

A2 SHORE ROAD GREENISLAND



STAGE 2 SCHEME ASSESSMENT REPORT

August 2006

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A2 SHORE ROAD GREENISLAND

STAGE 2 SCHEME ASSESSMENT REPORT

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EXECUTIVE SUMMARY

The A2 is part of the strategic road network and provides a link between the urban centres of Belfast and Carrickfergus, before continuing northwards to Larne. The A2 presently carries some 26,000 vehicles per day north of Greenisland rising to some 35,000 vehicles a day south of Greenisland. The 2.5km section of the road through Greenisland is a 2-lane road within a route that otherwise has at least 4 lanes. Figure SAR2/1.1 shows its location. It is a source of delays, particularly at peak times, not least to bus services. Design standards indicate that 4 lanes are required to cope with existing and future traffic flows.

The Regional Transportation Strategy, published in 2002, confirms the need to address bottlenecks on the strategic highway network as one of its priorities. The A2 at Greenisland is identified as one such scheme. A route for online widening is protected within the current draft Belfast Metropolitan Area Plan (draft BMAP) 2015 and the A2 Shore Road Greenisland scheme is included in the Roads Service Major Works Preparation Pool.

The A2 at Greenisland is fronted on both sides by residential properties. The carriageway is up to 9m wide and footways are variable, non-existent in places. The road runs parallel with the shore of Belfast Lough, separated from the shore by high value residential properties. The inland side of the road is also built up and is fronted by housing, the University of Ulster Campus and Belfast High School. There are areas of agricultural land beyond the immediate housing that are regarded as 'green wedges' in the draft BMAP. The only alternative parallel route is the B90, which lies around 2km inland.

Stage 1 of the scheme assessment, examined a range of strategies to address the bottleneck on the A2 Shore Road. The findings of the Stage 1 assessment were presented in a report, "Stage 1 Scheme Assessment November 2005". The strategies, which are illustrated in Figure SAR2/1.2 of this report, were as follows:

- **Strategy S1 The B90 Corridor Improvements** examined the dualling of the B90 single carriageway road.
- **Strategy S2 New Road Railway Corridor** examined whether a new road could be provided along the existing Belfast to Larne railway corridor as a way of limiting environmental impact in an existing transport corridor.
- **Strategy S3 Public Transport Improvements** would aim to relieve the A2 of traffic by attracting more people onto public transport.
- **Strategy S4 A2 / B90 Links** was examined following comments from the public that better links between the A2 and the B90 would help the situation.
- **Strategy S5 New Road Inland Corridor** examined the potential for a new road inland of the A2 Shore Road.
- **Strategy S6 Upgrade Junctions Only** was examined to determine whether the problems lie with the limitations of the junctions and whether a scheme of junction improvements would be adequate.
- **Strategy S7 Existing Road Improvements** examined the case for widening the A2 Shore Road online.
- **Strategy S8 New Road Coastal Corridor** would aim to relieve Shore Road within Greenisland by provision of a new parallel road within the Belfast Lough.

It was considered that two strategies, **S5 New Road Inland Corridor** and **S7 Existing Road Corridor Improvements**, had potential as solutions to the bottleneck problem. Buildability, services and land and compensation were identified as major risks that could not be quantified or mitigated without more design work and it was recommended that the two strategies be taken forward for more detailed assessment.

This report presents the findings of the Stage 2 scheme assessment in accordance with Standard *TD 37/93 Scheme Assessment Reporting* of the Design Manual for Roads and Bridges. The Stage 2 assessment focussed on identifying and assessing options in inland (S5) and existing road (S7) corridors, concentrating on the key risk areas identified above. Options were also developed for a combination of the S5 and S7 strategies; online widening of the southern part of the existing road with a new inland road bypassing the section north of Station Road. During the course of the Stage 2 examinations it became evident that a local gyratory system might also provide a solution and this option too was assessed.

Numerous options and variations of those options were drawn up and assessed. They are listed below with their costs and can be seen in Figures S100532 SAR/3.1 - 3.15. All costs quoted include 44% optimism bias and exclude VAT.

S5 New Road Inland Corridor

- Option S5-1 New Road Inland Corridor - Greenisland Cutting £68.9m
- Variation S5-1-V1 New Road Inland Corridor - Jordanstown Roundabout £69.2m
- Option S5-2 New Road Inland Corridor - Greenisland At-grade £62.9m
- Variation S5-2-V1 New Road Inland Corridor - Roundabout Junctions £63.8m
- Variation S5-2-V2 New Road Inland Corridor - Split University Shorelands Junction £63.8m
- Variation S5-2-V3 New Road Inland Corridor - Parallel to Shore Road at University £74.6m
- Variation S5-2-V4 New Road Inland Corridor - Parallel to Shore Road at School £41.2m

S7 Existing Road Corridor Improvements

- Option S7-1 Existing Road Corridor Improvements - 4 Lanes Widen Both Sides £44.6m
- Option S7-2 Existing Road Corridor Improvements - 4 Lanes Landward Side Only £41.6m
- Option S7-3 Existing Road Corridor Improvements - 5 Lanes Widen Both Sides £49.2m
- Option S7-4 Existing Road Corridor Improvements - 5 Lanes Landward Side Only £46.4m

S5S7 Combined Partial Bypass

- Option S5S7-1 Combined Partial Bypass - Widen 4 Lanes With Roundabouts £41.1m
- Option S5S7-2 Combined Partial Bypass - Widen 5 Lanes With Traffic Signals £40.9m

G Gyratory

- Option G1 Gyratory £40.5m

Engineering Issues

The main engineering issues are related to fitting a new or improved road into an established urban area. Any inland new road would introduce a major physical entity (the road) into an area that does not have that or its associated safety concerns at the present time.

At least 4 lanes would be required for traffic flows. For safety reasons and operational efficiency it is considered that a 2 + 2 dual carriageway would be required. Provision for pedestrians and cyclists is also considered essential.

All of the options examined would require demolition of properties and loss of garden land and the number of properties so affected has been estimated. Precisely which properties would be affected would be a matter of specific design. An urban standard of road would have less impact than a rural standard road. Widening the existing Shore Road would affect more properties in total when reduction of gardens is taken into account, but would not necessarily result in more houses being demolished than would an inland option. Widening the road on one side only would affect fewer properties than widening on both sides, but the effect on individual properties would be greater.

Construction of any scheme in this established urban area would not be straightforward and an online solution would be most difficult in this respect. Retaining walls would be required to minimise loss of property. Beyond that, the main problems would be associated with possible effects of construction on adjacent properties, maintaining services to properties during construction and traffic management in the area, particularly on Shore Road.

In general, the inland options are longer than the online options and incorporate more engineering measures such as footbridges and link roads to minimise the effect of severance of the community. They would also require more land. As a result, the inland options are in general more expensive than online widening. They could be designed to the appropriate standard for safe operation and would have only localised areas of construction difficulty.

Despite extensive need for retaining walls, the online widening options would in general cost less than the inland options. To minimise impact on properties and follow the existing road corridor as closely as possible, the geometric design would be less to standard but it could nevertheless be a safe design. Construction would be difficult due to working very close to residential properties, within gardens, and alongside major traffic flows.

The combined options would cost slightly less than full online widening and would affect fewer properties. The buildability problems associated with online widening would extend over only half of the length of the scheme.

Overall, there is no engineering issue that would prevent any of the options from being chosen except the extent and cost of some of the inland options.

Environmental Issues

The main beneficial impact of the proposal will be on vehicle travellers, who should experience a significant reduction in driver stress as a result of significantly reduced congestion at peak times and an improvement in road safety.

The main environmental issue associated with the inland options is that of severance for Greenisland, the University of Ulster and Belfast High School. There is also the significant issue

of property loss and disruption during construction at various points along the routes, both institutional and residential, and in one case a school playing field and two churches.

The online options would also cause property loss and significant disruption, particularly to residents along the existing Shore Road. There will also be significant visual impacts because the loss of buildings, gardens and mature trees will have an adverse impact on the Shore Road Area of Townscape Character.

The combined options would similarly cause property loss, disruption to residents along the existing Shore Road and an adverse impact on the Shore Road Area of Townscape Character. However, these impacts would be much reduced from the fully online options, as a significant part of Shore Road would be bypassed. The bypass section would encroach into a designated greenbelt area.

Economic Issues

A CUBE traffic model of the local area was developed for use in the traffic and economic assessment of the options and WebTag was used to calculate the costs and benefits of the options.

The inland options are relatively costly and, partly because they are also longer, the increase in cost would not be offset by road user benefits. The shortest inland option, S5-2-V4, has a much lower cost but still shows a small negative net present value. This was considered to be the only inland option that could show an economic benefit, though work would be required to see if more detailed design could produce a positive value.

The online options have the advantage of no additional journey length for through traffic. This, together with substantial reductions in delay at junctions, results in a positive economic return. Analysis indicates that widening to an urban dual carriageway with restricted right turns results in a better economic return than widening to a 5 lane single carriageway, despite the extra journey length for some local traffic. Widening to one side of the road only rather than symmetrical widening makes no difference to the traffic and affects the economics only to the extent that the less expensive the scheme, the greater will be the benefit to cost ratio.

The combined options have a lower estimated cost than widening along the whole length. Although the distance travelled would be greater due to the bypass section, the overall economic value is calculated to be only slightly less than for the online options.

Public Consultation

Roads Service decided that public consultation should be undertaken before the preferred route was selected, to bring people up to date on the findings of the scheme assessment and to seek comments on the options most likely to provide deliverable solutions.

The consultations comprised a number of events as described below. Three options were presented as possible solutions to the bottleneck problem on the A2 at Greenisland. The three options were:

- Inland Option based on S5-2-V4 – New Road Inland Corridor - Parallel to Shore Road at School;
- Online Option based on S7-4 – Existing Road Corridor Improvements - 5 Lanes Landward Side Only;

- Combined Option based on S5S7 – Combined Partial Bypass - Online Widening and Partial Bypass.

The options were presented to Carrickfergus Council on 27th February 2006 and to Newtownabbey Council on 15th March 2006. A public exhibition was held at the Clarion Hotel on Wednesday 22nd March and Thursday 23rd March.

Arising from the exhibition, a number of meetings were held with locally based organisations. These were St. Colman's RC Church; Northern Ireland Housing Executive; Silverstream Primary School; Belfast High School; Church of the Nazarene; and the Police Service of Northern Ireland. In addition, Roads Service was invited to attend meetings with the Shore Road residents group and the Greenisland residents group.

People were, in the main, concerned about direct impacts on their property or community facility and/or about disruption during construction. Another significant concern was road safety, and in particular turning onto the road if the proposals result in higher vehicle speeds.

It became apparent that whilst residents on Shore Road were very aware of the scheme and the impact it might have on their property, it came as a shock to residents from within the wider Greenisland community that they could be directly affected if the inland option were to be selected. Community organisations came out very strongly against the inland option. They stressed that there was a stable community within Greenisland beyond the Shore Road corridor and to route a road even along the edge of that area in Greenisland would cause new, and to them unacceptable severance and loss of enjoyment of the area.

The Preferred Option

In considering the above findings, it is considered that the preferred option should be a combination of online widening with a partial bypass, as shown in Figure SAR/9.1. It would have the lowest estimated cost and a positive net present value, with a lower impact on residential property than a full online improvement and none of the new severance of an inland route.

The online widening section would be an urban dual carriageway with a wider shared cycleway / footway on one side and with pedestrian crossing assistance at intervals. The only permitted movements from private and minor accesses would be left-in / left-out and it is considered that this would be a safe provision. The bypass section could be to either urban or rural dual carriageway standards.

There would be formally controlled junctions at Jordanstown Road, as existing, and at improved Shore Avenue, Shorelands, Station Road and Seapark junctions. The improved junctions would probably be roundabouts to give traffic safe opportunities to undertake U-turns.

This recommendation was presented to the Roads Service Board on Monday 6th June 2006 and the Preferred Route was ratified at that meeting. The decision was made public on Wednesday 14th June 2006. Every person who had contacted Roads Service about the scheme since the present studies commenced in April 2005 was sent a note of the announcement and the information was released to the press.

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1.0 INTRODUCTION

Background

- 1.1 The A2 is part of the strategic road network and provides a link between the two urban centres of Belfast and Carrickfergus, before continuing northwards to Larne. The A2 presently carries some 26,000 vehicles per day north of Greenisland rising to some 35,000 vehicles a day south of Greenisland. The 2.5km length of the A2 Shore Road at Greenisland is a 2-lane road within a route that otherwise has at least 4 lanes and is a source of delays, particularly at peak times, not least to bus services. It is regarded as a bottleneck in the strategic road network; [Figure SAR2/1.1](#) shows its location. Current advice would indicate that at least 4 lanes are required to cope with existing and future traffic flows.
- 1.2 The A2 at Greenisland is fronted on both sides by residential properties. The carriageway is up to 9m wide and footways are variable and non-existent in places. It is parallel with Belfast Lough on the east side of the road, separated from the lough by high value residential properties. Adjacent housing, housing estates, the University of Ulster Campus and Belfast High School lie to the landward side though there are some areas of agricultural land beyond the immediate housing that are regarded as ‘green wedges’ in the draft BMAP. The only alternative parallel route is the B90, which lies around 2km inland.
- 1.3 Since the 1970s there have been plans to improve this section of the A2 and there have been a number of previous exercises to progress the scheme through the statutory procedures. The most recent occasion was in the early 90’s when an Environmental Statement and Vesting Order were prepared and published but never fully completed.
- 1.4 The Regional Transportation Strategy (RTS), published in 2002, confirms the need to address bottlenecks on the strategic highway network as one of its priorities and the A2 at Greenisland is illustrated as one such scheme. A route for on-line widening is protected within the current Draft Belfast Metropolitan Area Plan (draft BMAP) 2015 and the A2 Shore Road Greenisland scheme is now included in the Roads Service Major Works Preparation Pool.
- 1.5 Roads Service appointed a Design Team from consultants Scott Wilson and Ferguson McIlveen to assist the Eastern Division’s Strategic Route Improvement Team to deliver the ‘A2 Shore Road Greenisland’ scheme. Their brief is to support them in developing a proposal and taking it through the statutory process.
- 1.6 The scheme is to be developed through a 3 stage scheme assessment process in accordance Standard *TD 37/93 Scheme Assessment Reporting*, of the Design Manual for Roads and Bridges (DMRB). The Stage 1 assessment work has been completed and the Design Team submitted a report dated November 2005 presenting the findings of the Stage 1 scheme assessment in accordance with Standard *TD 37/93*. Work has since been undertaken on Stage 2 of the scheme assessment and this report presents the findings of the Stage 2 scheme assessment in accordance with Standard *TD 37/93*.
- 1.7 Although the term ‘widening’ (of the A2 at Greenisland) has been used in various documents for the purposes of scheme recognition, the Brief nevertheless required the identification and examination of a number of strategies that might provide a solution to the bottleneck. The Stage 1 assessment examined a range of 8 broadly based strategies to determine whether they could provide a suitable solution. Some (6No.) were discounted after an initial assessment and the remaining (2No.) strategies were examined in more detail. Following the more detailed examination, a

recommendation was made for those two strategies to be taken forward to Stage 2 of the scheme assessment process.

- 1.8 A full explanation of the work undertaken at stage 1 can be seen in the Stage 1 Scheme Assessment Report November 2005 (Stage 1 Report) but for ease of reference a summary of the findings of the Stage 1 assessment is given below.

The Findings of the Stage 1 Scheme Assessment

- 1.9 Six strategies were discounted after an initial assessment and brief comments are first given on those. That is followed by comments on the remaining two strategies that were considered to warrant further examination in the Stage 1 assessment work. The strategies are illustrated in [Figure SAR2/1.2](#).

Initially Discounted Strategies

- 1.10 **Strategy S1 The B90 Corridor Improvements** examined the upgrading of the B90 single carriageway road to a dual carriageway road from Carrickfergus to the M2 motorway. A new dual carriageway connection could be made from the B90 to the southern edge of Carrickfergus in line with local policy improvements. Parts of the B90 could be dualled by the addition of a second carriageway but a new bypass would be needed at the western edge of Greenisland to avoid the established housing area. A 2.5km length of second carriageway would be required through established areas of Newtownabbey if a link was taken to the M2 motorway.
- 1.11 Even without the dualling of the last mentioned section, the cost would be approximately £49m (all costs include 44% for optimism bias). The indications are that there would be no significant transfer of traffic from the A2 due to the increased distance and improving this secondary (non-strategic) route, in particular at the M2 junction which has its own congestion problems, would not accord with the Belfast Metropolitan Transport Plan. This strategy was not therefore taken further.
- 1.12 **Strategy S2 New Road Railway Corridor** examined whether a new road could be provided along the existing Belfast to Larne railway corridor as a way of limiting environmental impact to an existing transport corridor. Replacing the railway with a new road would be against the RTS as improvements are sought for both roads and railways; therefore a new road would be located alongside the railway. A link could be made at the Carrickfergus end as with strategy S1 and in open ground as far as Greenisland. However beyond that there would be significant areas of demolition of established areas through Greenisland and Jordanstown, especially if it was linked directly to the end of the M5 motorway. Otherwise a shorter route would link it to the A2 at Whiteabbey via Three Mile Water Valley, a Site of Local Nature Conservation Importance (SLNCI), and even that reduced length would have a cost of approximately £80m.
- 1.13 The route would have high cost and significant adverse environmental impacts, not least to the properties directly affected in established areas. This strategy was not therefore taken further.
- 1.14 **Strategy S3 Public Transport Improvements** would aim to relieve the A2 of traffic by attracting more people onto public transport. However, the RTS proposes that improvements to road and rail are seen as complementary and that the initial priority is to remove bottlenecks from the strategic road network. At a practical level, bus services along the A2 are constrained by the congestion at Greenisland and there is no room to provide bus-only lanes, therefore no transfer of motorists to

buses could be expected. Improvement of the A2 would provide opportunities for faster bus services and better passenger facilities at bus stops.

- 1.15 The Belfast to Larne railway line was not in service during this examination due to infrastructure improvements, and measured passenger usage figures were not available. Using best estimates from the Belfast Transportation Model, doubling the use of the railway would only reduce peak period flows by around 200 vehicles per hour and that would not in itself solve the problems on the A2. This strategy was not therefore taken further as a solution to the A2 congestion.
- 1.16 **Strategy S4 A2 / B90 Links** was examined following comments from the public that better links between the A2 and the B90 would help the situation. It was considered that new links would certainly provide opportunities to relieve conditions on Jordanstown Road, Station Road Greenisland and Troopers Lane. They may also provide opportunities to reduce journey lengths, for example by creating a more direct access to the university campus via a link to the B90, and thereby reducing some flows on the A2. However, the immediate need is essentially for additional lanes on the A2 route and this strategy would not provide that and was not therefore taken further as a solution to the A2 congestion.
- 1.17 **Strategy S6 Upgrade Junctions Only** was examined to determine whether the problems lie with the limitations of the junctions and whether a scheme of junction improvements would be adequate. It was found that even if junctions were improved, the existing lengths of Shore Road between the junctions were not adequate to carry the existing traffic flows and they would not be able to carry sufficient traffic to utilise any improved capacity at junctions, now or in the future. Furthermore, improving the junctions alone would require significant acquisition of residential properties and was not therefore a way of avoiding property impact. This strategy was not therefore taken further.
- 1.18 **Strategy S8 New Road Coastal Corridor** would aim to relieve Shore Road within Greenisland by provision of a new parallel road within the Belfast Lough. A new dual carriageway road could be provided to replace the 2-lane section of the A2 at an approximate cost of £33m to £45m depending on whether it was along the shore line or further out in deeper water. It would provide a good traffic engineering solution as it would, by definition, only have junctions at each end.
- 1.19 It would however have significant deliverability problems. Property would be required at the north end to link back to the A2. Some of the remaining properties have moorings and there would be an expectation of boat access to the lough and there would be loss of amenity (view across the lough). In terms of integration with other policies and in particular those for the environment it is not deliverable as a result of the environmental impacts on the Belfast Lough Special Protection Area habitat (overwintering birds), a Ramsar Site and Areas of Special Scientific Interest. This strategy was not therefore taken further.

Strategies Examined Further

- 1.20 **Strategy S5 New Road Inland Corridor** examined the potential for a new road inland of the A2 Shore Road. Although at that stage of scheme preparation it was too early to express a design of such a route, a particular route was drawn up in order to illustrate the likely costs and issues in more detail than in other strategies.
- 1.21 Shore Avenue, the existing access to the University, could be widened to a dual carriageway from its existing junction on the A2 as the start of an inland route. A new junction would be provided at the University to give a new access to the University and to turn the new road in a northerly direction. It would run through the edge of the university campus and across the playing fields of

Belfast High School and across open land to Greenisland. It could then run through largely open space within the housing areas of Greenisland in a deep cutting to minimise severance and then continue across open land to rejoin the A2 at the existing dual carriageway at Seapark beside the former factory site.

- 1.22 On the above basis, the cost of the strategy was found to be approximately £48m. In three areas, at the University of Ulster, the section through Greenisland and the former factory site at Seapark, land and compensation issues would pose major risks to cost and deliverability. This is specially the case in terms of the severance that an inland route could cause at Greenisland and dealing with utilities at Greenisland.
- 1.23 The strategy appeared relatively good in terms of accessibility and safety in that traffic would be taken from a road with multiple accesses (existing A2) to a new road with access limited to a small number of junctions. Bus services would continue to use a quieter Shore Road. On a practical level, the dogleg at the southern end would make the by-pass less attractive to motorists than the existing road, which would therefore require restrictions. This aspect of the strategy would have to be addressed further.
- 1.24 Its economic and environmental performance would depend on the precise horizontal and vertical alignment selected. Severance would be reduced by the deep cutting at Greenisland but if cut and cover replacement of open space was also required, costs would rise. As a new road it would introduce noise and air quality issues where there is relatively little at present. There would be fewer than 10 dwellings demolished but 5 commercial/business buildings would be required, including a care home.
- 1.25 On balance, it was considered that this strategy warranted further examination and that options should be drawn up in Stage 2 of the scheme assessment. It was recognised that a significant change at the southern end would be required.
- 1.26 **Strategy S7 Existing Road Improvements** examined the case for widening the A2 Shore Road on-line. The previous scheme of the early 1990s was examined but that was found to have inadequate width of traffic lanes to cope with existing and future traffic flows. It would have permitted traffic to continue to turn right into and out of the numerous private accesses across increased traffic flows so there were significant doubts as to its adequacy in operation and its safety. The concept of on-line widening was therefore developed beyond the limits of the previous scheme.
- 1.27 A major issue with this strategy is the impact on property, i.e. on the reduction of gardens and the demolition of dwellings, therefore the width of the widened road would be crucial. The aim would be to provide 2 lanes in each direction for through traffic, but it was found that to be adequate the road should be either a dual carriageway with no interruption from right turning vehicles at private accesses, or have a fifth central lane for turning traffic. There is also an expectation that wider pedestrian footways and safe cycle facilities should be an essential element of any improvements. The potential whole width of the road would be of the order of 20m if only a 4-lanes carriageway were provided and 23m if an extra lane or central reserve was added.
- 1.28 Buildability was also a major concern as there would be no effective alternative route for traffic during construction. Works can be significantly simplified if the widening is restricted to one side only rather than varying from one side to the other. Widening on the lough side only would present considerable difficulty as in parts the land falls away very steeply from the road and widening by 8-

10m would exacerbate that problem. Therefore widening on the landward side only was illustrated and compared to widening on both sides as a best fit.

- 1.29 A matrix of costs was prepared for four combinations; 20m or 23m carriageway width and widening on both sides or on one side only. The costs ranged between approximately £34m and £42m. Where widening was to one side only, land acquisition accounted for over half of the cost. The potential demolition of properties ranged from 12 to 37, though this was an estimate only as the actual numbers could only be gained from more detailed design. In addition, many gardens would be reduced. The total number of properties affected would be lower if works were on one side of the road only.
- 1.30 Noise and air quality issues would require careful attention but any increase in adverse effect would be relatively small given existing conditions. Shore Road has a recognised townscape value, due in part to the mature trees along the route. It would be inevitable that many trees would have to be felled to create the additional road space and measures would be required to replace as many as possible. Widening to one side only would reduce that impact.
- 1.31 This strategy has the advantage that it directly addresses the problem within the existing road corridor and, because the route has been protected, is perhaps the solution most expected by stakeholders. However, it could be the most complex to construct and could be expected to have the greatest impact on residential property. It could have substantial adverse environmental impacts in relation to the built environment and could be less favourable than Strategy S5 in terms of safety, both during construction and in use unless a dual carriageway is adopted.
- 1.32 On balance, it is considered that this strategy warranted further examination and that options should be drawn up in Stage 2 of the scheme assessment.

Conclusion of Stage 1 Assessment

- 1.33 It was considered that two strategies, S5 New Road Inland Corridor and S7 Existing Road Corridor Improvements, both have potential as solutions to the bottleneck problem. Traffic management (buildability), services, land and compensation are all major risks that cannot be quantified or mitigated without more design work and it was recommended that the two strategies are taken forward for more detailed assessment.

The Purpose of the Stage 2 Scheme Assessment

- 1.34 The purpose of the Stage 2 assessment is to develop a number of options for implementing each of the agreed strategies and a comparison made between them so that one option could be recommended as the preferred option to be taken forward for detailed design and implementation, subject to the statutory procedures.
- 1.35 The basis of this assessment is the two strategies that were recommended for further development at the end of the Stage 1 assessment (S5 a new inland road and S7 widening of the existing road). Options have also been developed for a strategy that was identified during Stage 1 based on a combination of the S5 and S7 strategies; widening of the southern part of the existing road with a new inland road bypassing the remaining northern part of the existing road. Finally, during the course of the Stage 2 examinations, it was evident that a further strategy based on a local gyratory might also provide a solution.

- 1.36 A number of options and variations have been drawn up and have been examined taking into account the five government appraisal criteria of safety, environment, economy, accessibility and integration. A comparison of the options has been made and from that process three options have been put forward for public consultation.
- 1.37 It was acknowledged at the very beginning of the scheme development that the scheme would generate a good deal of public interest, particularly among those whose properties may be directly affected. For that reason Roads Service held a preliminary public consultation exercise at the start of the scheme development (at the commencement of the Stage 1 work) to explain the actual process that would be followed to develop proposals for the A2 and advise of the likely time scale.
- 1.38 Following work on the Stage 2 assessment of options, a Stage 2 public consultation was undertaken over a period from late February 2006 to early May 2006 when the last questionnaires were being returned. The consultation consisted of presentations to Carrickfergus and Newtownabbey Councils, a 2-day public exhibition, at which questionnaires were handed out, and meetings with local organisations and residents' groups. Three options were displayed as possible solutions.
- 1.39 After consultations were completed, a Preferred Option has been proposed to take forward for further more detailed development during Stage 3 of the scheme preparation. A full account of this development, appraisal work and the public consultation has been given in this report, the Stage 2 Scheme Assessment Report.