

Dumfries Southern Bypass – Executive Summary

Introduction

SWestrans Partnership and Dumfries and Galloway Council have been investigating options for improved transport links in the Dumfries South area. To do this an appraisal consistent with the Scottish Transport Appraisal Guidance (STAG) has been undertaken.

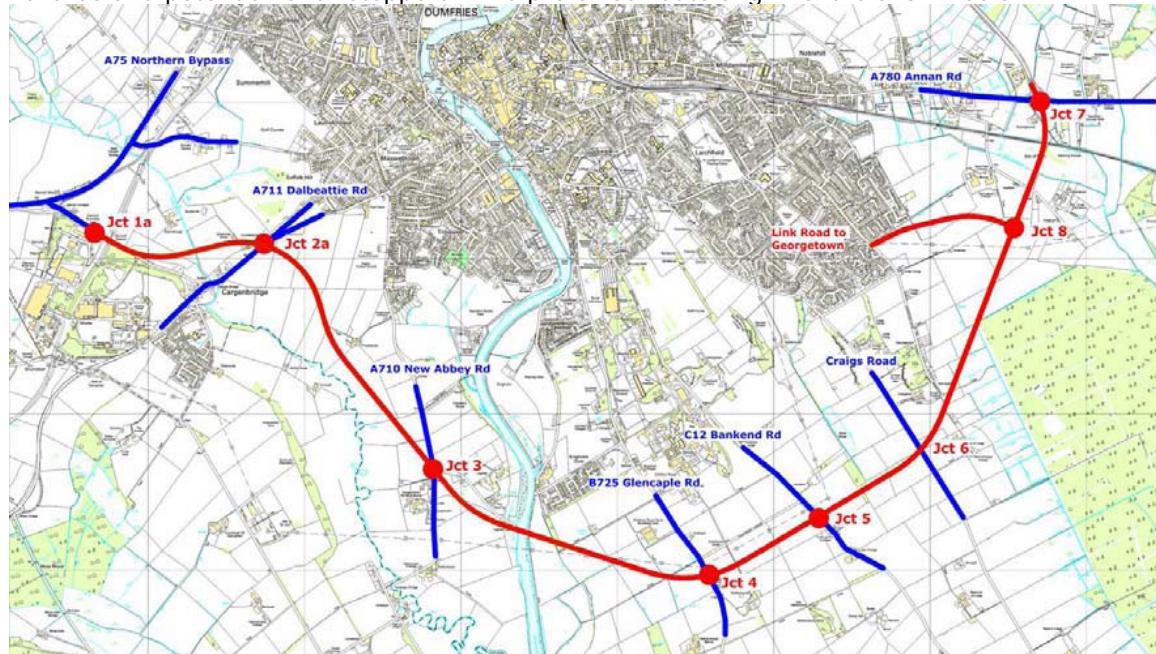
Proposals for enhanced links to the Dumfries South area have been under consideration for a number of years and have enabled a detailed assessment of the benefits and disbenefits to be carried out.

A key focus of the work to appraise improved transport links in this area has been the scope to improve the accessibility of the Crichton area and Dumfries and Galloway Royal Infirmary (DGRI). The area currently suffers from restricted access as a result of the River Nith to the west and physically constrained junctions south of Dumfries town centre. Also, people have to travel through parts of Dumfries town centre to gain access to it which is causing pressure at a number of key junctions, restricting traffic flow, causing congestion and impeding buses.

Given these problems we considered how a Southern Bypass could assist in improving access to these areas by providing a more direct link and removing through traffic from Dumfries town centre. Alternative options including improvements to public transport and other road based proposals were considered but deemed to not offer the same benefits as a Southern Bypass. However, it is likely that complementary measures will be required within Dumfries in order to ensure the benefits which are accrued by the scheme are 'locked in' and not simply eroded by induced traffic.

Possible alignment of the Dumfries Southern Bypass

Work has been undertaken to survey the area where a Southern Bypass would be constructed in order to define a preferred alignment. This work included identifying alternative route alignments, assessing the topography of the area, the consideration of hazards and potential 'showstoppers'. The preferred route alignment is shown below.



Appraisal of the Dumfries Southern Bypass

STAG has defined a set of key criteria against which proposals must be assessed. These are:

- Environment;
- Safety;
- Economy;
- Integration;
- Accessibility and Social Inclusion; and
- Implementability.

The appraisal is carried out in two parts, an initial Part 1 appraisal where impacts are assessed at a high level followed by a more detailed assessment undertaken through the Part 2 appraisal.

The findings from the Part 1 appraisal are summarised in the table below.

Table 1 Initial Appraisal

Environment	Safety	Economy	Integration	Accessibility and Social Inclusion	Implementability
x	x	✓✓	✓	✓	✓✓
KEY	Major Positive Impact				
	✓✓✓		Major Positive Impact		
	✓✓		Moderate Positive Benefit		✗✗ Major Negative Impact
	✓		Minor Positive Benefit		✗ Moderate Negative Impact
	O		Neutral		
	Minor Negative Impact				

In addition, the scheme was found to perform well against the objectives of the Regional Transport Strategy. In light of these findings it was recommended that the Southern Bypass be subjected to more detailed Part 2 appraisal. The findings from this work are outlined below.

Environment

Through a reduction in through traffic flows particularly in the vicinity of St Michael's Street/Nith Bank, the scheme will provide a major positive benefit in terms of noise and vibration if the Crichton site was accessed from the preferred alignment. This benefit will be even greater as a result of the traffic generation from the planned development of the Crichton site - only 25% of the site is currently developed with the remaining 75% development proposed from 2009. The decrease in noise and vibration at of St Michael's Street/Nith Bank has to be balanced against increased traffic on the new route, however population in this corridor is lower and there would be less properties potentially affected.

Impacts on air quality is an important consideration to ensure human health is protected against the adverse effects of long term exposure to air pollution as well as acute effects associated with high pollution episodes. The Dumfries Southern Bypass would remove a

large proportion of traffic accessing the DGRI/Crichton area from St Michael Street/Nith Bank, relieving congestion and therefore pollution. The change in traffic flows from the existing routes through Dumfries to the Southern Bypass will shift the air pollution to the new alignment. The reduction in pollution in Dumfries Town Centre has to be balanced against increased traffic emissions on the new route, but population affected is lower.

There are likely to be some adverse impacts on water arising from the scheme which will be at their most significant during the construction phase. The most substantial impact is likely to be in relation to flooding. It is anticipated that mitigation measures will be able to alleviate the majority of impacts on water.

Impacts on biodiversity, ecology and nature conservation are anticipated to range between neutral, negative slight and negative moderate although the exact implications will be dependent upon undertaking detailed design of the route alignment.

It is anticipated that there will be significant negative impacts on landscape and visual amenity. Landscape impacts will be most acute at the River Nith crossing, within the Regional Scenic Area and at the Craigridge cutting. Visual impacts will affect a number of residential properties, particularly those with close range views.

Impacts on land-use, agriculture and soils are generally expected to be negligible although some adverse impacts are expected in terms of the loss of agricultural land and resultant impact on farm viability as well as on rights of way.

The effects on cultural heritage are expected to vary between neutral and minor once appropriate mitigation measures are put in place.

Negligible impact is expected on geology.

The results of the environmental appraisal are summarised in the following table.

Table 2 Environment Appraisal

Noise & Vibration	Air Quality	Water	Geology	Biodiversity	Landscape & Visual	Land-use, agriculture & soils	Cultural Heritage	Overall
✓✓✓	✓✓✓	✗	○	✗✗	✗✗✗	✗	✗	✗

Safety

The analysis of safety requires consideration of accidents and personal security. The assessment of accidents identified that the bypass is expected to have a minor negative impact. This is due to the increase in vehicle kilometres travelled when the bypass is constructed.

Pedestrians and cyclists are not directly affected by the construction of the bypass but are likely to experience benefits from a less congested town centre which improves the safety of the environment for them. However, complementary measures are likely to be required in

order to ensure that freed up capacity is not lost to induced traffic, which would neutralise any positive impacts for pedestrians and cyclists.

Assessment of security found that there is likely to be a neutral impact arising from the construction of the Southern Bypass as long as high standards of design are incorporated.

The safety appraisal is summarised in the table below.

Table 3 Safety Appraisal

Accidents	Security	Overall
x	O	x

Economy

The economic appraisal is carried out under two headings:

- Transport Economic Efficiency (TEE); and
- Economic Activity and Locational Impacts (EALI).

Transport Economic Efficiency

The TEE analysis has been informed by extensive traffic modelling. This has confirmed a transfer of traffic from the congested town centre onto the Southern Bypass.

Table 4 TEE Appraisal Summary

	£k, in 2002 Prices
Consumer Benefits/Disbenefits	
Travel Time	89849
Vehicle Operating Costs	4761
Net Consumer Benefits	94610
Business Benefits/Disbenefits	
Travel Time	131344
Vehicle Operating Costs	8982
Private Sector Provider Impacts	Nil
Other Business Impacts	Nil
Net Business Impacts	140326
Carbon Benefits	807
Present Value of TEE Benefits (PVB)	235743

Reference to the above table shows that the Southern Bypass scheme is predicted to provide substantial benefits in and around Dumfries town centre.

Cost to Government

Taking the above figures into account, our analysis calculated construction costs of the Dumfries Southern bypass to be in the region of **£35 Million¹**, to which we then applied an optimism bias of **44%** which would bring total costs to **£51 Million**. These figures are in 2008 prices.

Additionally, an allowance of **£4.6 Million** should be made to cover maintenance costs over the 60 year period.

Economic Activity and Locational Impacts

We have concluded that the Dumfries Southern Bypass would have a positive impact on the regional economy, and that some of these impacts will be net positive at the "All Scotland" level.

If the continuing development of the Crichton site is supported by the Bypass then this will have positive impacts on expansion of the region's service sector, which in turn would impact positively on the GVA. There may also be more limited, but nevertheless positive, impacts on the region's residential and tourist markets and the Bypass will contribute to securing Dumfries' competitiveness vis-à-vis Carlisle.

The overall economic appraisal is summarised in the table below.

Table 5 Overall Economic Appraisal

Transport Economic Efficiency (TEE)	Economic Activity and Location Impacts (EALIs)	Overall
✓✓✓	✓✓	✓✓✓

Integration

The Southern Bypass would have no significant effect on transport interchange in the area. It will relieve the town centre though and therefore make it easier to interchange between public transport services.

Appraisal against established land-use planning policy in the area found that the Southern Bypass would complement the land-use policies or, at worst, have a neutral effect. As such, there are no "showstoppers" where the development of the Southern Bypass is in contradiction to existing policies.

¹ All costs are quoted in 2002 prices

Assessment of integration with existing transport policy documents found that the Regional Transport Strategy supports the implementation of the scheme. It was concluded that the Southern Bypass would complement national transport policies, or at worst, have a neutral effect.

Wider integration benefits were linked to improved traffic movement in the town centre which would facilitate more active travel for access to and from public transport. This would have benefits for health. In addition, the bypass is expected to contribute to improving rural life by enhancing the quality of life for the car dependent population in the area.

Overall, the integration appraisal is summarised below.

Table 6 Integration Appraisal

Transport Integration	Transport & Land-use Integration	Policy Integration	Overall
O	✓	✓	✓

Accessibility and Social Inclusion

Access to public transport is unlikely to be improved by the construction of the Southern Bypass however reliability and efficiency of existing public transport services would be improved due to the diversion of through traffic away from Dumfries town centre.

The Southern Bypass might cause severance along its route but the areas affected have relatively little interaction across the proposed alignment and appropriate means of providing connectivity, underbridges for example, can be provided where necessary.

The proposal will have a beneficial effect on local accessibility as traffic is diverted away from the town centre. This will allow for better access on local routes, with particular benefits for the north and west of Dumfries which will exhibit reduced traffic levels. The north and west of Dumfries are currently the most deprived parts of the town.

However, it is important to note that the construction of the Southern Bypass, in relieving congestion in Dumfries town centre, may release suppressed demand which has the potential to erode any benefits which are accrued. As such, it is necessary to ensure complementary measures are in place to address this issue, and to 'lock in' those benefits which are generated.

Accessibility analysis has shown that the Southern Bypass facilitates access to the Dumfries South area with an improvement in journey times for trips originating south-west of the town centre. The vast majority of households in the region would experience improved access to employment from the construction of the Southern Bypass whilst the remainder would see no change.

Furthermore, development to the south of Dumfries is likely to increase in future, and it is possible that this expansion will result in a series of uncoordinated residential and commercial streets which may become an 'informal' bypass as traffic utilises these streets to

reroute around the town centre. Dumfries Southern bypass would ensure a mechanism is in place to manage such flows, and to keep future areas of development free from such traffic.

The findings from the appraisal of accessibility are summarised in the following table.

Table 7 Accessibility and Social Inclusion Appraisal

Community Accessibility		Comparative Accessibility		Overall
PT Network Coverage	Local Accessibility	People Groups	Locations	
O	O	✓	✓✓	✓

Implementability

There are no obvious technical challenges associated with building the Southern Bypass. All aspects would be feasible to implement using existing design standards and technology and any particular challenges for road infrastructure are already well-known. Whilst it is possible that site-specific difficulties might emerge during detailed design and subsequent construction, these are not foreseen at this stage.

There are no known operational disbenefits associated with the proposal. Indeed, the traffic relief in the town centre is expected to produce operational benefits by improving flow and reducing congestion.

Although it is anticipated that there would be general public support for the scheme, there may be difficulty in obtaining the level of finance required in the current economic climate and as a result of reduced public spending. As such, a robust business case is of great importance.

Conclusions and Recommendations

The appraisal undertaken to date demonstrates that the proposed Southern Bypass would have positive benefits against most of the Government and Planning Objectives, and only minor negative environmental impacts overall.

The conclusions reached on the basis of this appraisal indicate that although there are some minor disbenefits, overall there are many significant benefits associated with the scheme. The modelling undertaken confirmed a significant transfer of traffic from the congested town centre onto the Southern Bypass which is further reflected in the TEE analysis with a BCR of 6.442.

Based on the foregoing, our recommendation would be to proceed with the detailed design stage for the Dumfries Southern Bypass, focusing on the route alignment. Further consideration should be given to ensure any road capacity subsequently released in the town centre environs is exploited with complimentary traffic management measures in order to ensure that the benefits accrued are 'locked in'.