

## **2. Need for the Scheme**

### **2.1 Introduction**

- 2.1.1 The purpose of this chapter is to provide a context of the need for the Scheme in relation to policies, plans and traffic conditions. It firstly gives the strategic background to the Scheme and then describes conditions on the A2 Shore Road within Greenisland and the traffic flows that demonstrate the need for the Scheme. It finally concludes with comments regarding the public perception of both the need for the Scheme and what the solution might be.
- 2.1.2 The A2 is part of the strategic road network and is a vital link between the two urban centres of Belfast and Carrickfergus. Yet the standards and characteristics of the A2 between Belfast and Carrickfergus vary considerably. While most of the road has two lanes in each direction – either as a motorway (M5), dual carriageway or single carriageway – there is a 2.5km section at Greenisland that does not have two running lanes in each direction and is a source of delays, particularly at peak times. This section of road also offers very limited footway provision for pedestrians with parts of the footway less than 1.0m wide.
- 2.1.3 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 A2 Shore Road at Greenisland 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.
- 2.1.4 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.
- 2.1.5 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. The Belfast Metropolitan Transport Plan, published in November 2004 identifies the Greenisland section of the A2 as a bottleneck on the Belfast Metropolitan Area strategic network, which causes significant congestion and long delays on this corridor at peak times and the diversion of traffic onto other, often less suitable, roads. A route for on-line widening is protected within the current Belfast Metropolitan Area Plan (BMAP) 2015.
- 2.1.6 The Scheme is now included in the Roads Service Major Works preparation Pool. This is a list of the highest priority road improvements schemes that are to be developed and taken through the statutory procedures, with the expectation of progressing to construction within the next five years. This would obviously depend on the satisfactory completion of an economic assessment and statutory process and the necessary funding being available at the time.
- 2.1.7 The Scheme falls within both the Newtownabbey and Carrickfergus Borough Councils areas. Of particular relevance is Proposal MNY23 Strategic Road Scheme A2 to Carrickfergus within the Newtownabbey Area Plan, which states the following;
- “A2 to Carrickfergus - Widening of the A2 between Jordanstown and the Newtownabbey Borough Council boundary on the Carrickfergus Transport Corridor. This strategic road scheme involves widening of the A2 at Greenisland between the University of Ulster, Jordanstown and Island Park, Greenisland

from one lane in each direction to two lanes in each direction. The widening scheme will deliver significant economic and environmental benefits by relieving congestion and reducing the extent of slow moving traffic at peak times. The portion of works proposed as part of this scheme which fall within the Carrickfergus Borough Council Area are designated in the Carrickfergus District Proposals, Volume 4 (Ref GD06)".

## **2.2 The Local Road Network**

- 2.2.1 There is a strong social and economic link between Carrickfergus (and Newtownabbey) and Belfast. Historically, the strategic A2 road and the Belfast to Larne railway have provided travel along this link. More recently the A2 out of Belfast has been complemented by the M2 motorway, before that swings to the west, and by the M5 motorway spur before that rejoins the A2 approximately 4km (2.5 miles) south of Greenisland.
- 2.2.2 The strategic A2 route continues northwards as a dual 2-lane carriageway for a short distance, then as a single 4-lane carriageway road before becoming a single 2-lane carriageway north of Jordanstown Road. The 2-lane road continues for approximately 2.5km through the Greenisland area before entering a short length of dual 2-lane carriageway to the edge of Carrickfergus. The remainder of the road northwards through Carrickfergus has a single 4-lane carriageway.
- 2.2.3 The majority of the A2 to Greenisland north of the M5 has urban development frontage with some direct access to the A2, except where it is alongside Belfast Lough. The 2-lane road at Greenisland has virtually continuous residential frontage with numerous private accesses. There are a significant number of at-grade junctions, roundabouts, signalised junctions and simple priority junctions on the A2 route.
- 2.2.4 Opposite the area of Greenisland, the B90 provides a parallel route to the A2 but to the north and the south it diverges away from the coast and away from the A2. It circumvents the western edge of Carrickfergus. It also circumvents the major part of Newtownabbey before it leads on an urbanised route to join the M2 motorway at the A8(M) Sandyknowes Junction.
- 2.2.5 There are a small number of roads linking the A2 and B90. Woodburn Road provides a connection along the southern edge of Carrickfergus, over approximately 2.5km of urbanised single carriageway road. Further south Troopers Lane is a narrow country lane of approximately 0.9km. It has some frontage development at both ends.
- 2.2.6 Station Road at Greenisland provides a link of approximately 1.6km, including a significant kink where it has been diverted beneath the railway. It has a continuous frontage of houses, schools and other community facilities along its whole length. The carriageway width varies from 7.5m downwards, the provision and width of footways varies along its length.
- 2.2.7 Jordanstown Road, the next road to the south is similar in many respects to Station Road. However, it provides a very indirect route from the A2 to the B90, well over 3km long. Its role is more as a local road serving established areas of Newtownabbey east of the Carnmoney Hill.
- 2.2.8 Any traffic travelling from the north and east to Belfast City must pass through the narrow coastal belt using the heavily urbanised A2 and A8 roads or the M2 (& M5) motorway. Any traveller using the B90 as an alternative to the A2 would also have to come back to the coast and follow a route through that constriction. There are a number of routes to choose from to complete that journey to Belfast but it is impossible to reach the A2 or M2 without travelling through areas that have their own local

congestion problems at peak hours. The strategic A2 route, connecting to the M5 and M2, is by far the most direct route from Carrickfergus, and Greenisland, to Belfast.

2.2.9 The Jordanstown Campus of the University of Ulster, situated with accesses off both the A2 and Jordanstown Road, is a significant factor in the road network. It is a major generator of traffic. Regardless of which entrance traffic uses, the A2 is understood to be the most direct route for the majority of journeys to the University.

2.2.10 Sustrans have confirmed that there is a National Cycle Network route from Belfast to Jordanstown, generally following the edge of Belfast Lough. At the northern end it runs adjacent to the A2 Shore Road ending in Loughshore Park at the present time. Sustrans would like to extend the cycle route to Carrickfergus but the road network from that point northwards is not suitable. The carriageway of Shore Road from the end of Loughshore Park northwards is only approximately 7.3m wide in places and the footways are not wide enough for shared cycle use and are not continuous in some locations.

### **2.3 The A2 Shore Road at Greenisland**

2.3.1 The specific part of the A2 Shore Road that has been identified as the bottleneck runs from a point 290m north of Jordanstown Road junction in a northerly direction for 2250m to a point 100m south of the minor access road, Island Park.

2.3.2 The definition of the bottleneck has been taken as where the carriageway is less than 12m (4 lanes). However, at the south end the fourth lane serves as a right turn pocket for northbound vehicles turning into a bus turning area and at the north end there is a similar arrangement for traffic turning into Island Park. In practice therefore the actual length of the road to be brought up to the required standard may be longer and dependent on the strategy for solving the bottleneck problem.

2.3.3 The carriageway width, away from the transition sections, varies but is generally 8-9m wide. There are some locally narrower widths, but rarely below 7.5m wide.

2.3.4 Within the area in which the Scheme has been developed, there are a number of junctions and accesses that are considered to be significant and potentially requiring improvement. They are all on the northwest landward side of the road and are as follows and as shown in Figure 2.1 – Side Roads and Accesses:

- Jordanstown Road (signalised junction);
- Shore Avenue (University entrance);
- Shorelands (residential distributor road);
- Station Road (signalised junction);
- Seapark (signalised access to former factory site).

2.3.5 In addition there are a number of other accesses, also shown in Figure 2.1 – Side Roads and Accesses:

- The Grange (residential access road);
- Langley Hall (residential access road);
- Belfast High School;

- Silverstream Banks (residential access road);
- Neill's Lane (minor access lane);
- The Spar Shop;
- Whinfield Lane (minor access lane);
- Island Park (residential access road);
- Whitelodge Court (residential access road).

2.3.6 There are in addition approximately 120 drives, some of which serve several properties. These are split roughly equally between the two sides of the road.

2.3.7 The land generally rises away from the Lough side. In some sections of the A2 at Greenisland this is a particular feature with respect to driveways. On the Lough side (to the southeast), many of the driveways rise steeply to the A2 and on the opposite side rise steeply away from the road to the property frontage. This feature is not common to all parts but in areas where it is prevalent, it is a major factor to be taken into consideration where the preferred strategy is to widen the existing road. Widening of the road would reduce the distance between road and property, thereby increasing the gradient of driveways.

2.3.8 An unsatisfactory feature of the existing road is that walls, fences and hedges limit the visibility from the driveways. This is especially so where there is a minimal width of footway. In the worst cases, vehicles have to be driven up a steep slope then project into the carriageway before adequate visibility can be achieved to complete the manoeuvre.

2.3.9 There is a tremendous variation in the style of the property boundaries on the road. There are many types of wall, fence and hedge. The majority are simply property boundary markers and screens, but some of the walls retain the garden of the property (on the northwest side, or inland side) and some will support the road (on the southeast, or Lough side). The latter are out of sight to a casual inspection from the road.

## **2.4 Existing Traffic Levels**

2.4.1 The A2 Shore Road between Carrickfergus and Greenisland carries 26,400 vehicles a day, increasing between Greenisland and Whiteabbey to some 35,000 vehicles a day. Flows on the road vary throughout the year and there is a significant drop during University and school holidays. Weekday (Monday to Friday) flows are generally higher than weekend flows and the busiest day is typically a Friday.

2.4.2 Commuter traffic results in marked morning and evening peak periods. The morning peak period extends from about 07.30 hrs to 09.30 hrs with the main flow towards Belfast. Within this period, the peak hour varies from junction to junction. The evening peak period extends from 15.30 hrs to 18.30 hrs with the main flow towards Carrickfergus. Again, the peak hour is different at different junctions.

2.4.3 The build up of queues on the 4-lane sections to the north and south indicate that during the morning and evening peak hours, flows are constrained by lack of capacity along the single carriageway section of the A2. The traffic queues are not only very long but the peak period is broad with queues building up from 7am. The morning peak hour at Station Road Greenisland was found to be 7.30 – 8.30am whereas at junctions further south it is later at 8.00 – 9.00am. The peak hour flows at Station Road junction

are therefore constrained in the sense that there would be more traffic at the junction in the peak hour were it not held back in the queue and consequently the peak hour at the other junctions might be earlier.

2.4.4 From journey time surveys, the time to travel the 8.2km between the M5 terminal roundabout and the Albert Road roundabout at the edge of Carrickfergus varies from almost 23 minutes in the peak periods to some 8 minutes off-peak. This range is similar in both directions of travel except that the slower direction is northbound in the evening peak and southbound in the morning peak.

2.4.5 The journey times correspond to a lowest journey speed of just over 20kph (13.5mph) at peak time rising to a highest journey speed of around 63kph (40mph) off-peak. For the majority of the day, the journey speeds are within a narrower range of 48kph to 56kph (30mph to 35mph).

## **2.5 Accidents**

2.5.1 Accident information on the A2 Shore Road between Station Road at Whiteabbey and Whitelodge Court for the 3 year period from January 2002 to December 2004 showed that a total of 60 injury accidents were recorded during this period. There were no fatal accidents, only 3 serious and the remainder all slight injury accidents.

2.5.2 The accident rate was found to be 0.37 per million veh km. That compares favourably with the average rate for urban A-class roads of 0.79 / 0.76 / 0.70 per million veh km for the 3 years 2002 to 2004 respectively (taken from *Transport Statistics Bulletin – Road Casualties in Great Britain: 2004*).

2.5.3 The majority of the accidents took place in a dry road surface condition and did not relate to bad weather or poor lighting conditions. On the 2-lane single carriageway section of the road, at least 53% accidents were rear shunts. 25%, including all three serious accidents, involved vehicles turning onto or crossing the A2 Shore Road. 7% involved pedestrians, 5% involved vehicles overtaking and the remaining 10% were typically associated with loss of control of the vehicle.

## **2.6 Operation of Junctions**

2.6.1 The operation of existing junctions has been modelled using TRRL software PICADY for priority junctions, ARCADY for roundabouts and TRANSYT for traffic signals. It was found that the existing junctions are operating at or close to capacity at peak times. It should be noted that these are constrained volumes of traffic due to the overall incapacity of the road.

2.6.2 The analyses indicate that both the Belfast High School and University access junctions have insufficient capacity for the existing morning and evening peak hour flows. The traffic signals at Station Road Greenisland have insufficient capacity in the pm peak and are close to capacity in the morning peak. Site observations confirm these results with the exception of the am peak at Station Road. From observation of the queues, the indication is that the capacity of the A2 southbound approach to this junction is well exceeded in the am peak.

## **2.7 Preliminary Public Consultation**

2.7.1 Roads Service recognised that any plans to improve the Shore Road, Greenisland section of the A2 would generate a good deal of public interest, particularly from those

properties that may be directly affected. For that reason Roads Service held a preliminary public consultation exercise at the start of the Scheme development to explain to elected representatives, members of the public and other interested parties the actual process that would be followed to develop proposals for the A2 and advise of the likely time scale.

2.7.2 A Preliminary Public Consultation was held on Tuesday 24<sup>th</sup> and Wednesday 25<sup>th</sup> May 2005 at the Glenavna House Hotel, Whiteabbey. It enabled views and information to be collected from the public and their representatives. The exhibition was hosted by Roads Service staff, assisted by staff from Scott Wilson and Ferguson McIlveen.

2.7.3 A number of guests, including MPs, MEPs, MLAs, Mayors, Councillors, and other interested parties were invited to a preliminary presentation and after the formal presentations were completed, the exhibition was opened to the public. A visitors attendance list was kept of those attending the exhibition, and a total of 178 names were entered over the two days. The attendees were also encouraged to complete a questionnaire, which they could either leave behind after completion or post back later to Roads Service.

2.7.4 The questionnaires were analysed and of the 131 questionnaires received, 90% stated that there is a problem on A2 Shore Road at Greenisland, and 8% thought that there was no problem. There were 2 questionnaires that did not state either.

2.7.5 A total of 509 issues were recorded in the questionnaires. The issues are stated below in order of preference with the most identified issue listed first. They ranged from delays, with 21% of those recorded, to noise and air pollution with 6%. Other issues were delays on journey, difficulty crossing Shore Road as a pedestrian, difficult access to and from properties, difficult access to and from side roads, inadequate footways, inadequate cycle facilities and inadequate public transport.

2.7.6 A total of 147 responses were recorded for a preferred solution as in some cases, respondents identified more than one solution and some solutions had variations added. Notwithstanding that, the most frequent categories were widening to a dual carriage, with 20% of those recorded, improve public transport, widening A2 to 4-lane carriageway, alternative routes, building out along the sea/shore, and improving the B90.

2.7.7 There were 105 further comments. They ranged from urgency in implementing the Scheme, with 10% of those recorded, to improve and encourage public transport, concern about effects due to construction activities, concern about loss of property, no advantage in widening the A2, concern about loss of trees, continual increase in traffic, objection to a scheme along the shore and concern about difficulty in gaining access to and from properties.

## **2.8 Conclusion**

2.8.1 There is an established need to address the bottleneck problem on the A2 Shore Road by creating 4 lanes to cope with the existing and future traffic flows. This is affirmed by the Regional Transport Strategy (RTS), the Belfast Metropolitan Transport Plan (BMTP) and the Roads Service Major Works Preparation Pool. There is also a need to reduce the potential for accidents and increase footway provision for pedestrians. There is a general public perception that there is a need for some improvement of the present situation on the A2 at Shore Road at Greenisland that supports the findings of the RTS and BMTP.

## 2.9 References

- Major Works Preparation Pool. The Roads Service. <http://roadimprovements.roadsni.gov.uk/index/schemes.htm>
- The Draft Belfast Metropolitan Area Plan 2015. The Planning Service (Plan Amendment Number 1, February 2006).
- Belfast Metropolitan Transport Plan 2015. Department for Regional Development (2004). <http://www.drdni.gov.uk/Bmtp/>
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