

**TRANSPORT SCOTLAND
SCOTTISH TRUNK ROAD INFRASTRUCTURE
PROJECT EVALUATION**

1YA Evaluation Report for A75(T) Cairntop to Barlae

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GLOSSARY

The following abbreviations have been used in this report:

AADT	Annual Average Daily Traffic
ATC	Automatic Traffic Counter
BCR	Benefit to Cost Ratio
DMRB	Design Manual for Roads and Bridges
NPV	Net Present Value
NRTF	National Road Traffic Forecasts
RSA	Road Safety Audit
S2	Single 2-Lane Carriageway
STAG	Scottish Transport Appraisal Guidance
WS2	Wide Single 2-Lane Carriageway

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1 SUMMARY OF IMPACTS

This section provides a short summary of the key findings from this One Year After Evaluation report of the A75(T) Cairntop to Barlae scheme.

OPERATIONAL INDICATORS – HOW IS THE SCHEME OPERATING?

The scheme is operating safely and generally as expected. Specific points to note are:

- Traffic flows on the A75(T) in the vicinity of the scheme are lower than forecast, and have been reducing for a number of years. It is acknowledged however that the economic downturn has seen a widespread reduction in traffic flows across the Scottish road network.
- Recommendations have been raised in this Evaluation report with regards to selected environmental mitigation measures that require attention. The issues identified have been brought to the attention of the Contractor for the scheme by the Engineer and have been given further consideration.

PROCESS INDICATORS – HOW WELL WAS THE SCHEME IMPLEMENTED?

The scheme followed standard processes. The main points to highlight in how the scheme was implemented are set out below:

- Whilst the scheme was subject to initial delay after the economic appraisal methodology and associated traffic modelling was changed, alongside other schemes on the A75(T), it was then delivered ahead of the finalised programme in October 2010.
- A review of the Stage 4 RSA confirms that no accidents have occurred in the period 1 year after opening and, as such, no conclusions can be drawn that would suggest road safety deficiencies in the scheme.

OBJECTIVES – IS THE SCHEME ON-TRACK TO MEET ITS OBJECTIVES?

The scheme appears to be on-track to meet its objectives. Specific points to note are:

- The nature of the scheme (dual carriageway) will most certainly have enhanced overtaking opportunities. Journey time data (before and after the scheme implementation) suggest that the scheme has been successful in reducing journey times for car traffic, a key objective of the scheme. The scheme also delivered a dedicated shared cycleway and footway.
- Whilst the scheme is operating safely in its first year of operation, it is too early to conclude that the scheme has delivered additional road safety benefits, a sub-objective of the scheme. This will continue to be monitored in future years.

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COSTS TO GOVERNMENT – IS THE SCHEME DELIVERING VALUE FOR MONEY?

In accordance with the Route Action Plan for the A75 corridor, the Cairntop to Barlae project forms part of a series of improvements that can be expected to provide benefits to transport users and help encourage economic development within south west Scotland and beyond.

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2 INTRODUCTION

2.1 Background to Project Evaluation

Road infrastructure projects normally take a minimum of 5 to 7 years to plan prior to the commencement of construction and it is not possible to know exactly what will happen when a project is opened, nor what would have happened had the project not been built, particularly when the project is opened a number of years after its assessment.

The aims of evaluation, as set out in the Design Manual for Roads and Bridges (DMRB), Volume 5, SH 1/97 'Traffic and Economic Assessment of Road Schemes in Scotland', are as follows:

- to satisfy the demands of good management and public accountability by providing the answers to questions about the effects of a new or improved road;
- to identify the strengths and weaknesses in the techniques used for appraising projects, so that confidence in the roads programme is maintained;
- to allow the predictive ability of the traffic or transport models used to be monitored to establish whether any particular form of model is consistently more reliable than others when applied to particular types of projects; and
- to assist in the assessment of compensation under Part 1 of the Land Compensation (Scotland) Act 1973 for depreciation due to the physical factors caused by the use of public works.

The evaluation of trunk road projects is evolving as Transport Scotland improves its process and reporting to reflect the principles of monitoring and evaluation set out in the Scottish Transport Appraisal Guidance (STAG).

STAG advocates evaluation against indicators and targets derived for the Transport Planning Objectives originally set for the project, STAG criteria (Environment, Safety, Economy, Integration and Accessibility & Social Inclusion) and relevant policy directives, the aim of which is to identify:

- whether the project is performing as originally intended;
- whether, and to what extent, it is contributing to established policy directives; and
- whether the implemented project continues to represent value for money.

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Furthermore, Scottish Trunk Road Infrastructure Project Evaluation (STRIFE) by Transport Scotland sets out the requirements for evaluation which draws on DMRB and STAG. This document is to be finalised in 2013, but already acts as a guide to evaluation for relevant projects. STRIFE states that at least two programmed evaluations should be carried out on relevant schemes, as follows:

- A one-year after Evaluation (1YA) – prepared one year after opening, this report should “provide Transport Scotland with an early indication (as far as is practicable) that the project is operating as planned and is on-track to achieve its objectives. The 1YA evaluation also provides a Process Evaluation including an assessment of actual vs. forecast project cost, and programme together with reasons for variance”. STRIFE also states that a stand-alone report should be prepared on each individual project. Information gathering should be supported by a site visit and stakeholder interviews.
- A Detailed Evaluation – 3 and/or 5 years after opening. This second evaluation “considers a project’s impacts, whether it has achieved its objectives and reviews the actual impacts against forecasts and determines the causes of any variances”.

2.2 This Evaluation and Project Reported

As recommended in STRIFE, this report constitutes a One-Year After (1YA) Evaluation Report. It is a standalone report on the A75(T) Cairntop to Barlae Project. This project fits the criteria for evaluation at this stage, as it cost more than £5m and was completed and opened to traffic in the 2010/11 financial year.

Table 2.1 Summary characteristics of the A75(T) Cairntop to Barlae scheme

Route	Project Name	Standard	Length (km)	Open to Traffic
A75(T)	Cairntop to Barlae	D2AP	2.4km	Oct 2010

Key: D2AP Dual 2 lane all purpose

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3 INITIAL 1YA EVALUATION - A75(T) CAIRNTOP TO BARLAE

3.1 Introduction

Project Description

The A75(T) is approximately 159km in length, and is located in Dumfries and Galloway. It is an important transportation corridor in the south-west of Scotland, linking the A74(M) with the port at Loch Ryan.

The project involved the construction of approximately 2.4 kilometres of off-line dual carriageway, extending from west of Derskelpin Farm to west of the Barlae Burn, approximately 5km to the east of Glenluce and 14km to the west of Newton Stewart.

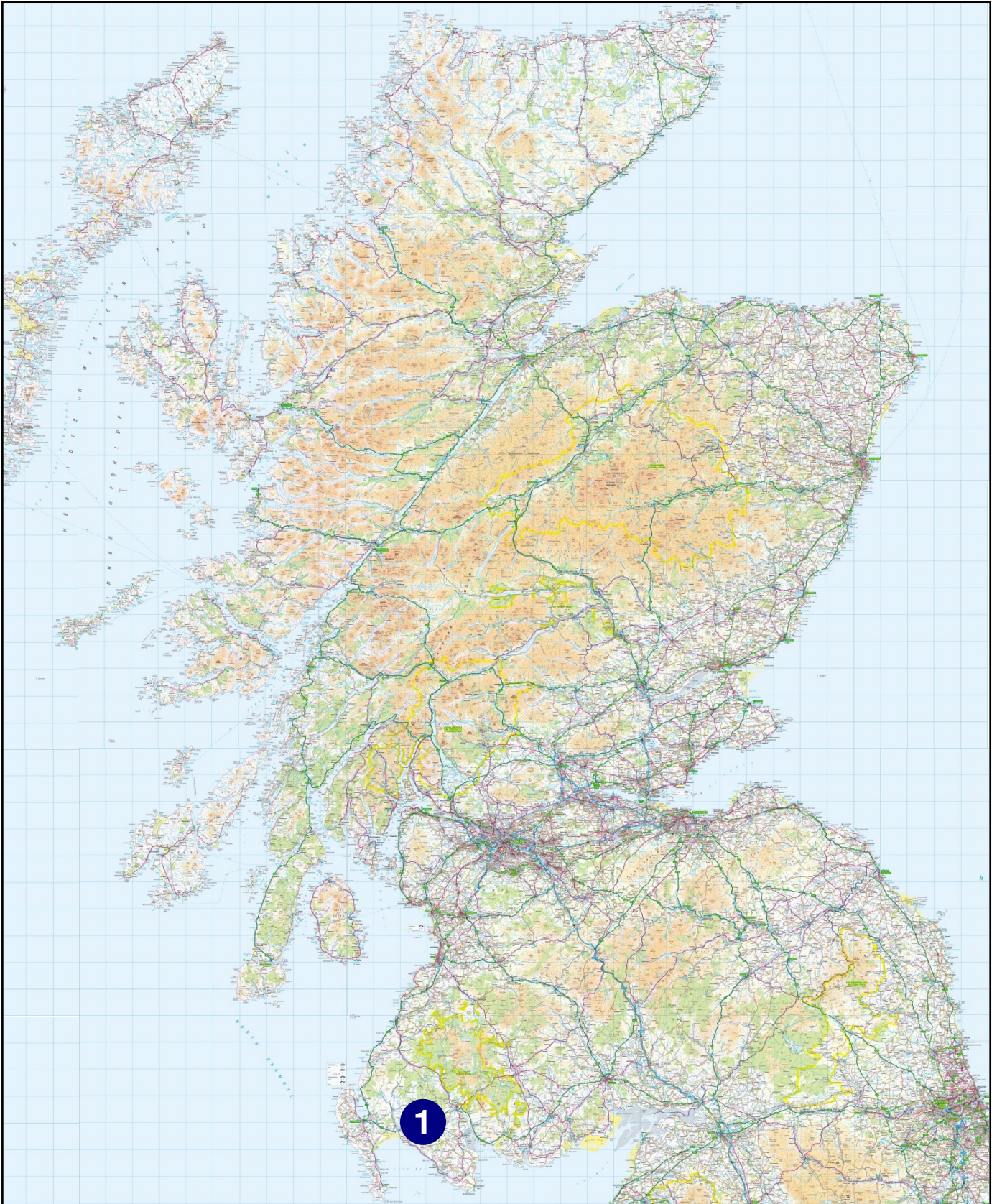
The project utilised the existing A75(T) as the westbound carriageway and a new eastbound carriageway was constructed to the north of the existing A75(T), utilising a disused railway line corridor. The distance between the eastbound and westbound carriageways varies between 20 and 60 metres.

Due to the risks of soft ground conditions associated with improvements to the existing A75(T) carriageway, an initially preferred option of on-line widening was not carried out. The final scheme included a section of off-line widening.

The general location of the project is shown in Figure 3.1.

The A75(T) Cairntop to Barlae project was officially opened to traffic in October 2010, some two months ahead of schedule. However, the preparation of the scheme was initially delayed by early changes to the economic analysis methodology, which involved additional traffic modelling to better reflect traffic movements on the route.

The final scheme involved a departure from Design Standards for dual carriageway schemes, which was approved by the Transport Scotland Standards Branch.



1. A75(T) Cairntop to Barlae

Locations of Projects Evaluated
Figure 3.1

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Rationale and mandate for the scheme

The project was implemented as part of a wider Route Action Plan for the A75(T) including a number of other overtaking projects on the A75(T) which have been reported within previous evaluation reports.

In combination with other overtaking projects on the A75(T), the A75(T) Cairntop to Barlae scheme was targeted principally to break up platoons of vehicles which form when ferries unload at the ports associated with the Irish Sea Ferry operations.

Approval to proceed with the scheme was made by Transport Scotland in June 2004.

Project Objectives

The objectives¹ of the A75(T) Cairntop to Barlae project were set as follows:

- to improve operational performance and level of service and safety on the A75 by reducing the effects of driver stress and journey times by constructing guaranteed overtaking sections to break up convoys;
- to improve and increase the number of overtaking opportunities to eradicate the conflicts between long distance users and local / agricultural traffic;
- the construction of medium term on-line overtaking sections; carriageway widening; rationalisation of side road junctions and alignment improvements to bends;
- the incorporation of the needs of pedestrians and cyclists;
- to maintain the asset value of the A75; and
- to achieve good value for money for both tax payers and transport users.

3.2 Evaluation Methodology

As set out in Section 1.1, this One Year After report presents the results of a One Year Evaluation of the A75(T) Cairntop to Barlae project, focusing on:

- The operation of the scheme: how the scheme is operating (in terms of traffic and safety in particular); and
- Objectives: whether the scheme is on-track to achieving its objectives.

¹ As stated in the DMRB Stage 3 Environmental Assessment report for this scheme.

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This evaluation was supported by a site visit carried out on Thursday 30th January 2013. Internal to Transport Scotland, stakeholder views were sought from the Construction Project Manager. External stakeholder views were invited from Dumfries and Galloway Council, the Road Haulage Association, and Stena Line. Where received, these are presented throughout the report.

3.3 The operation of the scheme and process evaluation

Network Traffic

The evaluation is supported by the consideration of pre and post opening comparison of operational indicators, which focuses on network traffic indicators including traffic volumes and travel times, presented in the following section.

Traffic Volumes

The locations of the Automatic Traffic Counters (ATC) within the study area are shown in Figure 3.2.

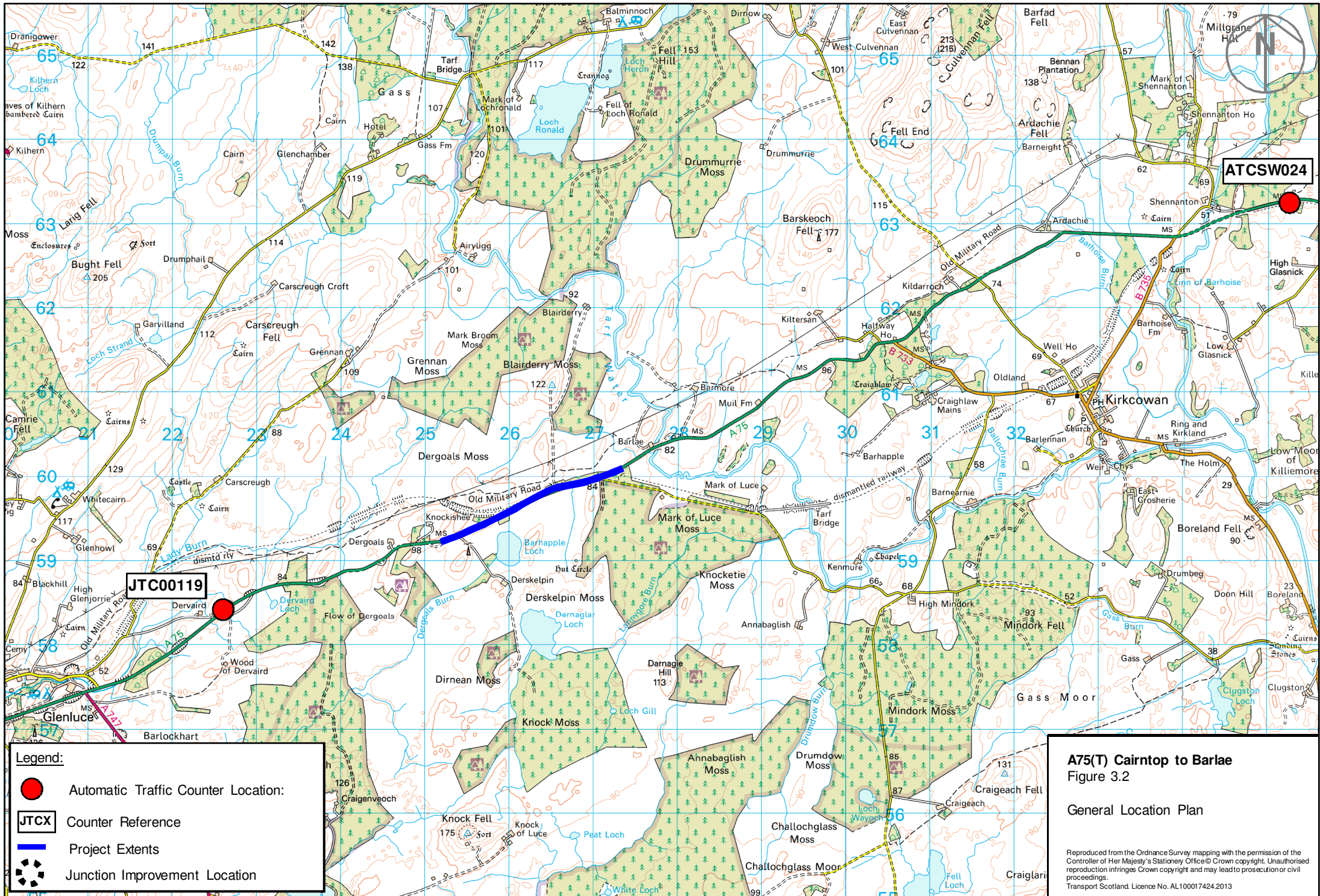
Comparison Between Pre and Post Opening Traffic Flows

The Annual Average Daily Traffic (AADT) flows pre and post project opening on the A75(T) route within the vicinity of the project are presented in Table 3.1.

Table 3.1: A75(T) Cairntop to Barlae – ATC Data

ATC Reference	AADT by Year					
	2007	2008	2009	2010	2011	2012
A75(T) at Glasnick Smithy Croft - northeast of B735 (NE of the project)						
ATCSW024	4,316	4,219	4,183	Year of Opening	N/A	4,287
A75(T) at Dervaird - NE of Glenluce (SW of the project)						
JTC00119	4,203	4,069	4,048	Year of Opening	3,879	3,835

A comparison between pre and post opening traffic volumes on the A75(T) to both the east and west of the scheme indicates that traffic flows have been reducing on this route for several years. Traffic flows in 2012 were broadly consistent with 2011 traffic flow levels.



JTC00119

ATCSW024

- Legend:**
- Automatic Traffic Counter Location:
 - JTCX** Counter Reference
 - Project Extents
 - Junction Improvement Location

A75(T) Cairntop to Barlae
Figure 3.2

General Location Plan

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Given the nature of the A75(T) Cairntop to Barlae project, changes in traffic are not likely to be as a consequence of changes to the carriageway standard and may be as a result of reductions in traffic volumes across the wider trunk road network due to the economic downturn experienced during the evaluation period. Moreover, a review of changes in traffic levels at other points on the A75 suggests a general decline in traffic volumes on this route since 2007, which is consistent with national trends².

Comparison Between Predicted and Actual Traffic Flows

The opening year flow comparisons for the A75(T) Cairntop to Barlae project are based on AADT flows from 2011 as this was the first full year of reliable traffic data available from Transport Scotland's traffic counters within the vicinity of the project.

As part of the project's appraisal, National Road Traffic Forecasts (NRTF) low and high traffic growth factors were applied to the 2003 base year traffic flows to derive opening and future modelled assessment year traffic flows.

Predicted traffic flows for 2011 have been derived by interpolating between the modelled assessment year design network flows.

A summary of the actual and predicted traffic data is shown in Table 3.2 below.

Table 3.2: A75(T) Cairntop to Barlae – Traffic Analysis Summary

ATC Ref	Actual AADT*	Predicted AADT (2011)			% Difference (Predicted – Actual) / Actual		
		Low	60/40	High	Low	60/40	High
A75(T) at Dervaird - NE of Glenluce (SW of the project)							
JTC00119	3,879	4,789	4,904	5,078	23.5%	26.4%	30.9%

* 2011 flows (first full year of ATC data available)

The comparison between predicted and actual AADT flows in Table 3.2 indicates that the predicted 2011 flow (derived by interpolating between the modelled assessment year traffic flows) was 24% and 31% greater than the observed 2011 flow under low and high traffic forecast scenarios respectively.

Whilst this comparison indicates that traffic growth on the A75(T) has fallen significantly short of the assumed NRTF forecasts, it is recognised that there has been a general fall in traffic volumes across the wider trunk road network in recent years due to the economic downturn that may in part account for the difference.

²

Scottish Transport Statistics No 31: 2012 Edition, <http://www.transportscotland.gov.uk/files/j251205.pdf>

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Changes in Irish Sea Ferry operations since the original assessment in 2003 coupled with an overall reduction in the total number of cars using the ferry services of approximately 2.2% between 2003 and 2011³ may also have contributed to observed flows being lower than forecast.

Overtaking Opportunities

Pre-opening overtaking surveys were not carried out for this scheme, therefore, post-opening overtaking surveys have not been carried out in the absence of a comparable baseline.

However, it is reasonable to assume that, due to the nature of the improvement, (a single 2-lane carriageway upgraded to a dual 2-lane carriageway), the number of unambiguous overtaking opportunities will have increased in both directions of travel as a direct result of the project.

Travel Times

Comparison Between Pre and Post Opening Journey Times

Pre-opening journey time surveys were carried out for the A75(T) Cairntop to Barlae project in 2003 to validate the traffic model used in the assessment of the project. Post opening journey time surveys were carried out in March 2013 to provide an indication of the changes in average journey times along the A75(T) between Cairntop and Barlae.

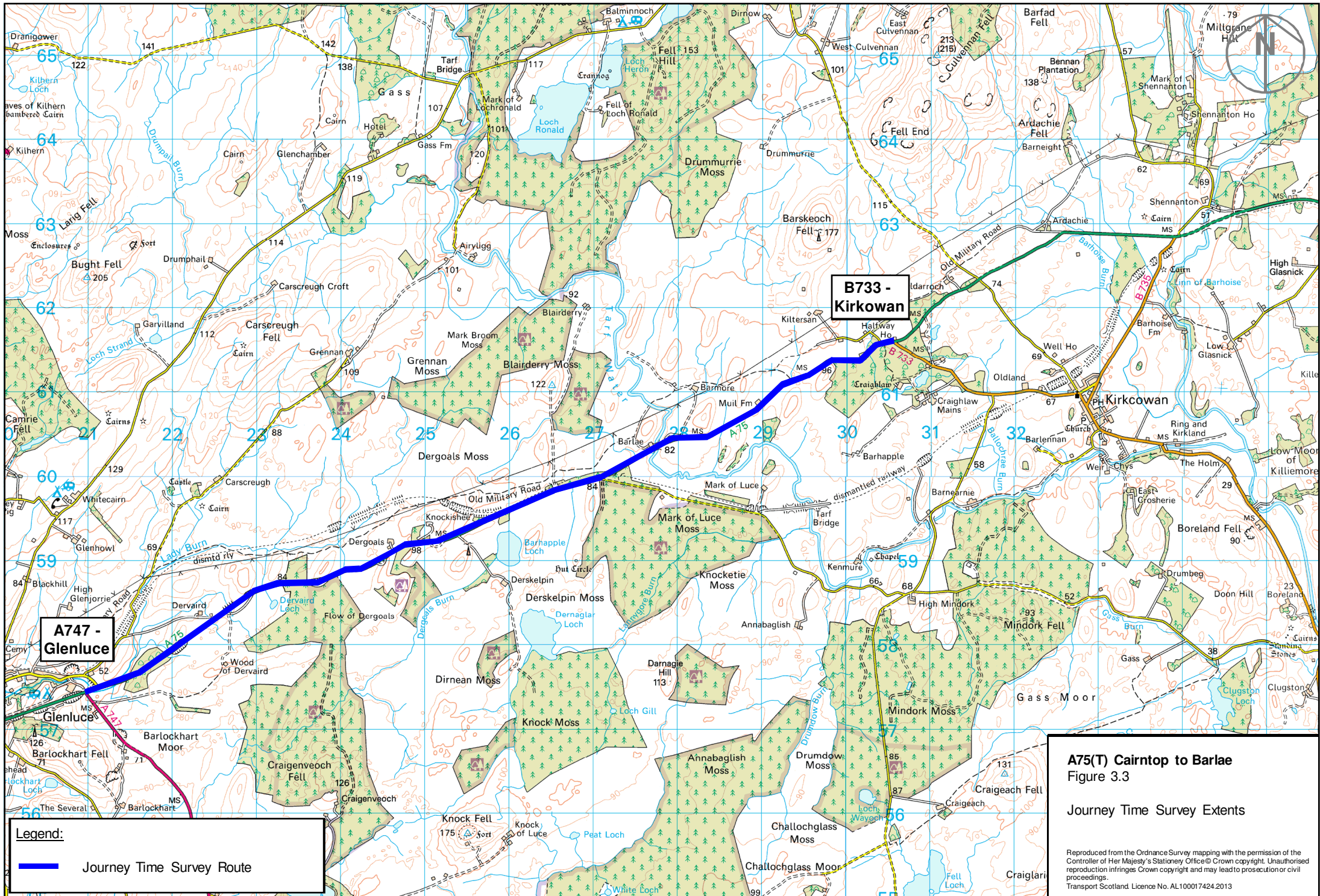
The average pre and post opening journey times along with the savings in travel time are shown in Table 3.3 below.

Table 3.3: A75(T) Cairntop to Barlae – Travel Time Data

Direction	Average Journey Time		Time Savings (mins / secs)	% Saving
	Observed Pre Opening (2003)	Observed Post Opening (2013)		
AM Peak (07:00 - 10:00)				
Eastbound	7m 33s	6m 47s	46s	10%
Westbound	7m 48s	7m 1s	47s	10%
Inter Peak (11:00-15:00)				
Eastbound	7m 39s	6m 56s	43s	9%
Westbound	7m 45s	7m 11s	34s	7%
PM Peak (16:00 - 19:00)				
Eastbound	7m 38s	6m 54s	44s	10%
Westbound	7m 52s	6m 58s	54s	11%

The extents of the journey time survey route are shown in Figure 3.3.


³ Scottish Transport Statistics No 31: 2012 Edition, <http://www.transportscotland.gov.uk/files/j251205.pdf>



**A747 -
Glenluce**

**B733 -
Kirkcubbin**

Legend:

 Journey Time Survey Route

**A75(T) Cairntop to Barlae
Figure 3.3**

Journey Time Survey Extents

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Examination of the pre and post opening journey times, presented in Table 3.3, indicates that the directional journey times recorded within each peak period are broadly comparable (within 6 seconds pre opening and 14 seconds post opening) suggesting that there are no issues relating to congestion within the extents of the survey site.

Comparison Between Predicted and Actual Travel Times

The available predicted 2023 journey times have been compared with the post opening journey times collected in March 2013. While there is a significant period (ten years) between the available predicted and actual journey times, the predicted flow in 2023 is well below the capacity of the A75(T) at this location, which suggests that predicted journey times are unlikely to vary significantly between the 2010 opening year and 2023.

A comparison between the available predicted⁴ and actual journey times indicates a saving of 12 seconds in 2023 in both directions of travel following the opening of the scheme. This is in comparison to actual savings of between 43 and 46 seconds in the eastbound direction of travel and between 34 and 54 seconds in the westbound direction of travel derived from the observed journey times.

3.4 Environment

The following section provides a summary of the assessment of environmental mitigation measures proposed for the A75(T) Cairntop to Barlae scheme. A fuller report is provided in Appendix B.

Review of Environmental Mitigation Measures

The environmental mitigation measures originally proposed for the A75 Cairntop to Barlae were obtained from the project's Environmental Statement (ES)⁵. A review of the environmental mitigation measures was carried out in January 2013, as well as a review of the as-built scheme plans. Following this review a site visit was undertaken to establish whether or not the proposed mitigation measures as set out in the Schedule of Committed Mitigation within the ES had been implemented.

⁴ A75(T) Trunk Road Improvement Schemes, Cairntop to Barlae, Traffic and Economic Assessment, Mouchel Parkman / SIAS (2007)

⁵ A75 Cairntop to Barlae Improvement Scheme Environmental Statement, Mouchel Parkman et al. (2006)

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The ES for the scheme proposed mitigation measures to address impacts under the following criteria:

- Water Quality, Drainage and Flood Defence
- Biodiversity and Habitats
- Landscape
- Visual Amenity
- Agriculture and Soils
- Physical Fitness

Findings

The proposed scheme was not considered to generate any additional traffic, and therefore no issues were identified in relation to noise and vibration, global and local air quality.

Much of the mitigation which was included within the ES has been implemented on site; however, the site inspection did highlight some issues related to the drainage of the area, which has associated impacts upon the movement of protected species. This issue is creating a barrier to the movement of mammals across the road corridor.

The A75 Cairntop to Barlae scheme fits well within the existing landscape and the effective grading the central peat bunding and the wider embankment slopes integrates the scheme into the topography of the area. The planting of native species to supplement the existing woodland planting in the area further strengthens the integration of the scheme in to the wider landscape setting.

Environment: Key Findings

Much of the mitigation which was included within the ES has been implemented on site.

Key recommendations

The site inspection highlighted some issues related to the drainage of the area, which has associated impacts upon the movement of protected species. This issue is creating a barrier to the movement of mammals across the road corridor, and needs to be addressed.

This issue has been brought to the attention of the Contractor for the scheme by the Engineer.

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3.5 Safety

Accidents

Comparison Between Pre and Post Opening Personal Injury Accident Numbers

The locations and severities of accidents occurring within the vicinity of the A75(T) Cairntop to Barlae project 3 years before and 1 year after project completion are shown in Figures 3.4a and 3.4b.

A summary of the personal injury accident data is shown in Table 3.4.

Table 3.4: A75(T) Cairntop to Barlae – Accident Data Summary

Period	Fatal	Serious	Slight	Total Accidents
3 Years Before				
A75(T)	0	0	1	1
1 Year After				
A75(T)	0	0	0	0

As can be seen from Table 3.4, no personal injury accidents occurred in the 1 year period following the opening of the project in comparison to one personal injury accident (slight) in the 3 years before opening.

Road Safety Audits

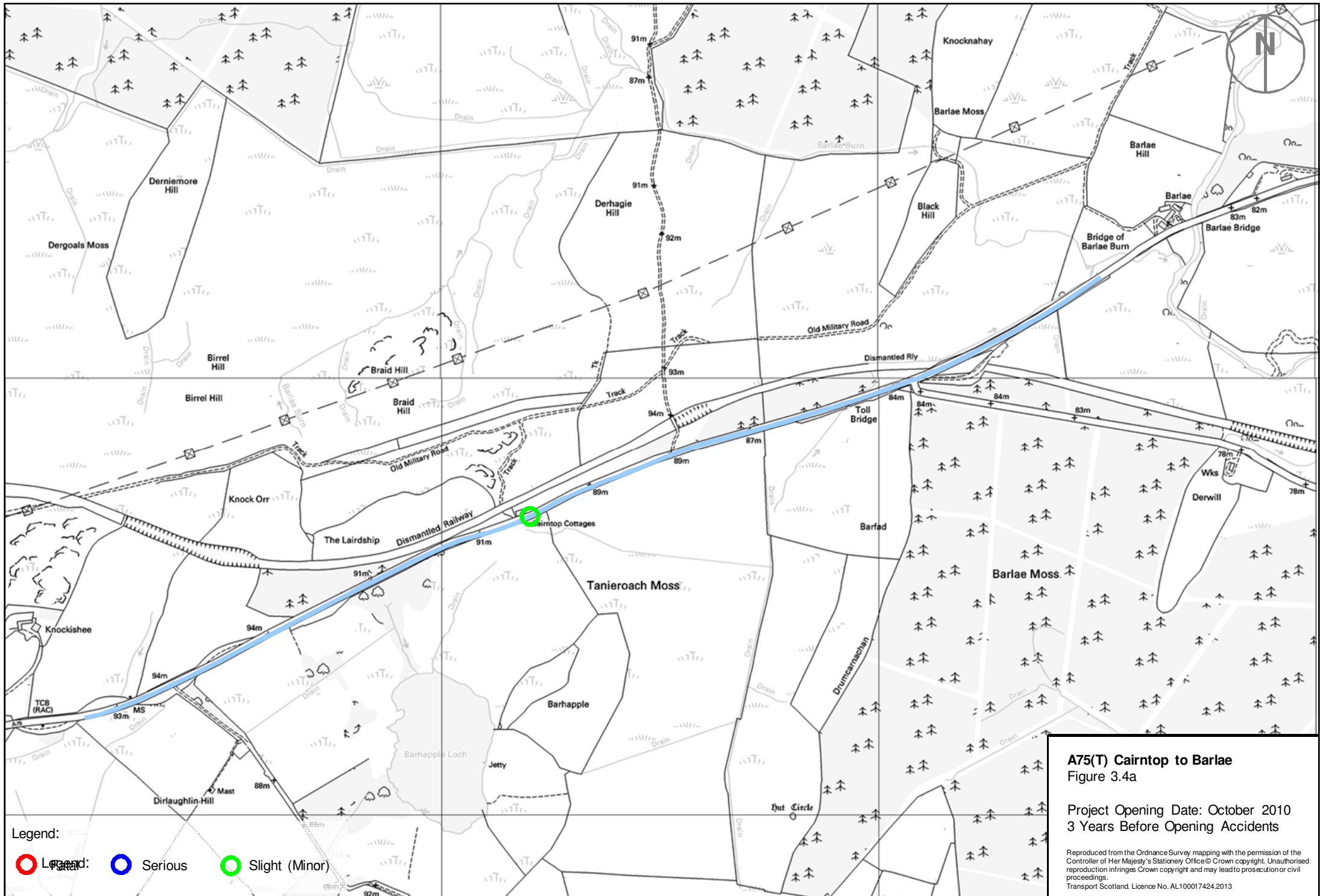
The RSA process has been followed, with Stage 1, 2, 3 and 4 Audits carried out. The Stage 4 Audit, undertaken in June 2013, confirmed that no accidents had occurred within the vicinity of the scheme in the 1 year period following the opening of the project and indicated that no conclusions can be drawn that would suggest road safety deficiencies in the scheme. A number of issues were raised as part of the Stage 3 Audit, dated October 2010, with recommendations for implementation. The outstanding issues raised as part of the Stage 3 Audit were addressed within the Stage 4 Audit.

Safety: Key Findings

An assessment of the 1 year post opening personal injury accidents and the findings from the Stage 4 RSA suggests that the A75(T) Cairntop to Barlae project is operating safely.

Recommendations

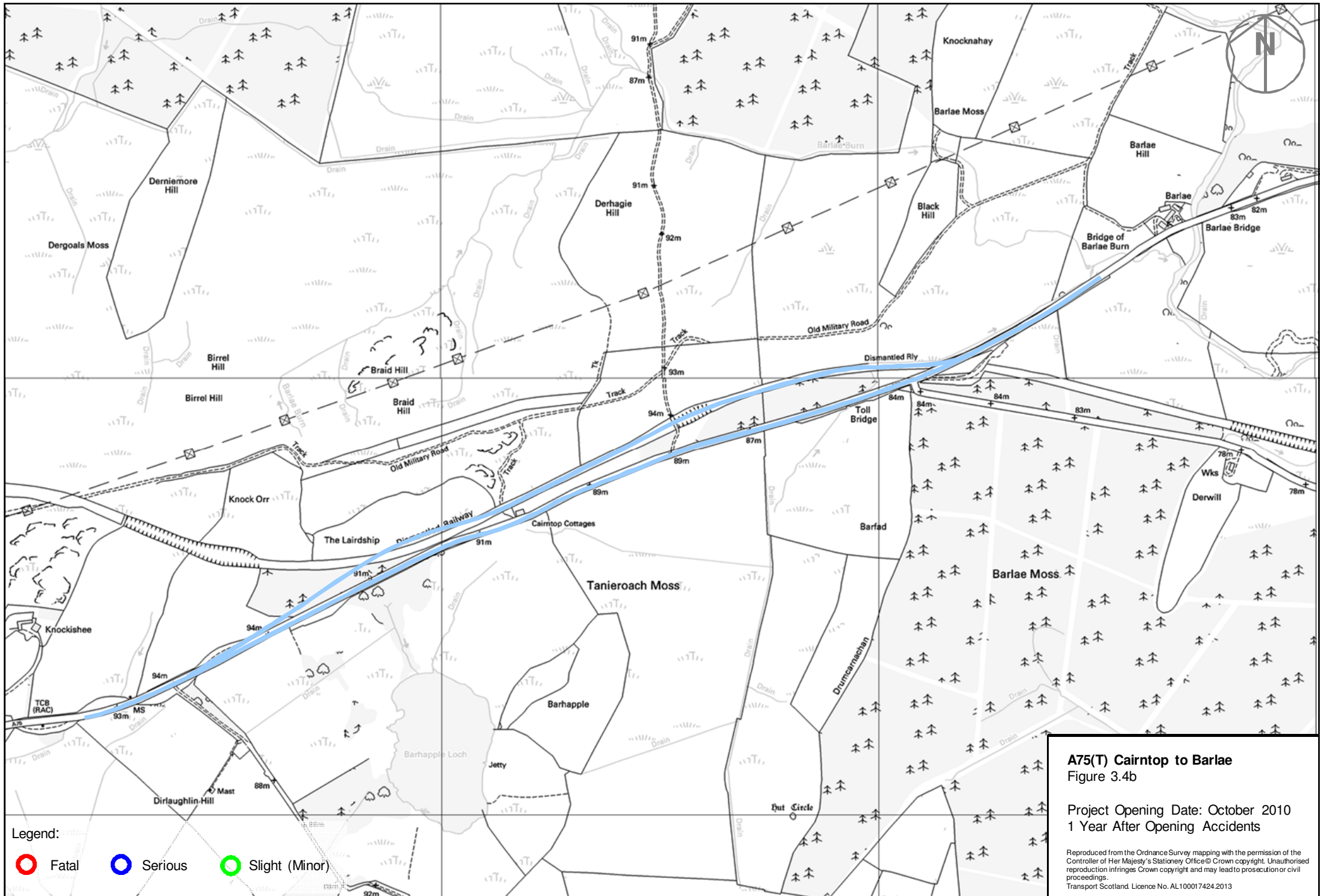
The Stage 4 RSA recommends that the performance and operation of the scheme should continue to be monitored.



A75(T) Cairntop to Barlae
Figure 3.4a

Project Opening Date: October 2010
3 Years Before Opening Accidents

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A75(T) Cairn Top to Barlae
Figure 3.4b

Project Opening Date: October 2010
1 Year After Opening Accidents

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3.6 Economy

Transport Economic Efficiency

The comparisons between predicted and actual traffic flows and travel times, presented in section 3.3, can be considered a proxy for whether the predicted economic benefits of the project are likely to be realised.

Comparison Between Predicted and Actual Traffic Flows

The comparison indicates that the predicted 2011 flows were up to 31% greater than the observed 2011 flows on the A75(T) within the vicinity of Cairntop to Barlae. This overestimation is likely due to the combination of changes in Irish Sea Ferry operations and general economic downturn.

Comparison Between Predicted and Actual Travel Times

The comparison of predicted and actual travel times indicates that the predicted journey time savings are approximately 20 to 40 seconds less than the observed journey time savings.

Stakeholder feedback

Stena Line offered feedback on the scheme for the purposes of this Evaluation report. Stena stated that the A75(T) Cairntop to Barlae scheme was designed with the prospect of increased traffic flows serving the new port at Loch Ryan in mind. In their view, the scheme has indeed benefitted traffic leaving the ports, as it allows passing opportunities for car traffic in particular which are discharged from ferries behind freight vehicles.

Specifically, Stena Line have also stated *“Without this scheme there could be substantial delay in journey times from the ports as there are very few alternative, safe opportunities further along the route and, of course, there is a 40mph limit for freight vehicles on the route. The idea is to reduce driver frustration and make the A75 safer.”*

Economy: Key Findings

While actual journey time savings are likely to be greater than predicted, a difference between predicted and actual AADT flows of this magnitude suggests that, should current trends in traffic volumes continue, the economic benefits of the project may have been overestimated in the short-term. However, this is likely due to external factors that could not have readily been foreseen at the time of assessment (the economic downturn and resulting decline in traffic flows).

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3.7 Accessibility & Social Inclusion

Community Accessibility

A 1.5m shared cycleway and footway was designed into the A75(T) Cairntop to Barlae scheme, on the basis of low traffic and cyclist flows (average of 6 cyclists per 12 hour day from traffic count data) and adjacent grass verges. This dedicated track was provided along the length of the improvement with crossing points provided at specific locations.

A Stage 2 Cycling Audit was carried out for this scheme in March 2010, reporting on the facilities proposed for pedestrians and cyclists. The Cycling Audit records that “Dumfries & Galloway Council, the Cyclists Touring Club, Sustrans, and the Chief Constable were all consulted. Local disabled and blind groups were not consulted as given the remote and rural nature of the site they were not considered to be ‘interested user groups’”. A DDA Audit was not undertaken for these reasons.

The Audit also highlighted the lack of adjacent communities to the scheme, and concluded that commuter cyclists were unlikely to use the pathway given its rural and remote location.

During the environmental mitigation measures review (one day site visit), it was observed that no cyclists and / or pedestrians were present on site and that the shared footway and cycleway and associated crossing points were not used. No evidence has been identified to confirm whether there has been a change in the levels of use of this route by active travel users.

Accessibility & Social Inclusion: Key Findings

A new shared cycleway and footway and associated crossing points have been implemented as part of the project. This is in line with Transport Scotland commitments to improve facilities on the trunk road network for active travel users.

3.8 Integration

Policy integration

A review of policy was carried out for the Environmental Assessment of the scheme, as reported in the Environmental Statement (2006). It identified one policy conflict with the Dumfries and Galloway General Local Plan Policy 63: Safeguarding Former Rail Transport Routes. The scheme uses a section of a former, now dismantled, railway line, and therefore renders this route unavailable for potential future redevelopment.

SCOTTISH TRUNK ROAD INFRASTRUCTURE PROJECT EVALUATION

TRANSPORT **SCOTLAND**

Integration: Key Findings

An assessment of policy integration was carried out in the planning and preparation for the scheme. One policy conflict was identified, in that the scheme would prevent any future redevelopment of an existing (un-used) railway line. However, this was taken into account in the decision-making process.

3.9 Cost to Government

Investment Costs

Comparison Between Predicted and Out-turn Costs

The out-turn and predicted project costs are shown in Table 3.5.

Table 3.5: A75(T) Cairntop to Barlae – Project Cost Summary

	Out-turn Cost		Predicted Cost		Difference (Out-turn - Pred)
	@ January 13	Mid 02 Prices in 2002 at 3.5% Discount	Jan 09 Prices incl 10% OB	Prices in 2002 at 3.5% Discount	Mid 02 Prices in 2002 at 3.5% Discount
Total	£7,796,790	£4,736,802	£8,702,679	£5,636,349	-£899,547 (-16%)

Cost to Government: Key Findings

The out-turn cost of the A75(T) Cairntop to Barlae project is approximately £0.9m (16%) lower than was predicted at the time of assessment.

3.10 Value for Money

Initial Indications

The economic appraisal results for the A75(T) Cairntop to Barlae project predicted a Net Present Value (NPV) of £0.03m and Benefit to Cost Ratio (BCR) of 1.00 under the 60/40 traffic forecast scenario.

The comparisons presented in sections 3.3 and 3.6 suggest that the traffic flows have been overestimated, whilst journey time benefits may have been underestimated. Furthermore, the out-turn cost is less than predicted. Therefore, NPV and BCR of the project may be greater than predicted.

Value for Money: Key Findings

It is judged that the project will continue to provide a benefit to road users and the NPV and BCR may be greater than predicted at the time of assessment.

SCOTTISH TRUNK ROAD INFRASTRUCTURE **PROJECT EVALUATION**

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3.11 Working towards achievement of objectives

As specific indicators to measure the performance of the A75(T) Cairntop to Barlae project against its objectives have not been developed, an initial indication of how the project is progressing towards achieving its objectives is based on the pre opening data available, supplemented by post opening data collected as part of the evaluation.

Initial Indications

A summary of the evaluation, providing an indication of how the A75(T) Cairntop to Barlae project is progressing towards achieving its objectives, is presented in Table 3.6.

SCOTTISH TRUNK ROAD INFRASTRUCTURE **PROJECT EVALUATION**

TRANSPORT **SCOTLAND**

Table 3.6: A75(T) Cairntop to Barlae – Progress Towards Achieving Objectives

Objective	Commentary	Progress
<p>Improve operational performance and level of service and safety on the A75 by reducing the effects of driver stress and journey times by constructing guaranteed overtaking sections to break up convoys.</p>	<p>While pre and post opening overtaking surveys have not been undertaken, it can be expected that the provision of the dual 2-lane carriageway is likely to have a positive impact on the number of overtaking manoeuvres which, subsequently, will help to reduce driver stress through the dispersal platoons.</p> <p>The project has resulted in journey time savings for all vehicles of approximately 30 seconds to 1 minute indicating a reduction in journey times and a potential associated improvement in journey time reliability.</p> <p>An assessment of the 1 year post opening personal injury accidents suggests that the A75(T) Cairntop to Barlae project is operating safely.</p>	<p>+ve</p>
<p>Improve and increase the number of overtaking opportunities to eradicate the conflicts between long distance users and local / agricultural traffic.</p>	<p>While pre and post opening overtaking surveys have not been undertaken, it is reasonable to assume that, due to the nature of the improvement (a single 2-lane carriageway upgraded to a dual 2-lane carriageway), the number of overtaking opportunities will have increased, in both directions of travel, as a direct result of the project which will have a positive impact on the conflicts between long distance users and local / agricultural traffic.</p>	<p>+ve</p>
<p>The construction of medium term on-line overtaking sections; carriageway widening; rationalisation of side road junctions and alignment improvements to bends.</p>	<p>Whilst this was set as an objective for the scheme, it has not been reported on as such for the purposes of this Evaluation report, as it is a <i>description</i> of the scheme as opposed to an <i>objective</i> to be achieved by the scheme.</p>	<p>n/a</p>
<p>Incorporation of the needs of pedestrians and cyclists.</p>	<p>A Cycle Audit was carried out for the project, which noted cycling provisions.</p> <p>A shared cycle and pedestrian facility and carriageway crossing points, as identified in the Environmental Statement,</p>	<p>+ve</p>

SCOTTISH TRUNK ROAD INFRASTRUCTURE **PROJECT EVALUATION**

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Objective	Commentary	Progress
	were provided.	
Maintain the asset value of the A75.	Given the nature of the A75(T) Cairntop to Barlae project, which involved converting approximately 2.4 kilometres of existing single carriageway to a dual westbound carriageway; and constructing a new section of approximately 2.2 kilometres of off-line eastbound dual 2-lane carriageway and 200 metres of on-line improvements, the asset value of the A75(T) between the project tie-in points is likely to have increased thus maintaining the value of the route.	+ve
Achieve good value for money for both tax payers and transport users.	The Cairntop to Barlae project forms part of a series of improvements along the A75(T) corridor that can be expected to provide benefits to transport users and help encourage economic development within south west Scotland and beyond.	+ve

Key: +ve Initial indication(s) that objective may be achieved
 = Progress towards achievement of objective cannot be confirmed
 O Initial indication(s) that objective may not be achieved

Appendix A: Methodology and Data Sources

A METHODOLOGY AND DATA SOURCES

A.1 OVERVIEW

The project presented in this report has been evaluated against their objectives and the following criteria, where applicable, to support the evaluation:

- Environment;
- Safety;
- Economy;
- Integration;
- Accessibility & Social Inclusion;
- Costs to Government; and
- Value for Money.

As the evaluation focuses on impacts relating to the project's objectives, evaluations against all of the above criteria may not be undertaken for all projects. The evaluation is supported by the consideration of network traffic indicators, including traffic volumes, overtaking opportunities and travel times, as presented in the following section.

A.2 NETWORK TRAFFIC INDICATORS

Traffic Volumes

Comparison Between Pre and Post Opening Traffic Flows

A comparison of traffic flows pre and post opening has been undertaken to provide an indication of the impact that the project has had on traffic volumes. The amount of traffic data presented is dependent upon the complexity of the project. The comparison can also serve as a proxy for the effect that the project has had on noise and air quality at the One Year After Evaluation stage.

Comparison Between Predicted and Actual Traffic Flows

A comparison of predicted and actual opening year traffic flows has been undertaken to confirm the accuracy of predictions during the project's preparation. The comparison can also serve as a proxy for whether the predicted benefits of the project are likely to be realised.

Depending on the nature of the traffic modelling undertaken to assess the project, the predicted traffic flow is either derived by:

- factoring the base year or the predicted opening year, design network flows to the actual opening year using National Road Traffic Forecast (NRTF) growth factors; or
- extrapolating from, or interpolating between, the modelled assessment year, design network flows.

The difference between the actual traffic flow and the predictions has been calculated and expressed as a percentage of the actual flow. A threshold of +/-20% is generally accepted by Transport Scotland as being a reasonable range for future year forecast traffic flow comparisons.

The amount of traffic data presented is dependent upon the complexity of the project. The comparison can also serve as a proxy for the likely impact of the project on noise and air quality.

Data Sources

Predicted Traffic Flows	Obtained/derived from the traffic/economic modelling undertaken to support the pre-tender economic assessment.
Actual Traffic Flows	Obtained from automatic traffic counters in the vicinity of the project/study area.

Overtaking Opportunities

Post Opening Overtaking Opportunities

Where no overtaking information is available, the impact of providing increased overtaking opportunities has been based on the evaluation of other projects with a comparable standard of carriageway in the same geographic region for which overtaking surveys have been carried out.

Anecdotal, qualitative evidence from stakeholders has also been gathered, where available.

Data Sources

Post Opening Overtaking Conditions	Judged from post opening survey information for other projects, and from the nature of the A75 Cairntop to Barlae scheme (additional lane in each direction).
Stakeholder	Obtained from Stena Line and Road Haulage Association.

Feedback

Travel Times

Change in Travel Times

Based on the evaluation of other projects with a comparable standard of carriageway for which pre and post opening journey time data is available, supported by anecdotal evidence where available.

Comparison Between Pre and Post Opening Travel Times

A comparison between pre and post opening travel times has been carried out based on actual survey evidence.

Comparison Between Predicted and Actual Travel Times

A comparison between predicted and actual opening travel times has been carried out using actual post-opening travel times, and predicted times from the relevant modelling and assessment reports.

Data Sources

Pre Opening Travel Times	Confirmed through pre opening survey information collected to support the project's economic assessment.
Post Opening Travel Times	Confirmed through post opening survey information.
Predicted Travel Times	Obtained from the pre-tender economic assessment undertaken during the project's preparation.
Stakeholder Feedback	Obtained from Stena Line and Road Haulage Association.

A.3 ENVIRONMENTAL

Mitigation Measures

A review of the environmental mitigation measures implemented during construction has been undertaken to establish whether or not the measures proposed during the project's preparation have been introduced and to provide comment on their success. The mitigation measures implemented were confirmed through site visits.

Data Sources

Proposed Mitigation	Presented in the Environmental Statement produced
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Measures	during the project's preparation.
Implemented Mitigation Measures	Confirmed through site visit.

Noise and Air Quality

A review of noise and air quality has not been undertaken for this scheme as no significant impacts on noise and air quality were expected due to the rural nature of the scheme.

A.4 SAFETY

Accidents

Comparison Between Pre and Post Opening Personal Injury Accident Numbers

A comparison of the personal injury accident numbers pre and post opening has been undertaken to provide an early indication of whether the project is operating safely.

The number of personal injury accidents for the 3 years within the vicinity of the project prior to opening has been compared with the observed number of personal injury accidents for the project in its first year of operation. The comparison shall be updated to include the observed number of accidents in the three year period after opening when the accident data is available.

It is important to realise that road infrastructure projects normally take a minimum of 5 to 7 years to plan prior to the commencement of construction. Many proposed road projects are derived from safety concerns such as fatal and serious accidents and often, these are treated in terms of Accident Investigation and Prevention work prior to planning the permanent solution. The comparison between 3 year pre and post opening accidents, therefore, only demonstrate the minimum road safety improvement derived from the project.

Where the influence of a trunk road improvement project has a significant impact on the local road network, it may be appropriate to extend the scope of the accident analysis.

Road Safety Audits

Road Safety Audit (RSA) reports have been reviewed, where available, to confirm whether there is any evidence that the project is not operating safely and where recommendations have been made for ameliorative measures, if appropriate.

Data Sources

Personal Injury Accident Numbers	Obtained from the STATS19 data collection system.
Safety Issues	Detailed within RSA reports produced following audits carried out 1 year after project opening.

A.5 ECONOMY

Transport Economic Efficiency

A comparison between predicted and actual traffic flows and/or travel times has been undertaken as a proxy for whether the predicted benefits of the project are likely to be realised.

A comparison which returns a positive traffic flow difference in an uncongested situation indicates that the economic benefits of the project may have been over predicted as fewer vehicles will actually accrue journey time savings than predicted. Similarly, the economic benefits of a project may also be over predicted where actual travel times are greater (i.e. speeds lower) than predicted.

Conversely, where the comparison returns a negative traffic flow difference or actual travel times are less (i.e. speeds higher) than predicted, the economic benefits of the project may have been under predicted.

A.6 INTEGRATION

Commentary on Transport Integration and Policy Integration has been provided for projects that have specific objectives relating to the Integration criterion. In addition, anecdotal evidence from stakeholders has also been gathered, where available.

Data Sources

Local Government Policies	Outlined within Structure and Local Plans.
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A.7 ACCESSIBILITY & SOCIAL INCLUSION

Commentary on Community Accessibility has been provided for projects that have specific objectives relating to the Accessibility & Social Inclusion criterion, supported by anecdotal evidence where available.

Data Sources

Provision for Non-motorised Users	Confirmed through site visit.
Cycling Provisions	Detailed within the Cycle Audit report produced during the project's preparation.

A.8 COSTS TO GOVERNMENT

Investment Costs

Comparison Between Predicted and Out-turn Costs

A comparison between predicted and out-turn costs has been undertaken for to confirm the accuracy of predictions during the pre-tender stage and support the evaluation of value for money.

The project cost predicted during the pre-tender stage has been used in the evaluation as it is at this stage that the decision is taken on whether or not to proceed with the project.

One of the features of the progressive analysis of projects is that the economic assessment is undertaken at each stage based on the return on future investment. This means that project costs incurred prior to the pre-tender economic assessment, which are already spent and cannot be recovered (whether or not the project goes ahead) are excluded from the overall project costs input to the economic assessment. As such, only out-turn costs incurred after the pre-tender economic assessment have been included in the comparison.

Adjustments for Retail Price Indices and discount rates to both the predicted and out-turn costs have been made, taking expenditure by year into account, to convert the figures to a common 'present value year' for prices and values – either 1998 or 2002 depending on the 'present value year' used in the pre-tender economic assessment.

Data Sources

Predicted Project Costs	Obtained from the pre-tender economic assessment undertaken during the project's preparation.
Out-turn Costs	Obtained from out-turn cost records.

A.9 VALUE FOR MONEY

Initial Indications

Based on the evaluation of economic benefits and project costs, a judgement in terms of the potential impact on the projects' value for money has been made.

The value for money of a project is considered to be greater than predicted where the economic benefits have been under predicted and the project costs over predicted. Conversely, the value for money of a project is considered to be lower than predicted where the economic benefits have been over predicted and the project costs under predicted.

Where both the economic benefits and project cost have been under predicted or over predicted, a judgement has been made with regards to the likely overall impact on value for money.

Data Sources

Predicted NPV and BCR	Obtained from the pre-tender economic assessment undertaken during the project's preparation.
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A.10 ACHIEVEMENT OF OBJECTIVES

Initial Indications

The evaluation includes an indication of how the A75(T) Cairntop to Barlae scheme is progressing towards achieving its objectives. Where specific indicators to measure the project's performance against its objectives have not been developed, an indication of how the project is progressing towards achieving its objectives is based on the pre opening data available, supplemented by post opening data collected as part of the evaluation.

Data Sources

Objectives	Confirmed from reported Environmental Statements or Route Action Plan, where applicable.
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Appendix B: Environmental Analysis

Environment

This section provides details of the 1-year after evaluation undertaken for the Environment criterion in the Scottish Trunk Road infrastructure Project Evaluations (STRIPE). The 1-year after evaluation includes a 'high level' assessment of the environmental impacts of the project (where possible), a review of whether the environmental mitigation measures proposed in the project's Environmental Statement (ES) have been implemented (commenting on their success where possible) and a check of whether specific requirements of the appraisal process have been met.

The environmental mitigation measures originally proposed for the A75 Cairntop to Barlae were obtained from the project's ES⁶. A review of the environmental mitigation measures was carried out in January 2013, as well as a review of the as-built scheme plans. Following this review a site visit was undertaken to establish whether or not the proposed mitigation measures as set out in the Schedule of Committed Mitigation within the ES had been implemented.

Noise and Vibration

The ES did not set out any measures for mitigating noise and vibration impacts during the operation of the scheme. Whilst undertaking the site visit no issues relating to noise and vibration were identified.

Land Compensation (Scotland) Act 1973

Not applicable.

Impact of Project on Noise and Vibration

The comparison between pre and post project opening traffic within the study area can be considered a proxy for the impact that the project is likely to have on noise and vibration. However, given that the proposed scheme is not considered to generate any additional traffic, and the ES did not identify the requirement for incorporating any mitigation measures to reduce the impact of noise and vibration, it is not considered that any significant impacts are occurring and a comparison between pre and post project opening data has not been undertaken.

A75 Cairntop to Barlae Improvement Scheme Environmental Statement, Mouchel Parkman et al. (2006)

Global and Local Air Quality

Assessments undertaken as part of the ES determined that no mitigation measures were necessary for the operation of the scheme. No issues relating to either global or local air quality were identified during the environmental mitigation measures review.

Impact of Project on Global and Local Air Quality

The comparison between pre and post project opening traffic within the study area can be considered a proxy for the impact that the project is likely to have on both global and local air quality.

However, given that the proposed scheme is not considered to generate any additional traffic, and the ES did not identify the requirement for incorporating any mitigation measures to reduce the impact upon global or local air quality, it is not considered that any significant impacts are occurring and a comparison between pre and post project opening data has not been undertaken.

Water Quality, Drainage and Flood Defence

The ES identified several mitigation measures including the provision of SUDS and culverts, all of which have been implemented throughout the scheme and fit within the wider landscape effectively.



Where the Tor Bar Burn is culverted under the A75 the site visit identified an issue with drainage on site. The following plate shows that flooding is occurring adjacent to the Tol Bar Burn on the island between the two carriageways.



It is noted, however, that the ground is naturally heavily saturated and maintaining this natural saturation level is important to the SSSI located adjacent to the site.

The Tol Bar Burn culverts themselves were flowing freely with no apparent drainage issues as can be seen below.



Whilst there would appear to be no issues associated with the culverting of the Tol Bar Burn, there would appear to be issues with regards the drainage of the scheme in this area which is resulting in potential impacts to protected species along the route.

Recommendation

It is therefore recommended that the cause of the flooding be investigated. Should the cause of the flooding be down to the design / construction of the scheme then this should be reported back to the designers and contractors for the works. If the cause of the flooding is down to a maintenance issue such as a blocked culvert then this should be fed back to the operating company for the route to ensure that these culverts are checked regularly for blockages if required.

This issue has been brought to the attention of the Contractor for the scheme by the Engineer.

Geology

The ES did not identify any mitigation measures required for the geology of the study area and there were no comments or issues regarding geology that came out of the environmental mitigation measures review.

Biodiversity and Habitats

The ecological mitigation committed in the ES has been largely implemented on site however, the site visit did identify some significant issues which need to be highlighted and addressed.

The ES identified specific measures for the protection of mammals including mammal fencing, a dry culvert and the provision of a mammal ledge in the existing Tol Bar Burn Culvert.

The existing Tol Bar Burn Culvert has not had a mammal ledge added to it, however, a separate dry culvert has been provided, along with mammal fencing to guide mammals in to the culvert and across the grass island between the carriageways. The dry culvert did not appear to be blocked, and there were no definite signs of it having been recently used. This change in the design from the mitigation specified in the ES is not deemed to result in any significant adverse impacts and does not detract from the overall effectiveness of the scheme.

Mammal fencing is provided along the length of the scheme to both the north and south of the carriageway. The fencing was observed to be in very good condition, with the exception of one area on the westbound carriageway at approximately Chainage 700.000 (as per the as-built scheme plans). The fencing in this area was observed to have been broken, vehicle tracks through the verge suggests that this is the result of an accident in the area and the fencing is yet to be repaired.



Recommendation

It is recommended that this area of fencing be reported to the operating company for the area to ensure that it's repair is undertaken as soon as possible. Whilst this hole in the fencing remains there is the possibility that protected species could gain access to the A75 carriageway resulting in their possible death or injury.

It was further observed during the site visit that many of the gates used for access to agricultural land along the route had been fitted with mammal fencing. Whilst this can be regarded as an example of good practice in order to ensure that there are no gaps in the fencing, it was observed during the site visit that many of the gates had been left open with vehicles freely passing along the access roads and gates not being closed behind them.



Recommendation

It is recommended that during the construction and operation of the scheme greater consultation with landowners should be undertaken by the designers and the subsequent operating companies to educate the landowners on the protected species which the fencing is designed to protect in order to minimise the potential for injury or death occurring.

The site visit also identified that there were significant issues relating to the provision of mammal mitigation along the Tol Bar Burn. A separate mammal underpass has been provided under the western carriageway and this was observed as being unblocked. There is then a “run” of mammal fencing across the central island between the carriageways and then a further culvert under the eastbound carriageway. The site visit identified significant issues with flooding of this area with the enclosed “run” being flooded, and the culvert under the eastbound carriageway being submerged and impassable.



Recommendation

There is potentially a significant issue with drainage in this area which requires to be addressed in order to allow safe passage of mammals through this area. It is therefore recommended that the cause of the flooding be investigated and mitigative works are undertaken to ensure that safe passage for mammals in the area is maintained.

This issue has been brought to the attention of the Contractor for the scheme by the Engineer.

The ES noted that mitigation measures specified in the otter licence should be implemented on site. Consultation with the contractors for the works prior to the site visit identified that there was no requirement for an otter licence, and therefore the mitigation as specified in the ES was implemented.

Landscape

The landscape and visual mitigation recommended within the ES has all been implemented and the project provides a good example of how a new road scheme can fit into the wider landscape setting. The use of appropriate species planting, closely matches the existing planting in the area, and the earthwork slopes have been appropriately graded to reflect the wider area. Planting throughout the project is establishing well, and this includes the Scots Pine which has been planted on the central island of the scheme which is, in some areas, suffering for waterlogging.



There are several stone walls which were required to be taken down to facilitate the construction of the scheme, these have all been re-built as per the recommendations of the ES, and they further integrate the scheme in to the wider landscape setting.

Visual Amenity

The ES identified that earthworks should be appropriately shaped and planted to improve views from the road. The earthworks have been effectively profiled (including the peat bund areas within the central island between the two carriageways) to help the road fit into the local undulating landform whilst permitting road users views across the surrounding landscape.

The planting throughout the length of the scheme (including the selected mixes) will integrate the scheme well in to the surrounding landscape and will not result in any significant detrimental views occurring during the operation of the scheme.

Agriculture and Soils

The ES identified that existing access arrangements should be maintained, and that agricultural land used should be re-instated where possible along the length of the scheme.

The site visit identified that multiple accesses were provided along the north and south of the scheme to facilitate access into the agricultural fields, it was also apparent that where possible agricultural land had been reinstated.

The provision of multiple accesses for the surrounding agricultural land should be seen as a success on this scheme as it has enabled the surrounding farmland to maintain its operations in the long-term.

Cultural Heritage

No mitigation measures were identified in the ES for the operation of the project, all mitigation measures relating to cultural heritage and archaeology were only required during the pre-construction and construction phases of the works.

Physical Fitness

A dedicated pedestrian / cycleway has been provided along the length of the scheme. A crossing point has also been provided to enable pedestrians / cyclists to cross the new road layout via the grassed island area.



The pedestrian / cycleway has been maintained to a high standard and is in good condition. The crossing points along the pathway are well signposted on both the pathway, and on the A75 to warn drivers of the potential crossing of pedestrians / cyclists.

The implementation of the pedestrian / cycleway results in a beneficial impact from the scheme, however, it was not seen to be in use during the site visit.

Land Use

The ES identified that agricultural land should be re-instated following the conclusion of the construction works. The site visit did not identify any specific areas which required reinstatement and therefore it is considered that there are no long-term impacts to land use occurring as a result of the implementation of the scheme.

Vehicle Travellers

The ES did not identify any specific mitigation measures required for vehicle travellers, however, landscape and visual mitigation measures have been incorporated into the scheme to integrate the scheme in to the landscape which has resulted in the views from the A75 being positively impacted.

The scheme has also not resulted in any significant changes in driver stress levels with vehicle flows on this section of the A75 unlikely to have changed significantly as a result of the implementation of the scheme.

Environment: Conclusion

Much of the mitigation which was included within the ES has been implemented on site; however, the site inspection did highlight some issues related to the drainage of the area, which has associated impacts upon the movement of protected species. This issue is creating a barrier to the movement of mammals across the road corridor.

The A75 Cairntop to Barlae scheme fits well within the existing landscape and the effective grading the central peat bunding and the wider embankment slopes integrates the scheme into the topography of the area. The planting of native species to supplement the existing woodland planting in the area further strengthens the integration of the scheme in to the wider landscape setting.

Further copies of this document are available, on request, in audio and large print formats and in community languages (Urdu; Bengali; Gaelic; Hindi; Punjabi; Cantonese; Arabic; Polish).

اس دستاویز کی مزید کاپیاں آڈیو کیسیٹ پر اور بڑے حروف کی چھپائی میں اور کمیونٹی کی زبانوں میں طلب کیے جانے پر دستیاب ہیں، برائے مہربانی اس پتہ پر رابطہ کریں:

এই ডকুমেন্ট-এর (দলিল) অতিরিক্ত কপি, অডিও এবং বড়ো ছাপার আকারে এবং সম্প্রদায়িক ভাষায় অনুরোধের মাধ্যমে পাওয়া যাবে, অনুগ্রহ করে যোগাযোগ করুন:

Gheibhear lethbhreacan a bharrachd ann an cruth ris an èistear, ann an clò mòr agus ann an cànan coimhearsnachd. Cuir fios gu:

इस दस्तावेज़/कागजात की और प्रतियाँ, माँगे जाने पर, ऑडियो टैप पर और बड़े अक्षरों में तथा कम्प्यूनिटी भाषाओं में मिल सकती हैं, कृपया संपर्क करें:

ਇਸ ਦਸਤਾਵੇਜ਼/ਕਾਗਜ਼ਾਤ ਦੀਆਂ ਹੋਰ ਕਾਪੀਆਂ, ਮੰਗੇ ਜਾਣ 'ਤੇ, ਔਡੀਓ ਟੇਪ ਉੱਪਰ ਅਤੇ ਵੱਡੇ ਅੱਖਰਾਂ ਵਿਚ ਅਤੇ ਕੰਮਿਊਨਿਟੀ ਭਾਸ਼ਾਵਾਂ ਦੇ ਵਿਚ ਮਿਲ ਸਕਦੀਆਂ ਹਨ, ਕ੍ਰਿਪਾ ਕਰਕੇ ਸੰਪਰਕ ਕਰੋ:

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