A9 Perth to Blair Atholl
Route Improvement Strategy Study

Draft Strategy Report – Executive Summary

Prepared for
Transport Scotland
February 2006

1. INTRODUCTION

The Scottish Executive commissioned Scott Wilson to undertake a Route Improvement Strategy Study along the A9 trunk road from Perth to Blair Atholl.

The Study was commissioned to identify a medium to long term improvement strategy for the route. A Draft Report was passed to the Executive in December 2005. This Executive Summary provides a brief outline of that Report and recommends a draft strategy for the improvement of the A9 between Perth and Blair Atholl.

2. EXISTING CONDITIONS

Route Description

The section of A9 between Perth and Blair Atholl is 55.7km in length of which 42.4km comprises single carriageway and 13.3km is dual carriageway. The proportion of dual carriageway (24%) is maintained throughout the length of the route from Perth to Inverness. The road was upgraded in the 1970s and exhibits a variety of standards including dual and single carriageways and a variety of junctions and minor accesses which intersect with the road along the entire route. The route is shown on Figure ES1.

Between Perth and Dunkeld the route mainly tracks the historic A9 corridor, avoiding the Perth to Inverness railway until the Pass of Birnam. Thereafter, like the railway, it is strongly confined by the steep sided valley of the River Tay and the need to bypass existing settlements. From Dunkeld to Pitlochry, the railway and the steep sided valleys of the Rivers Tay and the Tummel north of Ballinluig also severely constrain the alignment. From Pitlochry to Bruar, just north of Blair Atholl, the alignment follows the rivers Tummel and Garry valleys and the railway. The route past Killiecrankie is partly built on a structure rather than earthworks due to the demanding nature of the topography.

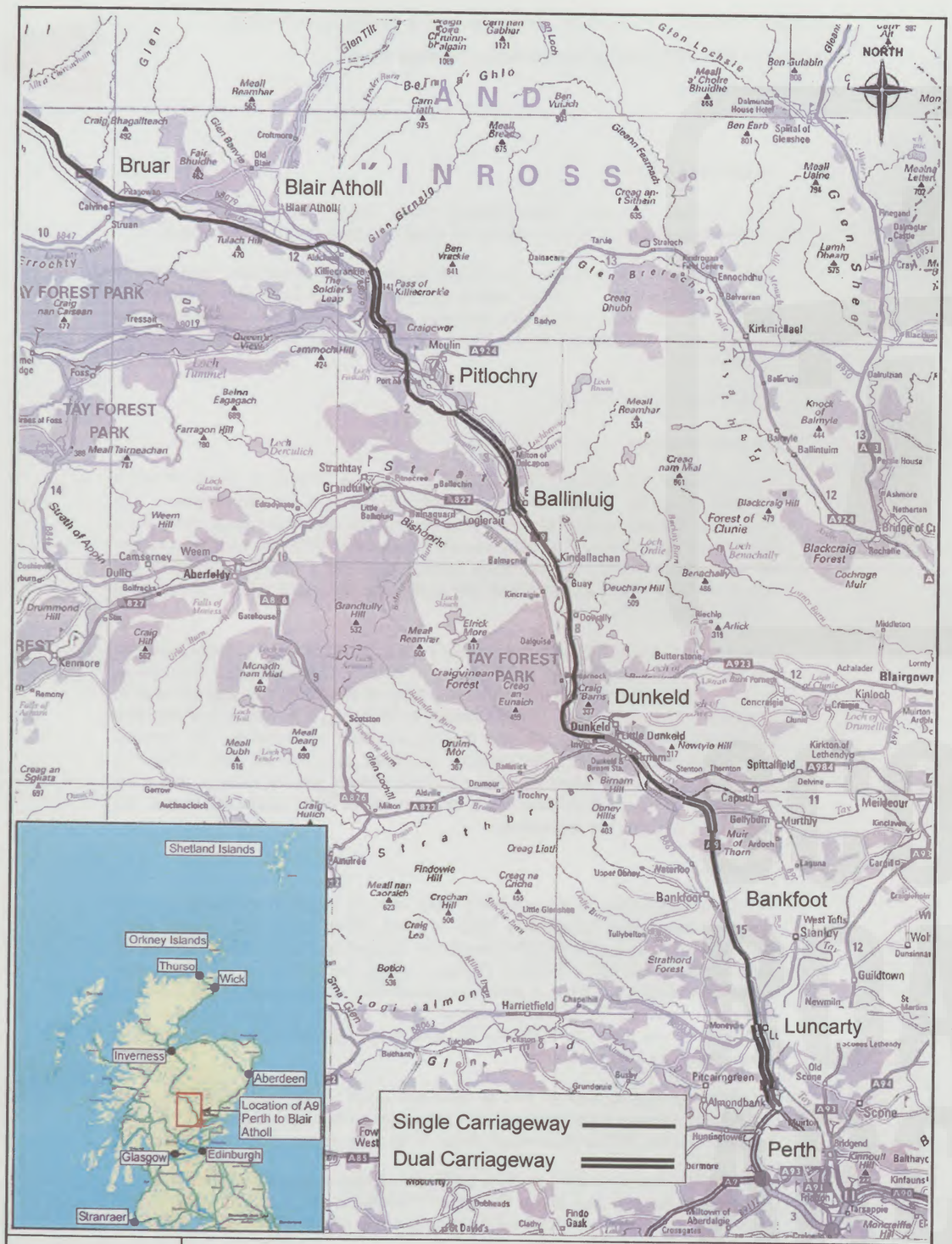
Traffic

Annual Average Daily Traffic (AADT) varies over the length of the study area. On the dual carriageway immediately north of Perth, flows are 23,000 (AADT 2004) before rapidly dropping to 13,000 immediately north of Luncarty. The flows reduce a little as the route heads towards Pitlochry where the AADT is around 11,600. However a significant drop in flows is evident immediately north of the access to Pitlochry, resulting in flows of around 8,100 on the Pitlochry Bypass. At Killiecrankie the flows are 8,300 AADT and, at the northern limit of the section at Bruar, flows are 7,300 AADT.

Traffic flows peak in summer with an additional 2,500 – 3,500 vehicles per day over the Annual Average being evident. This represents an increase of around 15% at the southern end and 30% at the northern limits of the study area.

Over the 10 years from 1994 to 2004, traffic growth has averaged out at around 1.3% – 1.5% per annum, just above the "low" forecast in the National Road Traffic Forecasts 1997, which is around 1.3% per annum over the same period.

Surveys show that there is no appreciable change in journey times between 1995 and 2004.



Scott Wilson	A9 Perth to Blair Atholl - Route Improvement Strategy Location Plan	Figure ES 1

Environment

The environment of the area is of a consistent high quality providing many constraints to development, including a number of national and internationally protected sites.

With respect to ecology, a number of Special Areas of Conservation (SACs), Sites of Special Scientific Interest (SSSI) and areas of Ancient Woodland exist along the route, with the most significant being the River Tay and its tributaries, a Special Area of Conservation.

There are also a number of landscape and cultural heritage designations along the route including the River Tay and Loch Tummel National Scenic Areas and conservation areas at Birnam, Dunkeld and Blair Atholl.

Road Safety

Accident statistics for 1994 to 2004 demonstrate that the number of crashes resulting in personal injury has steadily declined over this period. Generally the accident rates on the A9 Perth to Blair Atholl are lower than the national average, however the stretches of road to the south of Ballinluig and at Pitlochry Bypass would appear to exhibit higher than average rates.

Analysis of accident reports suggests that a high proportion of accidents occur at changes from dual to single carriageway, particularly involving northbound traffic, and near road junctions and private accesses.

3. ESTABLISHING OBJECTIVES

Consultation

An extensive consultation exercise was undertaken and the key issues raised relate to road safety and the performance level of the route.

In road safety terms, the consultations revealed the perception that:

- the route has localised safety problems; and
- the single carriageways were particularly problematic.

Specific issues raised with respect to the performance level of the route included

- the ability of the route to cope with flows;
- lack of overtaking opportunity leading to platooning; and
- journey time reliability.

It was also clear that the present A9 does not fully meet the aspirations of those consulted. In particular, there is a strong desire to provide dual carriageway along the present sections of single carriageway.

Another key issue that arose was that pavement deflectograph surveys indicate that there is little residual road pavement life, with a consequent need for major reconstruction works sooner rather than later.

3.1 Study Objectives

Following consideration of the review of the route and the consultation exercise a series of Study Objectives were developed:

- Environment
  - to avoid where possible and otherwise minimise impact on designated sites of environmental importance, particularly in relation to Ecology, Landscape and Cultural Heritage.
- Economy
  - to enhance access to adjacent facilities for tourism purposes.
  - to contribute to development of local economic activities.
- Safety
  - to improve road safety and reduce casualties and their severities.
- Accessibility
  - to provide improved and reliable journey times for all road users.
- Integration
  - to improve access to the bus services which use the corridor.
  - to provide where possible road/rail interchange for timber transport and also possibly mineral transport needs.

4. IDENTIFICATION OF OPTIONS

Rationale

In order to ensure that a wide range of possible improvement options was assessed, a two-tier approach was adopted.

Firstly, the desire among many consultees that a route of this importance should be of dual carriageway standard was recognised. It was considered necessary therefore to ensure that any review of strategy to improve the A9 route must assess the option of providing a dual 2-lane carriageway over the full length. Consequently, schemes to dual the full length under study were developed for further assessment.

Secondly, whilst full dualling over the entire length may be desirable, it was recognised that it may not be possible to justify this on traffic, economic or environmental grounds. Consequently, a series of lower cost overtaking improvement options were also developed.

Dual Carriageway Options

In developing viable dual carriageway schemes, the following key principles were applied:

- Closed central reserve;
- Grade separation at all major junctions (using "compact" standards);
- No direct access except isolated existing access with left in left out only;
- Minor accesses replaced with local access roads as appropriate;
- Widening to be based on provision of new carriageway parallel to existing carriageway; and

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- Widening to be in the location that will minimise cost and environmental impact.

Five discrete sections have been developed and these are shown on Figure ES2 together with details of the estimated costs.

Overtaking Improvement Options

In recent years, layouts for 2+1 lane wide single carriageways (WS2+1) have been developed and subsequently successfully introduced on parts of the Scottish trunk road network, including 2 stretches on the A9 at Kincraig and Dalraddy. Whilst significantly less expensive, WS2+1 layouts offer a number of the benefits afforded by dualling. They are also less environmentally intrusive. Consequently, a series of WS2+1 stretches have been considered over the full length of the route.

In developing viable overtaking improvement schemes, the following key principles have been applied:

- Maximise overtaking opportunities;
- Provide alternate WS2+1 layouts wherever possible to ensure balanced overtaking opportunities in each direction;
- Schemes developed using latest WS2+1 standards;
- Rationalise and improve access arrangements; and
- Avoid environmentally disruptive and costly engineering schemes, especially major structures.

Four discrete sections have been developed and these are shown on Figure ES3 together with details of their estimated costs.

5. OPTION ASSESSMENT AND CONCLUSIONS

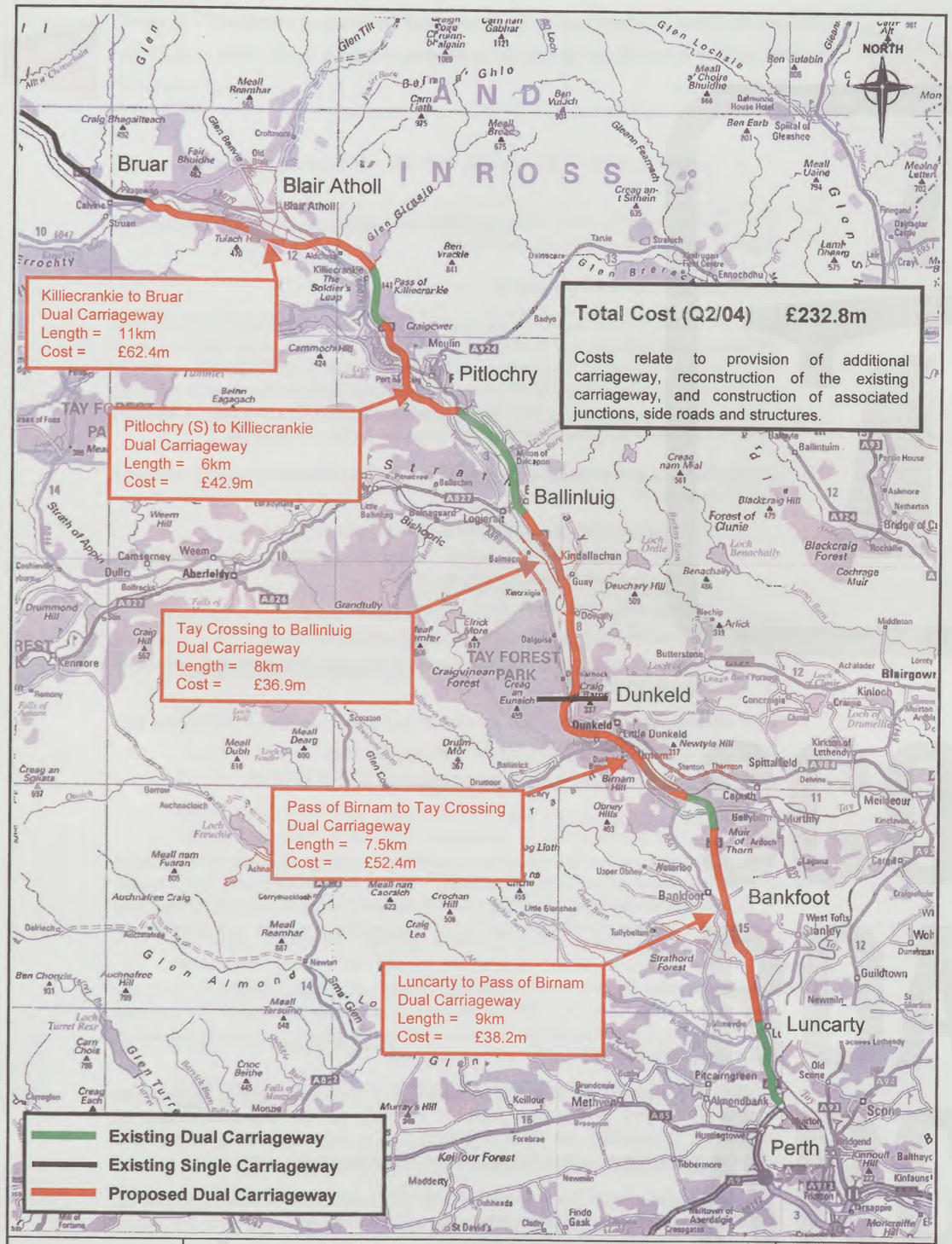
Dual Carriageway Options

In engineering terms the upgrade of the route to dual carriageway could be considered as offering a fairly typical level of difficulty with the notable exception of the stretch of the route near Dunkeld. The physical and environmental constraints in this area lead to this section providing a significant engineering challenge and therefore an associated high cost.

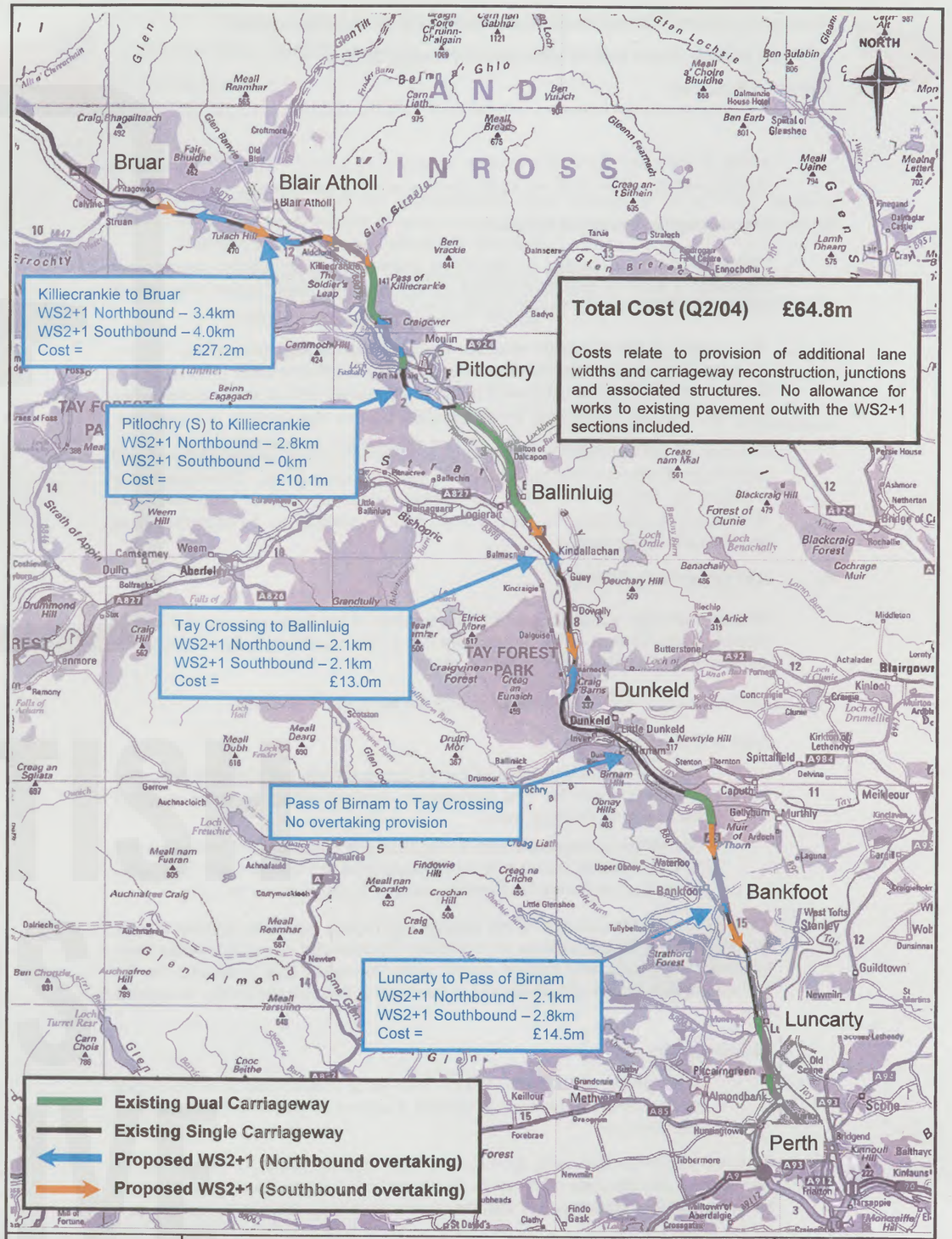
In environmental terms the route offers key challenges along its length, in particular the presence of the River Tay SAC constitutes a significant constraint. It is however considered that the environmental impact could be minimised through careful design and in detailed consultation with relevant advisors.

In terms of economics, the preliminary investigation undertaken to date suggests that only those sections of the route south of Pitlochry provide a positive return on investment. In addition, the "Pass of Birnam to Tay Crossing" stretch of the route offers only a marginal benefit, due principally to its high capital cost.

While not tested as one complete option, it would appear from inspection, that, if the three dual carriageway schemes to the south of Pitlochry were combined, the overall economic performance would be encouraging.



Scott Wilson	A9 Perth to Blair Atholl - Route Improvement Strategy Dual Carriageway Schemes – Layout Plan	Figure ES 2



Scott Wilson	A9 Perth to Blair Atholl - Route Improvement Strategy WS2+1 Schemes – Layout Plan	Figure ES 3

North of Pitlochry the traffic volumes reduce considerably. This in turn leads to dualling options at the north end of the study area being uneconomic.

Overtaking Improvement Options

The logic that was adopted in identifying locations for the WS2+1 schemes has resulted in a series of relatively straight forward widening schemes that offer little in the way of engineering or environmental difficulty.

The results of the economic analyses are less encouraging. Overall the WS2+1 schemes offer no benefit when assessed as stand alone schemes albeit it is recognised that the use of NESA for such analyses must be treated with caution. Nevertheless the results provide a reasonable indication of the relative attractiveness of the options.

However, as has been previously reported, it is considered that lengths of the A9 will require significant structural maintenance in the foreseeable future. If the opportunity is taken to provide the extra carriageway width in tandem with pavement reconstruction, this may, in turn, permit WS2+1 schemes to be provided at an economically viable cost.

6. RECOMMENDATIONS

Pitlochry provides a definite split in the character of the improvements that can be sensibly taken forward. This is primarily due to the significant reduction in traffic volumes that takes place north of this location.

The following emerges as a rational strategy for the future of the route:

Perth to Pitlochry

- A programme of upgrading of the A9 between Perth and Pitlochry should be developed to provide dual carriageway standards along the entire length of this section of the trunk road.
- This should be combined with a programme of closures of all central reserve gaps, minimising accesses on to the trunk road and the provision of a series of compact grade separated junctions at key locations along the route.

It must be noted that delivery of this strategy will require significant additional work to confirm the optimum solution for the route. In particular, the stretch of the route adjacent to Dunkeld will require careful study to ensure that a solution can be provided which is both affordable and deliverable at an environmentally acceptable cost.

Pitlochry to Bruar

- The provision of a series of WS2+1 overtaking stretches should be developed for this stretch of the route to provide a balance of guaranteed overtaking in both directions

In order to ensure that such provision is economically sound, a review of the maintenance requirements of the route should be undertaken to identify areas where widening can take place together with the requirements to reconstruct the pavement.

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Further Work

It is recognised that the recommended draft strategy is at an early stage of development. A number of aspects require to be considered over the coming months to ensure that the optimum strategy is developed:

- Detailed analysis of dualling options for the Dunkeld section of the route require to be developed and assessed to ensure an acceptable solution can be delivered through the statutory process.
- A review of the pavement condition along the route, particularly north of Pitlochry should be undertaken with a view to assisting in the identification of WS2+1 options that are economically viable.
- Subsequent to the above work, a detailed programme of improvement measures in the medium and long term should be identified.

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