so that adverse effects do not occur. As such Package 2 is predicted to have a minor level of impact magnitude and therefore the significance of impact without mitigation is assessed as **Minor Negative**. The use of best practice construction methods and sensitive design features will minimise any negative impacts.

7.5.7 Biodiversity

7.5.7.1 Overview

As supporting information to the STAG Part 2 Appraisal, an Extended Phase 1 Habitat Survey has been completed specifically in relation to Package 2 (the eastern bypass) and this is reported separately. To summarise, there are no European or nationally designated sites within the survey area.

There are numerous non-statutory designated sites close to Dalry, but none of these occur within those areas affected by the transport proposals. As outlined in the Extended Phase 1 Habitat Survey, habitats present mainly comprise improved grassland, with infrequent areas of semi-natural woodland. Hedgerows are abundant, some of which are species rich. There are several watercourses within the survey area, the River Garnock being the main one (supporting Atlantic salmon and lampreys), with other more minor burns/field drains noted. No protected species were recorded during the field survey, although the River Garnock and minor watercourses provide suitable habitat for the European protected species otter. Otters have been previously recorded on water courses to the north east (River Garnock/Pitcon Burn) and south east Bombo Burn). There is also potential for badgers to utilise the farmland areas, outwith the town, for foraging. Bats may use scattered mature trees and possibly the accommodation railway bridge to the southwest of Dalry as roosts. The surrounding farmland and wooded area provide important habitat to farmland bird species, particularly during the breeding season.

The overall sensitivity of ecological features within the survey area is assessed as medium in the area surrounding Dalry and negligible/neutral within the town itself.

7.5.7.2 Package 1

No features of specific ecological value will be adversely affected within the urban town centre environment. As such Package 1 is predicted to have **No Impact** on biodiversity.

7.5.7.3 Package 2

The eastern bypass proposed in Package 2, would have a number of implications for biodiversity, including: habitat loss, damage, disturbance and fragmentation; potential physical disturbance to the River Garnock and other minor watercourses during construction of the new bridge and culverts; potential pollution of watercourses (as outlined on section 7.5.5.3) and effects on aquatic flora and fauna (e.g. salmon, lamprey) and supported terrestrial species, e.g. otter. The key features of value are the watercourses and hedgerows/trees, with improved grassland generally being of lesser overall value. Therefore, based on medium sensitivity and moderate magnitude of impact, the significance is predicted as **Moderate Negative**. However, the design, construction and operation of the bypass will be undertaken with the inclusion of appropriate mitigation so that negative impacts are minimised.

7.5.8 Landscape

7.5.8.1 Overview

The study area is located within the Ayrshire Basin Regional Character Area, with the bypass corridor being within Broad Valley Lowland Landscape Type (Ayrshire Landscape Assessment Report (1998)). The Garnock valley comprises a comparatively broad, shallow valley of predominantly agricultural grassland. The fields are relatively small and irregular in shape bound by well maintained hedges that form a strong landscape element. The eastern skyline is formed by the woodland surrounding Blair estate.

The sky-line to the south-west is punctuated by pylons, wind farm turbines and telecommunication masts. The River Garnock meanders through the valley. The town of Dalry sits comfortably on the valley floor with the old church spire and later factory chimney forming striking visual features in the landscape.

In terms of sensitivity to change, the landscape of the northern section along the valley side has a medium sensitivity to change and the southern section where it crosses the river corridor a high sensitivity to change.

In the mid nineteenth century the town of Dalry enjoyed considerable prosperity, and as such some fine buildings dating from this era and earlier times remain today. These punctuate the townscape prominently in sharp contrast to the architectural and social trends of recent times. The town centre is now composed of a wide variety of architectural styles and qualities of design to cater for modern social demands and through traffic. The town centre is losing its once distinct identity as the legacy from the past is being eroded and replaced by too little of value.

7.5.8.2 Package 1

The proposed traffic management within the town centre and the proposed improvement to the cycle path to the railway station should be seen as a practical means of achieving a wider range of social, economic and environmental goals. A reduction of vehicles in the town together with the traffic management measures proposed would no doubt make the town centre more welcoming and pleasant. Appropriate and sympathetic design of the proposals provides an opportunity to avoid any unnecessary visual deterioration or reduced ambience.

With respect to the potential requirement for the demolition of No. 43 New Street to create the realigned junction associated with Option 2, it is considered that the building adds value to the overall townscape not so much as an individual property but as an integral part of the block of buildings. The value of no. 43 to the townscape is also not restricted to its architectural quality but also its use throughout its history which adds a cultural value closely related to everyday working life in contrast to the other grand listed public buildings in the town. The structural alterations to form the flat above the shop make a significant change to the character of the building. This can either be justified and seen as a natural progression in the use of the building in cultural terms or be seen as a negative impact in townscape/landscape character. The impact of Option 2 is therefore assessed as moderate magnitude and **Moderate Negative** significance, based on a medium sensitivity. No other landscape impacts are anticipated for Package 1.

7.5.8.3 Package 2

From south to north on plan the proposed bypass corridor follows a relatively straight line from a point on the A737 south of Dalry 100m south of Hillend to rejoin the A737 approximately 100m north of the settlement of Highfield. The route passes obliquely across the River Garnock valley and Glasgow to Ayr railway line, crossing the track south and west of Blairland and then northwards, following the boundary of the

residential development, before crossing open pasture to rejoin the A737 north of Highfield. The route corridor is on the broad valley side which falls from east to west down to Dalry. The section of the route north of the River Garnock corridor to Highfield is broadly within a shallow subsidiary valley. The alignment of the route corridor over this section has consequently a degree of compatibility with the landform. However it passes close to high density residential housing to the west and the historic gardens and designed landscape of Blair estate to the east. The road would require a substantial structure to pass over the railway line and river corridor.

The magnitude of change to the landscape character due to Package 2, at year 15 after opening of the road and implementation of the mitigation measures, is assessed as moderate to minor for the northern section and major to moderate for the southern section. The significance of impact would therefore be **Moderate to Minor Negative** for the northern section and **Major Negative** for the southern section.

7.5.9 Visual Amenity

7.5.9.1 Overview

The potential views of the bypass are mainly associated with properties along the eastern 100m or so of the high-density residential development on the eastern edge of Dalry, to the west of the proposed bypass corridor. These properties are categorised as being of high sensitivity to visual change. The properties set further back do not have the same quality of open views and consequently have a medium sensitivity to visual change. Blairland farm is located to the south of the housing development, west of the bypass corridor, and would have a direct open view of the road corridor and, therefore, has a high sensitivity to change. As views from Stoophill farmhouse, to the east of the bypass corridor, would be restricted by outbuildings, its sensitivity to visual change is assessed as medium. Hillend, adjacent to the A737, at the southern end of the bypass corridor overlooks the river and railway line with a good open view to the northwest and has a high sensitivity to visual change. The properties in and within the environs of Highfield at the northern end of the bypass corridor would also have good open views and as such a high sensitivity to visual change. Visual receptors within Dalry itself comprise pedestrians and vehicle travellers.

A farm track from Blairland to the River Garnock is currently used by pedestrians to join the footpath along the river banks. There are also informal footpaths within the Blair Estate although these would have no view of the road corridor. The Dalry to Irvine Cycleway crosses the route corridor along the B707 west of Highfield. The sensitivity of pedestrians on the footpaths and cyclists on this cycleway are assessed as being high.

In terms of visual amenity, the town of Dalry is assessed to be of medium value due to its wide variety of architectural styles and fine examples of historical buildings dating from the mid-nineteenth century. Its' visual attractiveness is, however, becoming eroded as more modern buildings are constructed which can, perhaps, be considered as out of character with older styles.

7.5.9.2 Package 1

The listed building at 43 New Street adds value to overall visual amenity as an integral part of the block of buildings. The complete demolition of the building associated with Option 2 would fundamentally change the visual amenity within the immediate area and the block of buildings would appear obviously truncated. This impact is assessed as major magnitude and **Major Negative** significance, based on a medium sensitivity. No other effects on visual amenity for Package 1 options are anticipated at this stage.

If No 43 New Street was not to be demolished as with Package 1A the Major Negative impact would not arise.

7.5.9.3 Package 2

The most easterly row of properties (in Kerse Row and Baidlands Avenue) on the edge of the residential development sitting to the east of the River Garnock, would have a direct view of the proposed bypass. With mitigation measures to reduce the visual impact in year 15 after the road opens, the magnitude of change would be moderate to minor and significance of impact **Major to Moderate Negative**. The properties set further back would experience a minor magnitude of change, amounting to a **Minor Negative** significance of visual impact. For Blairland farm the magnitude of visual impact would be moderate to minor and the significance **Major to Moderate Negative**. Stoophill farmhouse would experience a visual magnitude of change of minor with **Minor Negative** significance. For Hillend the magnitude and significance of visual change would be **Major Negative**. The properties in and within the vicinity of Highfield would experience visual change of moderate to minor magnitude and **Major to Moderate Negative** significance, taking into account the anticipated reduction in traffic currently passing close to their properties along the A737.

The aforementioned farm track is severed by the bypass corridor. The proposed bypass would dominate the view and fundamentally change the character and amenity of the section of footpath in the vicinity of the river crossing and consequently result in a visual change of major magnitude change. Cyclists using the Dalry to Irvine cycleway would experience a short term increased negative impact and their magnitude of visual change and amenity 15 years after the road opening and the implementation of mitigation measures would be minor. The overall significance of visual impact and amenity for pedestrians and cyclists would be **Moderate Negative**.

7.5.10 Agriculture and Soils

7.5.10.1 Overview

According to the Soil Survey of Scotland, the land surrounding Dalry is classed as Grade 4_2, land capable of producing a narrow range of crops. Land in this division is primarily grassland with some limited potential for other crops. Soils comprise brown forest soils with various levels of gleying and organic deposits of basin and valley peats. Soils commonly reflect the arable nature of the locale. The sensitivity of the agriculture and soils is assessed as low, outwith the town centre and negligible/neutral within Dalry.

7.5.10.2 Package 1

Package 1 improvements are predicted to have no effect on existing agriculture and soils due to the fact that there would be no physical ground disturbance. Significance is therefore categorised as **No Impact** in accordance with STAG criteria.

7.5.10.3 Package 2

Although the construction of the eastern bypass would result in a substantial loss/disturbance of Grade 4$_2$ agricultural land due to significant land take requirements, no grade 1, 2 or 3 prime agricultural land would be affected. Soils affected are not considered to be of particular value, and as much material as possible would be re-used on site. However, the loss of this land may be of more importance to the landowners as it may constitute some of their best agricultural land. Package 2 is predicted to have a major impact magnitude on agriculture and soils for the immediate locality of Dalry. The significance of impact is therefore assessed as **Moderate Negative**.

7.5.11 Cultural Heritage

7.5.11.1 Overview

There are no Scheduled Ancient Monuments within the survey area. There are numerous listed buildings in Dalry and details of these are provided within Appendix E. Many of these buildings are within the town centre and areas currently affected by traffic congestion e.g. Main Street, New Street, Townend Street, Sharon Street and The Cross. The sensitivity of the known cultural heritage resource within the town of Dalry (for Package 1) is therefore assessed as high/medium and, in the surrounding rural, negligible/neutral for Package 2. There is also the potential for previously unrecorded sites and features, the sensitivity of which cannot be assessed at this stage.

7.5.11.2 Package 1

Although Package 1 options are located within the urban town centre environment, where a number of the listed buildings are located, the relative low key nature of the proposals (no direct disturbance) will limit overall potential adverse impacts. The key impact will be the required demolition of No.43 New Street (Category B listed building of medium sensitivity) in relation to Option 2. The impact magnitude of complete demolition of the building is assessed as major and, based on medium sensitivity, **Major Negative** significance . It is anticipated that traffic patterns will alter from the existing situation as congestion is relieved along certain streets and flows potential increased along others. There is a possibility of vibration from increased traffic speed affecting some listed buildings, however it is considered that such effects will be minimal as a result of the improvements proposed. Package 1 is therefore predicted to have an overall minor adverse level of impact magnitude on cultural heritage within the study area, the significance of which is currently assessed as **Minor Negative**. The possibility of any alteration to/demolition of the listed building at New Street will require consultation with the Council Planning Department.

If No 43 New Street was not to be demolished as with Package 1A the Minor Negative impact would not arise.

7.5.11.3 Package 2

Package 2 is not predicted to affect any Scheduled Ancient Monuments, listed buildings of other known features of cultural heritage interest and as such, based on current information, is predicted to have a neutral level of impact magnitude. The significance of impact is therefore assessed as **No impact**.

7.6 Safety

7.6.1 Accidents

7.6.1.1 Introduction

An accident evaluation was undertaken to assess the impacts of the respective changes included in the 2007 and 2012 Package 1/1A and Package 2 networks. Package 1/1A introduced a number of traffic management measures within Dalry town centre, whilst Package 2 includes the provision of a by-pass to the east of Dalry.

An accident-only NESA03 model was developed to evaluate the potential accident benefits of both packages relative to a future year Base network. The accident evaluations were undertaken using NESA default accident rates and costs [Ref: DMRB Vol.15.1.6.5].

The results of the respective accident-only NESA assessments, as described below, were fed back into the economic assessment.

7.6.1.2 Package 1/1A

These packages are primarily aimed at introducing some short to medium term traffic management measures to improve the operation of traffic in Dalry town centre. Whilst seeking to reduce queuing and delays to vehicular traffic, the measures also provide an opportunity to further assist pedestrians and cyclists.

The introduction of traffic signals to the Roche Way/Townend Street junction has been designed to accommodate a dedicated pedestrian stage, allowing pedestrians to cross the road with complete priority. The traffic signals at New Street have been modified but retain a dedicated pedestrian stage. In combination, these measures will have a positive impact on the occurrence of accidents.

The introduction of traffic signal control at the Roche Way/Townend Street junction will reduce the number of potential accidents by removing the priority control which, in turn, relies on the behaviour and attitudes of individual drivers, with dedicated traffic movements.

7.6.1.3 Package 2

An operational assessment of the by-pass option for 2014 suggests that in excess of 3,500 vehicles (per direction) will reroute onto the by-pass during the 12hr modelled period (0700 - 1900hrs). The removal of this through traffic will reduce the number of accidents in Dalry town centre. (In addition, the removal of traffic will have positive impact on vehicle speeds within Dalry town centre. However, as indicated above, whilst the accident rate may reduce, the severity of some accidents may increase slightly).

The high design standard of the by-pass results in a lower accident rate than both the existing A737 carriageway, immediately to the north and south of Dalry, and the town centre [Ref: DMRB Vol.15.1.6.5 Table 6/5/1].

7.6.2 Security

With the exception of Option 6 none of the proposals are considered to impact on personal security.

The primary issue with Option 6 is the proposal to improve the existing path leading from the Railway Station to the south end of Dalry. This proposal has the aim of increasing the number of walkers and cyclists using the path. At Station end the existing well established path starts of by passing between the Fire Station and the rear of housing in East Kirklands. The path then opens out into general farm land where it passes between grass (at present) fields. After crossing the River Garnock the path doubles back to run northwards up the wooded west side of the River to the rear of Garnock Street housing to intersect with Garnock Street near the Merksworth Avenue junction.

As with any path in the country there will be a personal security risk for some sections of the population. Given that someone on the path is never more than approximately 170 metres from housing areas, and the fact that the majority of the path has an open aspect, the path is not seen as being less secure than the average country path. At present the proposal is to omit any lighting so as to try to dissuade people from using the path during the hours of darkness – the journey can be done following the lit public streets.

The provision of secure cycle storage at the Train Station and the Town Centre will improve the security for cycles which are being left.

Overall Option 6 is seen a providing a minor positive benefit in terms of security.

7.7 Economy (Transport Economic Efficiency)

7.7.1 Introduction

An assessment of the Transport Economic Efficiency element has been undertaken in accordance with Chapter 8 of the STAG Manual. The two option packages taken forward for detailed assessment in the Part 2 Appraisal process were as follows:

- Package 1 – traffic management improvements within Dalry town centre (The TEE for the Package 1A variant has not been assessed at this stage)
- Package 2 – provision of a by-pass to the east of Dalry

Package 1 was developed to assess the operational effects of introducing a series of short to medium term traffic management measures within Dalry town centre. It was assumed that the opening date for implementing Package 1 was 2007 as discussed in section 7.2.8 of this report. The operational assessment was undertaken using the traffic microsimulation software S-Paramics, while the economic assessment was undertaken using the cost benefit analysis programme PEARS (Programme for the Economic Assessment of Road Schemes).

Package 2 was developed to assess the provision of a by-pass to the east of Dalry. For the assessment of Package 2, it was assumed, that no modifications would be made to the 2004 Base road network within Dalry. It was determined that the earliest opening year for the provision of a by-pass was 2012. The traffic forecasts and economic assessment were both undertaken using Network Evaluation from Surveys and Analysis (NESA) programme. A Representation of the NESA Model used is provided at the end of this section.

7.7.2 Operational Assessment

7.7.2.1 Package 1

For Package 1, the assessment was confined to future year 2007, the assumed year of opening. Central National Road Traffic Forecast (NRTF) growth was assumed for the period 2004 to 2007. The application of Central growth is compatible with the most recently issued NESA guidance for trunk road assessments. It is also consistent with historic growth which has taken place on the A737 and within in Dalry in recent years.

Operationally, the introduction of simultaneous two way operation on the A737 at the New Street/Townend Street junction, in conjunction with linked demand responsive traffic signals, reduces much of the queuing evident in the Base network. This affords time savings to all routes throughout Dalry, when compared with the Base network.

A comparison of the Base and Package 1 network forecasts reveals significant journey time savings on key links within Dalry town centre. Average journey time savings are most apparent during the PM peak period. For example, the average journey time southbound on Roche Way in the Base network is approximately 3 minutes, while in the Package 1 network, the average journey time is just under 2 minutes. The average PM peak southbound journey time on the A737 between the railway bridge and New

Street/Townend Street junction in the Base network is approximately 6 minutes. In the Package 1 network, the average journey time reduces to under 2 minutes.

The corresponding Package 1 AM northbound average journey times also show a reduction of nearly 1 minute when compared with the Base.

Given the operational improvements afforded by Package 1 in 2007, it was considered appropriate to undertake sensitivity testing to identify the extent to which future year growth could be accommodated within the Package 1 network. The application of Central NRTF growth to future years 2012, 2014 and 2016 highlighted that queuing and delay within the network was critical by 2016. A further assessment suggested that Central NRTF growth to 2015 levels was the absolute maximum that could be accommodated before conditions became unmanageable.

Central NRTF growth to 2015 represents an additional 19% over and above 2004 levels. The application of 19% growth is the equivalent of High NRTF growth to 2013 or Low NRTF growth to 2019.

7.7.2.2 Package 2

In common with the Package 1 network (S-Paramics), the Package 2 network (NESA) represented the main roads within Dalry town centre along with the local strategic road network, including the B780 to the north and A737 to the north and south. For the purposes of modelling a by-pass to the east of Dalry and the diversion route taken by high sided vehicles (HSVs) in the Base network, the coverage of the NESA network was greater than that in the S-Paramics model, extending further to the north to represent the junction of the B780 and A737 south of Beith.

For Package 2, the assessment was undertaken for the 30 year period 2012 to 2041. Central NRTF growth was assumed throughout this period.

The NESA Base network for 2004 shows a southbound flow of approximately 5800 vehicles on the A737 between Beith and Dalry over the 12 hour modelled period (0700-1900). The equivalent northbound flow is about 5100.

NESA produces future year forecasts in five year intervals from the Base year (2004). Hence, forecast traffic flows are available for 2009, 2014 etc. The traffic flows provided in the following paragraphs all relate to 2014.

The Package 2 NESA assignment shows that over the modelled period, around 3700 southbound vehicle trips use the by-pass, with approximately 2600 vehicles continuing towards Dalry on the existing A737. Approximately 3500 vehicle trips use the by-pass in a northbound direction, with around 2000 northbound vehicle trips recorded on the A737 north of Dalry, having travelled through the town centre.

The attraction of trips to the by-pass benefits the operation of the town centre as the reduction in traffic flows and the associated queuing and delay leads to a saving in travel times through Dalry.

In addition, vehicles assigned to the by-pass benefit from higher average speeds over a longer distance of uninterrupted carriageway, hence achieving considerable reductions in travel time, as they no longer have to incur delays passing through Dalry, particularly at New Street traffic signals.

7.7.3 Economic Assessment

7.7.3.1 Introduction

Economic assessments were carried for both the Package 1 and Package 2 networks, the results of which are summarised in the Appraisal Summary Tables provided in **Appendix F** to this report.

TEN (Transport Economic Note, DfT: March 2001) compatible versions of PEARS and NESA (NESA03) were used for the economic assessments of Package 1 and Package 2, respectively.

For the economic assessments, the Reference Case networks were based on the respective S-Paramics (Package 1) and NESA (Package 2) Calibration Base networks, i.e. no change from the existing network.

In accordance with current Scottish Executive advice, account was taken of Optimism Bias and Residual Value for both assessments.

Optimism Bias is the term given to the requirement to take account of a tendency for the true capital and operational costs of schemes to be underestimated, thereby overestimating the benefits of the scheme. To represent Optimism Bias, the estimated capital cost of each option package was increased by 25%.

Residual Value was based on 70% of the final year discounted capital cost of each package, and is included as a benefit in the Transport Economic Efficiency results.

The economic returns of the option packages, which are represented in the form of a Net Present Value (NPV) and Benefit:Cost Ratio (BCR), are based on the overall costs and benefits (travel time, vehicle operating cost and accident savings of the scheme) over the lifespan of the proposals.

7.7.3.2 Package 1

For the purpose of the economic assessment, a comparison between the Base and Design (Package 1) networks was undertaken. The Base and Package 1 networks were assessed for a single future year of 2007 based on a fixed trip matrix, assuming Central NRTF growth between the Calibration Base year of 2004 and 2007. The assessment assumes no traffic growth beyond 2007 because, as identified during the Part 1 Assessment, the Base network was unable to accommodate Central NRTF growth beyond 2007.

It was established during the operational assessment that the Package 1 network could not accommodate Central NRTF growth beyond 2015 (which equates to 19% growth over 2004 traffic levels).

With the application of Low or High NRTF growth, the network would fail to perform beyond 2019 or 2013, respectively. As such, although the implementation of Package 1 in 2007 will afford noticeable benefits, its lifecycle is limited to between 6 and 12 years from that date, beyond which a further intervention is likely to be required to provide relief to the network.

Capital cost estimates for Package 1 are based on June 2005 prices and values. The figures included all public utility, land, supervision and design costs, assuming 100% of the expenditure would occur in 2007.

The estimated Package 1 cost, excluding Optimism Bias, was £530,000. A June 2005 RPI index of 192 along with a discount rate of 3.5% was used in the assessment to rebase the costs to 1998 prices and values.

Under normal circumstances, an economic assessment would be carried out over a thirty year period, assuming that the lifetime of a scheme is in excess of thirty years. However, having identified that Package 1 would only last until 2015, assuming Central NRTF growth, it would have been inappropriate to undertake an economic assessment over a thirty year period, as the results would have been misleading.

As such, the Package 1 economic assessment was undertaken for the nine year period 2007 to 2015, the anticipated lifetime of the scheme, as it was necessary to demonstrate that the expense of implementing Package 1 would be justified within this time.

Analysis of PEARS outputs shows that during the period 2007 to 2015, travel time savings as a result of the Package 1 scheme alone are valued at more than £8.5m. This demonstrates that over its lifetime, Package 1 returns savings which more than cover the capital outlay. Further analysis shows that the First Year Rate of Return (FYRR) for Package 1 is 1.55, which gives added confidence in the scheme, particularly if the lifecycle is less than forecast.

Outputs from the nine year economic assessment indicate that the implementation of Package 1 would produce a positive Net Present Value (NPV) of £6.60m and a Benefit:Cost Ratio (BCR) of 9.22, confirming that even within the limited lifetime of Package 1, the proposals can be fully justified on economic grounds.

A tabulated Monetised Summary of the assessment of Package 1 is provided in Table 7.7.1 at the end of this Section.

7.7.3.3 Package 2

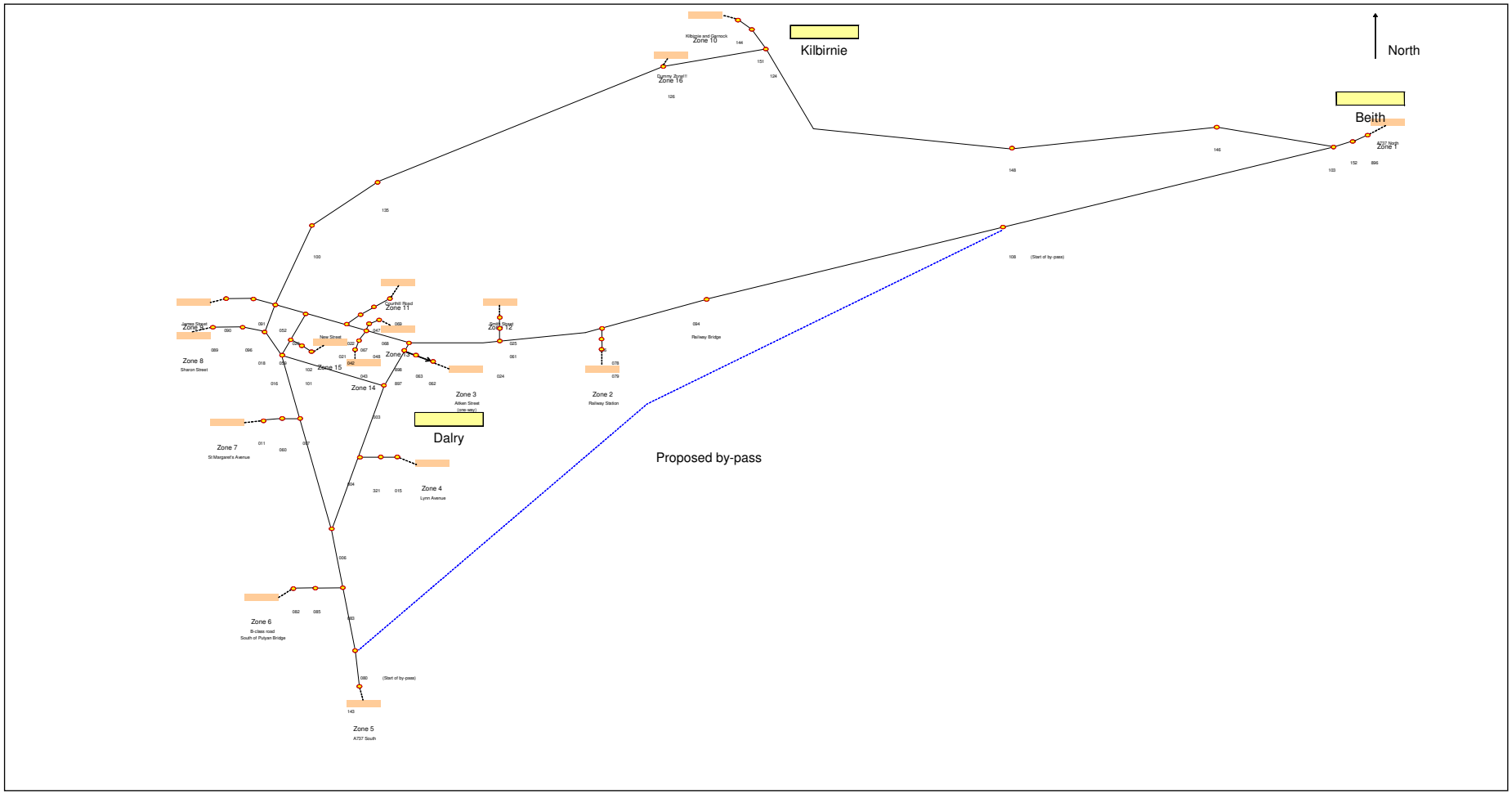
The Transport Economic Efficiency element of the Package 2 Appraisal was carried out using the cost benefit analysis programme NESA.

Capital cost estimates for Package 2 are based on June 2005 prices and values. The figures included all public utility, land, supervision and design costs, and assuming 50% of the expenditure would occur in 2010 and the remaining 50% in 2011.

The estimated Package 2 cost, excluding Optimism Bias, was £18m. A June 2005 RPI index of 192 along with a discount rate of 3.5% was used in the assessment to rebase the costs to 1998 prices and values.

Outputs from the economic assessment indicate that the implementation of Package 1 would produce a positive Net Present Value (NPV) of £61.44m and a Benefit:Cost Ratio (BCR) of 4.40, indicating that a by-pass can be justified on economic grounds.

A tabulated Monetised Summary of the assessment of Package 2 is provided in Table 7.7.2 below.



Representation of the NESA Model used for the Assessment of Package 2

Table 7.7.1 **TRANSPORT ECONOMIC EFFICIENCY - MONETISED SUMMARY PACKAGE 1**

IMPACT	TOTAL (£m)
A - User Impacts	
Travel Time including Junction Delays	6.58
Vehicle Operating Costs	0.52
Travel Time & VOC - During Construction *	-
- During Maintenance *	-
B - Operator Impacts	
Capital Costs	0.52
Maintenance costs - Non-Traffic (Group 1)	
- Traffic Related (Group 2)	
Bus & Coach Operating Costs	0.00
C - Other Government Impacts	
Indirect Tax Revenues	0.29
D - Economic Summary	
Economic Net Present Value	6.86
E - Impact on Accidents	
Total Reduction in Number of Accidents	-0.40
Total Present Value of Accident Benefits	0.00
F - Residual Value	0.31
Summary of Monetised Measures (Market Prices)	
Present Value of Costs (PVC)	0.80
Overall Present Value of Benefits (PVB)	7.40
Overall Net Present Value (NPV = PVB-PVC)	6.60
Overall Benefit/Cost Ratio (BCR = PVB/PVC)	9.22

All Costs are 1998 Prices and Values (£M)

Project Costs Uplifted by 25%

Discount Rate of 3.5%

* Construction and Maintenance Costs not included in this study. Usually assessed with QUADRO

Table 7.7.2 **TRANSPORT ECONOMIC EFFICIENCY - MONETISED SUMMARY PACKAGE 2**

IMPACT	TOTAL (£m)
A - User Impacts	
Travel Time including Junction Delays	79.14
Vehicle Operating Costs	1.20
Travel Time & VOC - During Construction *	-
- During Maintenance *	-
B - Operator Impacts	
Capital Costs	-15.00
Maintenance costs - Non-Traffic (Group 1)	
- Traffic Related (Group 2)	-0.28
Bus & Coach Operating Costs	0.22
C - Other Government Impacts	
Indirect Tax Revenues	-0.76
D - Economic Summary	
Economic Net Present Value	64.53
E - Impact on Accidents	
Total Reduction in Number of Accidents	32.8
Total Present Value of Accident Benefits	0.89
F - Residual Value	6.29
Summary of Monetised Measures (Market Prices)	
Present Value of Costs (PVC)	18.08
Overall Present Value of Benefits (PVB)	87.52
Overall Net Present Value (NPV = PVB-PVC)	69.44
Overall Benefit/Cost Ratio (BCR = PVB/PVC)	4.84

All Costs are 1998 Prices and Values (£M)

Project Costs Uplifted by 25%

Discount Rate of 3.5%

* Construction and Maintenance Costs not included in this study. Usually assessed with QUADRO

7.8 Economy (Economic Activity and Location Impacts)

7.8.1 Overview of Study Approach

This section of the STAG Part 2 Appraisal requires an assessment of the economic activity and locational impacts (EALI) of the proposed transportation network improvement options within Dalry town centre and the surrounding area. This assessment is undertaken at the local and regional level and at the wider Scottish level. The appraisal seeks to identify the effects and impacts in relation to changes in employment and business performance.

The analysis is also intended to identify how effects and impacts will be distributed across geographical locations and at differing spatial levels. This EALI section highlights the estimated effects and impacts in addition to those expressed by the standard TEE approach. Our approach to this assessment has therefore focused upon a series of detailed key stakeholder consultations during the study work programme, and supplemented further by a detailed local business survey in the Dalry study area.

A structured survey of approximately 100 local businesses across the Dalry and immediate catchment area was undertaken in June and July 2005. The survey sample included a broad representation of all the local businesses by industry, by size, and spatially across Dalry. The purpose of the survey was to provide a profile of businesses within the town and its immediate catchment by gaining an understanding of the business trends and prospects, the main operational activities and how the different transportation network improvements proposed might affect the prospects and/or activities. It also sought to provide evidence and reasoned justification from analysis of the survey responses to support the individual options and improvements being considered.

The contents of business survey questionnaire and letters of introduction were based upon that devised for similar surveys of business responses and measuring the economic and business impacts to related improvements in transport infrastructure and services elsewhere in Scotland and across the UK. The survey and letter were sent to named contacts within each identified local business, thus enabling the completion of the survey prior to follow up visits for hand collection. Spare copies and stamped address envelopes were also made available in case questionnaires had not been completed or mislaid. In this way, we have sought to achieve a higher level and quality of response whilst also providing the chance to comment face-to-face.

Our study approach reflects the STAG guidance in devising the means to understand: *"the potential behavioural responses of different 'sectors' of economic activity…The approach suggested involves dividing or segmenting the economy into 'sectors' and considering each of these in turn. Once a usable segmentation has been selected, this approach involves investigating how the economic actors relevant to each sector might be effected by, and respond to, the changes in costs or accessibility brought about by the transport proposals under analysis."*

To this end we have made use of the key business survey findings and detailed stakeholder consultation to generate an understanding of economic and spatial implications of the different proposed transportation network improvement options under examination within Dalry.

A separate 'Economic Development Report' has also been prepared, giving further supplementary and detailed information to this part of the STAG process and reporting.

7.8.2 Key Impacts and Effects

The STAG Part 2 EALI analysis requires detailed consideration of impacts, including an expression of the levels of economic activity by type and location of business or land use activity. The detailed findings of the analysis of the business survey are provided in the aforementioned stand alone 'Economic Development Report', but are shown in a tabulated summary format below, expressed by each of the individual improvement options. These key findings along with our experience of other similar schemes have been used to derive our conclusions.

It should be noted that at the time of survey, for ease of assessment all seven improvement Options (Options 2 to 8 inclusive) were considered individually, and that only during the later analysis stage were the findings assimilated into the 2 nos. assumed packages. These consist of the following:

- *Package 1*: town centre improvements; and
- *Package 2*: construction of a by-pass to the east of Dalry.

Table 7.8.1: Summary of Business Survey Findings

Option 2: Traffic Management Interventions
- 80% of Dalry businesses in favour of this option;
- 76% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover.
- 80% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment;
Option 3: Car Parking, Delivery Arrangements & Other Interventions
- 76% of Dalry businesses in favour of this option;
- 73% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover;
- 82% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment;
Option 4: Construction of Dalry Eastern By-pass
- 76% of Dalry businesses in favour of this option;
- 68% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover;
- 77% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment;

Table 7.8.1: Summary of Business Survey Findings (continued)

Option 5: Provision of New Pedestrian Crossing
- 88% of Dalry businesses in favour of this option;
- 95% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover.
- 95% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment;
Option 6: Improved Cycle Paths and Secure Bicycle Storage
- 83% of Dalry businesses in favour of this option;
- 95% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover.
- 95% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment.
Option 7: Green Travel Plan
- 85% of Dalry businesses in favour of this option;
- 83% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover.
- 83% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment.
Option 8: Improved Bus Service from Town Centre to Railway Station
- 90% of Dalry businesses in favour of this option;
- 83% of Dalry businesses state that this option will have a stabilising or positive effect upon business turnover.
- 83% of Dalry businesses state that this option will have a stabilising or positive effect upon business employment.

One of the greatest particular effects will therefore be experienced in relation to employment, with impacts likely to result from the introduction of the transportation improvements in Dalry itself, they would therefore occur mainly inside the town centre, elsewhere in the town and immediate communities. In relation to employment and industry sectors, it is anticipated that the greatest employment change will typically occur amongst the services sectors, including retailing, food and drink, financial and professional services, and other local businesses most likely to be represented within Dalry town centre. This would provide some limited opportunities for employment in providing support services as well as the greater skilled occupations.

It should be commented that local businesses were generally found to be in favour of each of the respective town centre package improvement options with positive responses ranging from 90% to 76%, dependent upon the scope of each option. Furthermore, some 95%-80% perceived the implementation of such improvements to have a stabilising or positive employment impact.

The Dalry by-pass option revealed that 76% of local businesses were found in principle to be in favour of its implementation, with 77% indicating that they would envisage the by-pass having either a stabilising or positive employment impact.

It is expected that the transport network improvements to Dalry will provide some benefit to local businesses and residents alike through improved accessibility to employment and through the potential widening of the available labour market. There could be further additional benefit in relation to increased town centre attractiveness and accessibility, which may in turn enhance business performance and employment opportunities.

It is envisaged that the limited local and small-scale development proposed and committed in the A737 Dalry study area will proceed irrespective of whether or not any transport network improvements are themselves introduced. There may though also be some future development areas, particularly on the town's fringes and beyond the current development boundary where development potential or realisation, as well as timing and scale of development, could be influenced by implementation of the transportation network improvement options. This is particularly the case for the Dalry Eastern By-pass option, and the possibility of the 'opening up' or release of land to the east of the town for limited residential development (subject to planning).

The second option relating to associated transportation management interventions will also have implications for the town centre in Dalry, with the likelihood and requirement for the acquisition and demolition of the residential and business properties at No. 43 New Street. This is necessary to enable an improved traffic junction layout and two-way traffic flows.

The STAG appraisal guidance also indicates that potential impacts of transportation projects should also be examined at a Scotland level. The analysis of the business survey findings and stakeholder consultations indicate that the transport network improvement options under consideration would in general purposes have a very limited (if any) contribution towards the creation of new commercial, leisure, residential and or other development within the study area, nor at the wider Scotland level. We also consider in qualitative terms that the future improvement of the transport network in Dalry could act as a catalyst to further enhancement of the attractiveness, accessibility and overall economic performance of Dalry town centre.

It is very difficult to provide an estimate of the level of any impact upon local areas of regeneration, which will depend upon the level to which residents of these local communities will be able to access Dalry town centre and the associated improvements. This in turn will influence local residents' abilities to gain access to potential new employment opportunities which might be created in the Dalry study area.

Although directly attributable to Dalry itself the anticipated growth and increasing levels of demand and pressure for new forms of development (e.g. residential and commercial) throughout Ayrshire could result in potential growth in construction which may subsequently provide employment opportunities for some local residents.

7.8.3 Regeneration and Distribution Effects

The Scottish Indices of Multiple Deprivation (SIMD) measure levels of deprivation through means of key indicators of deprivation, including: access, education, employment, health and income. Two wards considered by the SIMD fall within the immediate Dalry study area, (i.e. namely Dalry and part of Garnock East). These two wards fall within the worst 25 wards in North Ayrshire (out of 30 wards):

- Dalry - ranked as the 19th most deprived in North Ayrshire; and
- Garnock East - ranked as 25th most deprived;

In assessing the extent of deprivation within the study area we have taken into consideration the ward's overall deprivation ranking across Scotland. The SIMD indicates that Dalry ward was the 418th most deprived ward in the country out of 1,222 wards, the highest ranking of the two local authority wards falling within the study area.

- Dalry - ranked as the 418th most deprived in Scotland; and
- Garnock East - ranked as the 719th most deprived.

It is anticipated that these wards will to some extent benefit from the transportation network improvements resulting from this project, primarily by virtue of increased accessibility, and potentially greater job and labour market opportunities situated within Dalry town centre and its environs, as well as elsewhere across adjoining parts of North Ayrshire.

The level of unemployment in the Dalry ward (in February 2005) was equivalent to the North Ayrshire average, but well above the corresponding unemployment rate for neighbouring Garnock East, and more than that across Scotland where average unemployment then stood at 2.8%. It is therefore more than likely that overall economic activity rates within some of the Dalry and adjoining communities are less than the average levels of economic activity across the district accordingly. This would suggest that there would be additional labour workforce in the local area available which could benefit from, and be accessed to satisfy, a number of employment opportunities which may arise as a result of any A737 and associated improvements.

The Ayrshire sub-region and adjoining areas continue to benefit from the buoyant effects of the wider Glasgow City region's growing economy and property market, and wider employment levels are also likely to benefit as a result.

The emergence of future key development sites identified across Ayrshire could provide a range of job opportunities for the local study area population. However, historically in the Dalry area there have been very few opportunities for high quality,

highly accessible sites appropriate to high value business, commercial investment and development, and this has been compounded by the traditional focus of development within major urban centres, such as Glasgow, Ayr and Irvine. It is clear that there will also continue to be pressure for additional development in these key locations.

Although we cannot predict the nature and type of wider employment opportunities which may arise in the future, we would anticipate that at least a reasonable proportion of the employment will be suited to existing local residents living in the study area – especially should improved accessibility to and from the town of Dalry be enhanced, whether this be through construction of an eastern Dalry by-pass or improved rail and bus services, etc. In particular, the continuing growth in public services, retail and catering, and construction would provide appropriate opportunities for higher employment, especially amongst the female working population and those that may be seeking part-time employment. In addition, it should be noted that despite these employment opportunities it is likely that only a small proportion of these jobs will be truly additional, with others resulting from business and job relocations. There should thus be some consideration made to take account for any such displacement effects.

It is, therefore, anticipated that in tandem with wider changes in society, the introduction of improvements in Dalry town centre would provide very minor positive impacts and employment opportunities across all social groups.

The analysis presented in the accompanying 'Economic Development Report' examined a number of measures of social exclusion and concluded that the wards within the immediate Dalry study area suffered particular problems. An improvement in overall accessibility levels experienced by residents in these localities could provide a good proxy for the anticipated likely social inclusion benefits of the introduction of such improvements.

As a result of the implementation of part or all of the proposed transportation improvement options for Dalry, some local residents and communities may gain from improved public transportation accessibility in both absolute and relative terms, in to Dalry town centre and beyond. The overall effect of these improvements will be to improve the accessibility of those more socially excluded areas of the study area, relative to the current service provision.

Overall, our study analysis indicates a small beneficial impact on local residents particularly those residing in the most socially excluded neighbourhoods as well as those other communities where there might remain a high level of dependence on public transportation as the main mode of travel to and from Dalry town centre.

7.8.4 Conclusion

In conclusion, 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.

7.9 Integration

The Integration Objective has three sub-criteria:

(a) Transport Interchanges

(b) Land-use Transport Integration

(c) Policy Integration

These are discussed in turn below.

7.9.1 Transport Interchanges

In this report, appraisal of this sub-objective seeks to determine and quantify the impact that the proposals will have on the connectivity of transport services both locally in Dalry and regionally throughout North Ayrshire and adjoining areas.

Care has been taken to ensure that any benefit already accounted for under another objective (notably Transport Economic Efficiency) has not been double counted under this sub-objective.

Neither of the packages being appraised have direct impact on this sub-objective. However there are a number of indirect impacts to be addressed.

7.9.1.1 Services and Ticketing

Package 1/1A

There are two elements within this package for appraisal under this title which have direct bearing on public transport Services and Ticketing, as discussed below:

Option 8 – Improve bus services from Town Centre to Train Station to ensure reasonable connectivity with train services.

One issue is the lack of bus services connecting with trains during the peak am and pm periods. There is currently only one scheduled bus service to the Train Station (or passing close by the Train Station) during the am and pm peak travel period for passengers using train services to/from Glasgow (assumed from 7am to 8.30am and from 5.30pm to 6.30pm). During these periods there are six northbound trains departing Dalry in the am peak period, and five southbound trains arriving in Dalry during the pm peak period. Consultation feedback has shown little public interest in the peak hour connections.

Most comment was made in respect of the lack of suitable connections during the day (and also the limited train service to Glasgow).

The Thistle Bus Service currently operates a half hourly service with the first service from the west part of Dalry reaching Blair Road near the Train Station at 8.20am. The last Thistle Bus Service picks up from the Train Station at 5.02pm.

Stagecoach Bus service no. 25/34 provides an hourly service past the Train Station; the first train arriving at 10.10am from Kilwinning. The last bus on this route picks up near the Train Station at 6.10pm.

Introduction of one or more bus services directly targeting the peak period train passengers would provide car users with an attractive alternative to driving to Dalry (or Glengarnock) Train Station, and reduce the numbers of vehicles using the road network. The full impact of such an improved service is difficult to assess since the peak hour trains are heavily used and there is often standing room only for Dalry departures – the current lack of seating capacity on the trains is likely to limit the potential impact.

Throughout the day during off-peak hours the improvement could be achieved through a review of the bus scheduling.

Any move towards improving the connectivity will have a positive impact although the significance of the impact is expected to be low at least until the number of train services stopping (with seating available) in Dalry is increased.

Option 3 includes a proposed relocation of the bus stops from Dalry Cross to a point on Roche Way.

The aim of this is to remove the through service buses from the New Street (West) to assist in reducing congestion in that area. It is envisaged that the local Thistle bus services (which are smaller) would continue to pass through the Cross.

Consultation with Stagecoach has determined that they would prefer to maintain services through the Cross for (a) southbound services to Kilwinning etc, (b) services to the Blair Estate, and (c) the once a day service to Glasgow via New Street East. Stagecoach has also advised that they would not be unhappy for north bound services to depart Dalry from Roche Way. This arrangement would remove approximately 40% of the Stagecoach Services from New Street (West) and would be a significant improvement.

As noted earlier the other bus service operator, the Thistle Bus Company, have no strong concerns at the diversion caused by the introduction of the one-way system.

On this basis, i.e. relocating only the main northbound Bus Halt from the Cross to Roche Way where the existing bus lay-by could be utilised, there will be an adverse impact on those bus passengers who are using the service to/from Dalry Town Centre

for shopping etc although from the consultation feedback to date there has been no criticism of this proposal. For those passengers using the bus services to reach their place of work, be it Kilbirnie or Glasgow, it is considered that the relocation to Roche Way will have a neutral impact with a limited number of passengers benefited and a limited number dis-benefited by the move.

Bus patronage information has not been provided making it impossible to quantify the passenger journeys affected.

Overall this proposal is assessed as having a minor adverse impact.

Package 2
The new eastern by-pass has no direct impact on Services and Ticketing.

7.9.1.2 Infrastructure & Information

All the benefits accrued from the improved road infrastructure network and the associated signing and lining arising from both Package 1/1A & Package 2 have been assessed in the Transport Economic Efficiency section of this report.

7.9.2 Land-use Transport Integration

This section identifies how well or otherwise the proposals comply with established land use policy at a local, regional and, where appropriate, national level.

7.9.2.1 North Ayrshire Local Plan

(Finalised Plan 2003 subject to proposed modifications dated March 2005 and July 2005)

a. ***Policy TRA 2*** *– Significant development proposals are required to demonstrate that account has been taken to ensure that needs of walkers and cyclists are catered for*. Option 7 (Travel Plans) from Package 1 directly addresses and promote this policy.

b. ***Policy TRA 8(R)*** *– The Strategic Road Network. The policy as modified in March 2005 provides*:

> *"The Council recommends that the Scottish Executive fully assess the need for further improvements on the trunk road network and brings forward schemes at the earliest possible date for:*
>
> *(a) the A737/A738 between Kilwinning (Pennyburn) and the Howwood By-pass,*
>
> *(b) the A78 coastal route, through West Kilbride, Fairlie and Skelmorlie.*
>
> *The Scottish Executive has no plans to incorporate these road improvements into any foreseeable programme."*

The earlier, 2003, version of this policy also provided (after "Skelmorlie" and before "The"):

> *"Accordingly any development proposals prejudicing the long term provision of by-passes at Kilwinning, Dalry, and Fairlie and realignment of the Den, as shown on the diagrams, shall be resisted by the Council."*

This earlier wording together with the referred diagrams was deleted to accord with the Reporters recommendations as confirmed in the Report dated 30 September 2004.

The proposals contained within Package 1/1A are consistent with this policy in that the interventions are expected to lead to a reduction in journey times, and will also lead to improved journey time reliability along the A737 corridor.

The eastern by-pass of Dalry as contained in Package 2 can be seen to directly address this policy in so far as it limited to Dalry. The currently proposed alignment mirrors the indicative alignment shown on the diagram on page 13 of the 2003 version of the Local Plan and was to be protected under the wording that has now been deleted along with the related diagram. Thus the proposed by-pass alignment was firmly in line with the Local Plan before modification in 2005 at which time the indicative alignment was omitted.

c. ***Policy TRA 10*** *– Car Parking. To review the provision and management of car parking throughout North Ayrshire to ensure that the requirements of different locations are met*. Option 3 from Package 1/1A partially addresses this policy in that it seeks to regularise on-street car parking, to provide comprehensive signage to off-street car parks, and to encourage the enforcement of parking restrictions which will be to the benefit of all road users including visitors and shoppers requiring car parking provision.

d. ***Policy ENV 2*** *– Farmland. Proposals which affect the loss of prime or locally important agricultural land (grades 1, 2, 3_1 or 3_2 as defined by Macaulay) shall not accord with the Local Plan.* The agricultural land surrounding Dalry is classed as Grade 4_2 (land capable of producing a narrow range of crops); thus the by-pass proposal where it crosses agricultural land would not conflict with this policy.

e. ***Policy BE 5*** *– Listed Buildings. Proposals for development of a Listed Building or for a development which would have an adverse impact on the setting of a Listed Building shall not accord with the Local Plan*. The proposals for Package 1 currently envisage the need to demolish No. 43 New Street which is a listed building – thus Package 1 proposals are not consistent with this policy.

f. ***Policy BE 8*** *– Demolition of a Listed Building. Proposals for demolition of a Listed Building shall not accord with the Local Plan unless it can be justified against listed criteria which amongst others includes a criterion that there is an*

acceptable redevelopment proposal. The proposed re-arrangement of the New Street / Townend Street junction would therefore need to be deemed an acceptable redevelopment proposal. At this stage there is insufficient time for the due process to be followed to determine whether this may be feasible.

7.9.2.2 A Joint Transport Strategy for Western Scotland to 2025
(Consultative Draft Strategy (May 2004) as prepared by the Joint Steering Group of Westrans and Strathclyde Passenger Transport May 2004)

A new strategy document was released in the last week of August 2005 which has yet to be reviewed by the study team. For the time being therefore this assessment is based on the contents of the May 2004 version.

a. ***Policy A1*** *– External Connectivity. "The Partnership will pursue the upgrade and improvement of key rail and road transport links which enhance the external connectivity of the region." Schedule A1 provides an interim list of potential projects which includes "A737-Irvine Glasgow Airport" to improve external connectivity to Glasgow Airport. The timescale for this general improvement to the A737 is not quantified in Chapter 7 of the consultative document.*

   The proposals within both Package 1/1A and Package 2 are consistent with this policy, and will improve journey time reliability for connections.

b. ***Policy A2*** *– Internal Connectivity. "The Partnership will pursue the upgrade and improvement of key rail and road transport links which improve the internal connectivity between parts of the region." Schedule A2 provides an interim list of potential projects which includes "A737 Upgrade" to improve internal connections along the Ayrshire Corridor. The timescale for this general improvement to the A737 is not quantified in Chapter 7 of the consultative document.*

   The proposals within both Package 1/1A and Package 2 are consistent with this policy, and will improve journey time reliability for connections.

c. ***Policy A4*** *– Enhanced Accessibility. "The Partnership will focus on interventions to enhance accessibility to current and future strategic employment and high trip generation locations." Schedule A4 provides an interim list of potential related projects which includes a general reference to the A737 road. The timescale for this general improvement to the A737 is not quantified in Chapter 7 of the consultative document.*

   The proposals within both Package 1/1A and Package 2 are consistent with this policy, and will improve journey time reliability for connections.

7.9.2.3 North Ayrshire Council Local Transport Strategy
(and Road Traffic Reduction Act Report dated October 2000)

This document does not identify any specific proposals to improve the A737. It does however set out the Council's vision for the next ten to twenty years in three paragraphs:

(1) *Integrate all forms of transport, land use planning, and other strategic policies of the Council relating to economic regeneration, development, and the environment*;

The improvement in journey time reliability arising from both Package 1 and Package 2 will assist in the economic regeneration of the area.

(2) *Maintain and enhance the choice of mode of transport to ensure that all sections of the community have safe, secure, and equal opportunity of access to all local facilities, and good transport links to other parts of the country*;

The road network improvements offered by both Package 1/1A and Package 2 will improve accessibility and links to other parts of the country.

(3) *Manage and contain any future growth in traffic and promote alternatives, to ensure that problems in traffic congestion and air pollution do not develop*.

The road network improvements offered by both Package 1/1A and Package 2 are working towards reducing congestion and air pollution.

7.9.2.4 Ayrshire Joint Structure Plan 1999 (approved plan)

Policy T8 *– The Strategic Road Network. Stipulates that the three Ayrshire Councils shall ensure that:*

A. *main traffic flows shall as far as possible be channelled on to the Strategic Road Network including the A737(T) from the Johnstone By-pass to Kilwinning, and*

B. *roads forming the strategic road network shall be brought to a basic acceptable standard to attract long distance and commercial movements away from less suitable roads.*

Policy T9 *– Traffic and the Environment. Stipulates that the three Ayrshire Councils shall encourage early construction of Scottish Executive Trunk Road Improvement Schemes including the A737 Dalry By-pass.*

The proposed Dalry By-pass promoted in Package 2 can be seen to be consistent with both of the above policies although no specific route has been identified. The works contained in Package 1/1A addresses the first but not the second of the policies.

7.9.2.5 Ayrshire Joint Structure Plan 2025
(Consultation Draft dtd June 2004)

Paragraph 2.62 *within the Strategic Road Development section stipulates that the key road routes requiring upgrading include the A737 Kilwinning to Howwood.*

Both the junction improvement works proposed in Package 1/1A, and the by-pass in Package 2 are consistent with this stipulation albeit that the by-pass would clearly be a more comprehensive upgrade.

7.9.3 Policy Integration

The key impacts of the proposals on other Government Policy are considered below:

7.9.3.1 Disability

Package 1/1A includes the provision of new pedestrian crossings at the Townend Street / Roche Way Junction (as part of the proposed traffic signal installation) and on Townend Street just south of Merksworth Avenue. These new pedestrian crossings will contribute to overcoming barriers for people with disabilities. The proposed relocation of the north bound Bus Stop from Dalry Cross to Roche Way would negatively impact on the ability of those bus passengers with disabilities to access the shops.

7.9.3.2 Health

Both packages can be assessed as being likely to contribute to an improvement in the health of the residents of Dalry:

Package 1/1A: Contains proposals for:

a. reducing delays to traffic and traffic congestion which will lead to a reduction in vehicle emissions hence improving air quality

b. introduction of school travel plans for schools. Travel plans can influence travel patterns and result in a greater number of pupils walking or cycling to school to the benefit of their health.

Package 2: analysis of the proposed new by-pass indicates a considerable reduction in the volume of traffic passing through Dalry which will result in a notable improvement in the air quality for residents, shopkeepers and customers adjacent to the A737. The Environmental Assessment section of this Report quantifies the benefits.

7.9.3.3 Rural Affairs

The projected reduction in travel journey times from each package can be expected to help to maintain the attractiveness of living in the Dalry area, both for those residents who work locally, and those who have a lengthy journey to work. Equally, for businesses, the reduced travel journey times (and improved reliability of journey times by road) can be expected to help to maintain existing companies, and encourage new inward investment all of which can be expected to assist in maintaining the community of Dalry.

7.10 Accessibility and Social Inclusion

7.10.1 Public Transport Network Coverage

There have been no issues raised during the consultation process regarding current accessibility to the public transport network. The impact of the current proposals is discussed below.

7.10.1.1 Package 1/1A

There is one element in this package which directly affects public transport albeit in a limited way i.e. the proposal to relocate the north bound bus stop from Dalry Cross to Roche Way.

Following consultation with Stagecoach this proposal is now limited to the relocation of the northbound bus stop only from its current location at Dalry Cross (opposite Courthill Street junction) to the proposed new location at the existing bus lay-by on Roche Way just west of the entrance to St Palladius Primary School. Having had no access to current bus patronage data it is impossible to quantify the likely impact to any great accuracy.

This would affect the north bound operation of the following Stagecoach services:

a. Service 25/34: Irvine to Kilbirnie/Beith via Dalry Cross,

b. Service 32: Ardrossan to Kilbirnie via Dalry Cross (2no. services only per day)

c. Service X34: Irvine to Kilbirnie/Beith/Glasgow via Dalry Cross,

d. Service X36: Ardrossan to Kilbirnie/Beith/Glasgow via Dalry Cross,

For passengers joining these services in Dalry, the relocation of the bus stop to Roche Way, as discussed in 7.9.1.1 above, is expected to have a neutral impact with a limited number of passengers benefited and a limited number dis-benefited by the move.

Discussion with Thistle Bus Company which operates the circular bus service in Dalry confirms that they would also be content to re-route the westbound leg of their circuit via Roche Way (instead of via Dalry Cross). There would be the option for them to loop back into the Cross via Main Street/North Street for Roche Way, but although the large proportion of their customers is elderly, Thistle did not see the need for this at present. This will mean an extra distance for the Thistle bus passengers to walk to get to the shops from the Roche Way stop, or to get back to the bus stop from the shops, and is therefore seen as a dis-benefit.

7.10.1.2 Package 2

The implementation of the by-pass has no direct impact on Public Transport Coverage. Indirectly, by providing congestion relief in Dalry Town Centre, it will positively impact by reducing travel times and improving journey time reliability.

7.10.2 Access to Other Services

The main issue raised regarding accessibility during the consultations was the severance caused by the A737 with only one controlled crossing point (at the existing traffic signal junction). With traffic flows in excess of 9000 vehicles per day on Townend Street, the A737 can be classified as being a significant barrier to walking and cycling activities.

An estimated 1000 residents live in the housing on the east side of the A737 whereas the large majority of community services (church, sports facilities, library, health clinic, schools etc) and shops lie to the west of the A737. It has also been identified that a significant percentage of these residents are elderly.

More generally the majority of Dalry's residential accommodation lies within a 1000m radius of Dalry Cross which is considered to be within an acceptable walking distance to access facilities generally. Residents of the western reaches of Dalry are approximately 1600m from the Train Station (via Dalry Cross) which is nearing twice the distance that the average person might be happy walking to reach a Train.

Planning Objective 3 requires an improvement in the accessibility across the A737 for non-motorised road users: a reduction of at least 1.5 minutes was targeted in the walking time to a controlled crossing of the A737.

7.10.2.1 Package 1/1A

One of the elements of this package (option 5) provides for a new (PUFFIN type) pedestrian crossing of the A737 just south of the Merksworth Avenue Junction with Townend Street.

In addition, the proposed introduction of the traffic lights at the Roche Way/Townend Street junction would include a pedestrian crossing phase.

Whilst not offering particular relief to residents in the North & West of Dalry who prefer to walk or cycle (since the A737 does not constitute a barrier for the majority of their movements) the two new crossings bring significant benefit to the residents living immediately to the east of the A737 (e.g. those living in Garnock Street, Lynn Avenue, Merksworth Avenue and Aitken Street).

For a typical walking visit to the Health Clinic for a resident of Garnock Street via a controlled crossing the estimated time taken is 9 minutes walking at 3mph. However, most people could be expected to take the direct route (albeit a less safe route) across the A737 which would only take them around 4 minutes, a saving of 5 minutes. In the majority of cases, introduction of the pedestrian crossing may not significantly reduce the walking time (since the majority of walkers can be expected to cross at risk at present) – the primary benefit will be in enabling the crossing to be made more safely.

7.10.2.2 Package 2

The implementation of the by-pass has no direct impact on local accessibility although the associated reduction in the volume of traffic passing through Dalry once the by-pass has been opened will reduce the severance effect of the A737.

7.10.3 Distribution/Spatial impacts by Social Group (accessibility)

The various groups likely to be impacted by the proposals under consideration are summarised in the following table.

Group	Sub-Group classifications			
	1	2	3	4
Road Users	Peak hour Commuters	Off-peak car users	Local Trips	HGVs
Pedestrians	< 12yrs old	12+	Mobility Impaired	
Cyclists	<12yrs old	12+		
Shoppers	Adults	Mobility Impaired		
Public transport user	Commuters	Other		

7.10.3.1 Road Users

In both packages road users are assessed as being the group which stands to benefit most in terms of accessibility from the proposals. Three sub-divisions have been identified. In each case the impact from Package 2 will be considerably greater than that from Package 1/1A.

a. Commuters (car using): this group stands to benefit most since the principal focus has been to reduce the journey time delays during peak hours. This includes commuters whose origin is Dalry as well as those whose origin is farther north or south.

b. Off Peak Car Users (through trips): during main part of the day outwith peak travel hours the proposals will still have a benefit albeit primarily in improved journey time reliability.

c. Local Trips (car using): outwith peak travel to work hours there will be little impact on drivers making local trips since there has never been a particular problem for them.

d. HGVs: With Package 1/1A the principal benefit to HGVs will be a more reliable journey time. With Package 2 however comes the additional relief of by-passing the low railway bridge. This will mean that all HGVs would be able to stay on

the A737 corridor including the High Sided vehicles which currently are routed via Kilbirnie.

7.10.3.2 Pedestrians

Package 1/1A includes additional pedestrian crossings at the Roche Way / Townend Street junction and across Townend Street just south of Merksworth Avenue which will have a minor positive impact on the accessibility in Dalry. The latter crossing is proposed to be a PUFFIN (pedestrian user friendly intelligent) type crossing which incorporates infra-red cameras to detect people on the crossings and to extend the green walking time if necessary. These additional crossing points will make it easier and safer to cross the busy A737 through Dalry.

Package 2 brings the benefit of a significant reduction in traffic volume on the A737 through Dalry which again will benefit pedestrians (minor-moderate positive impact).

Three sub-divisions have been identified:

a. Children under the age of 12: the introduction of the additional controlled crossings in Package 1/1A will benefit children the most from a road safety point of view. Equally, the reduced traffic volume through Dalry expected as a result of Package 2 will make for safer crossings, but can be expected to have little impact on accessibility.

b. Pedestrians greater than the age of 12: Similar comment as above applies but with the recognition that the road safety contribution will be reduced since older children and adults can be expected to be more aware of traffic conditions when crossing at uncontrolled crossing points.

c. Mobility Impaired: The additional controlled crossing points offered by Package 1/1A will have most impact on this group since they will be able to cross with confidence, especially at the proposed PUFFIN crossing south of the Merksworth Avenue junction since the crossing time is extended automatically if someone is still on the crossing. The reduced traffic flows from the By-pass option will have less benefit.

7.10.3.3 Cyclists

As (a) and (b) above for pedestrians.

7.10.3.4 Shoppers

Package 1/1A offers most for shoppers in that it deals positively with congestion in New Street (West) with the introduction of one-way traffic management, car parking measures and additional pedestrian crossing points. Package 2 will improve conditions along the A737, but does nothing for New Street (West) since there would be no change to the current traffic flow/patterns in New Street (West) arising from Package 2.

Two sub-divisions have been identified:

a. Adults: this sub-group will benefit most from the proposals contained in either Package 1/1A or Package 2

b. Mobility Impaired: Package 1/1A has the most to offer this sub-group with the reduced congestion in New Street (West) and the additional controlled crossings.

7.10.3.5 Public Transport Users

This is assessed as being least benefited group overall from Package 1 since they will be adversely affected by the relocation of the northbound bus stop from Dalry Cross to Roche Way. Package 2 offers nothing for this group.

Two sub-groups have been identified (commuters and other), but there is no perceived difference between which group benefits most.

7.10.4 Distribution/Spatial impacts by Area

Given the nature of the proposals and the relatively small geographical area impacted by the proposals, only 2no. individual areas have been identified as being directly affected by the proposals.

7.10.4.1 Area 1 – Area bounded by Townend St, Garnock St and New St.

Package 1/1A: Residents and businesses in this area stand to benefit in a moderate way by (a) the introduction of additional pedestrian crossings allowing easier access across the busy A737 through Dalry.

Package 2: Again these residents and businesses will benefit in a moderate from the reduced traffic flow on the A737 through Dalry as a consequence of the by-pass which will again lead to easier access across the A737 through Dalry.

7.10.4.2 Area 2 – Housing to the east of Dalry Railway Station

Package 1/1A: this offers no direct positive or negative impact on these residents.

Package 2: the introduction of the by-pass to the east of this community can be expected to be seen by the residents as a barrier to their freedom to access the land farther to the east. On a positive note, the reduced traffic volume entering/leaving Daly will lead to easier egress for all vehicles from Bridgend onto New Street (East)

7.11 Cost to Public Sector

The whole capital cost of both Package 1 and Package 2 fall to the Public Sector. The assessment has been based on the following:

Table 7.11.1: Package 1 Costs

Capital Costs
Capital costs of town centre modifications and acquisition of No 43 High Street, including Optimism Bias: a. Costs provided at June 2005 prices with an RPI of 192 = £0.6625m, and b. Costs provided at June 1998 with an average RPI of 162.9 = £0.5160m
Taxation
Increased vehicle efficiency due to reduced queuing and delay within central Dalry results in a loss of fuel duty to Government. £0.67m

Table 7.11.2: Package 2 Costs

Capital Costs
Capital costs of by-pass scheme, including Optimism Bias: a. Costs provided at June 2005 prices with an RPI of 192 = £22.5m, and b. Costs provided at June 1998 with an average RPI of 162.9 = £17.10m
Taxation
Increased vehicle efficiency due to reduced queuing and delay within central Dalry, combined with the enhanced performance afforded by the by-pass results in a loss of fuel duty to Government = £0.76M

7.12 Monetised Summary

Monetised Summary details are provided in Tables 7.7.1 and 7.7.2 in section 7.7 of this Report.