HITRANS and Highlands & Islands Enterprise (HIE)

A9 Perth to Inverness Economic Appraisal Study

Strategic Impact Assessment and EALI Analysis

Final Report, October 2007

HITRANS AND HIGHLANDS & ISLANDS ENTERPRISE (HIE)

A9 PERTH TO INVERNESS – ECONOMIC APPRAISAL STUDY

STRATEGIC IMPACT ASSESSMENT & EALI ANALYSIS

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EXECUTIVE SUMMARY

E.1 Background

E.1.1 The A9 is the main trunk route from the central belt to the Highlands and Islands and as such has been assessed as having the highest level of functionality of any transport link in the region, accounting for almost all passenger journeys and freight movements between Inverness and the central belt along the corridor. It is a lifeline route for the island communities of Orkney, Lewis and Harris for supplies and business links and is an essential route for tourist trips visiting the north of Scotland.

E.1.2 This study was commissioned by HITRANS and Highlands & Islands Enterprise (HIE) to help inform decision-makers of the economic benefits of improvements to the A9. Its purpose is to report the economic benefits of improvements to the trunk road between Perth and Inverness in both quantitative and qualitative terms at a level that meets the STAG requirements for the consideration of investment in transport. The study comprised of desktop research, a workshop, traffic surveys, and telephone and face-to-face business surveys to provide information on the high level impacts on regional income, employment, business aspirations and the public sector, and to estimate future traffic flows and their impact. This research has included:

- analysis of key economic issues and identification of two improvement options;
- an analysis of the potential Gross Value Added (GVA) and employment impacts; and
- an economic activity and location impacts (EALI) appraisal.

E.1.3 The results of the above are outlined in this executive summary.

E.2 Key Economic Issues and Options Identified for Improvements to the A9

E.2.1 Growth in the study area has been consistently better than that of Scotland as a whole, but remains substantially worse off in terms of GVA per capita, with a value for Moray of only 89% of that of Scotland in 2005. Low GVA per capita and low earnings, despite some recent positive trends, is characteristic of the area compared to Scotland as a whole. The public sector provides most jobs, about a third of those employed, followed by the tourism and leisure sector with over a quarter of jobs. However the core areas of Inverness and the surrounding region have one the highest proportion of unemployed with high (tertiary) qualifications of any part of Scotland.

E.2.2 The importance of the A9 has emerged in sharp relief as the economy and population of Inverness and the surrounding Moray and East Highland region has grown significantly in recent years. There is a growing perception that competitiveness and continuing economic success of the sub-region cannot be guaranteed without investment to upgrade the A9, in particular dualling of the sections of the route, or dualling the entire route between Inverness and Perth.

E.2.3 Evidence from various sources of data and consultations suggests that the A9 is substandard in terms of safety and the lack of overtaking opportunities, both of which cause considerable stress placed on drivers. This is deemed as a more serious issue than long or unreliable journey times.

E.2.4 Discussions with the study stakeholders has highlighted the concern that travel conditions on the A9 are deteriorating, with increased travel times and driving frustration, less reliable journey times and uncertainty for businesses. Businesses and organisations in the area have identified accessibility as a major issue for staff retention, recruitment and commuting, and a major cause of concern.

E.2.5 Two principal options for upgrading the A9 have been identified for consideration:

- Full dualling along the entire route between Perth and Inverness; and
- Dualling between Perth to Pitlochry and strategic dualling north of Pitlochry.

E.3 Potential Benefits of Upgrading the A9

Gross Value Added (GVA) Impacts

E.3.1 In terms of estimating the investment impacts on business performance and GVA, a combination of survey results and Government forecasts for employment and sector growth were used to estimate the changes in GVA as a result of upgrading the A9. This was undertaken for each sector in turn for each dualling option. The results suggest there is potentially an increase in GVA in discounted terms of:

- £956m over a 30-year appraisal period for the full dualling option; and
- £683m over a 30-year appraisal period for the strategic dualling option.

E.3.2 Translated in terms of employment changes, this indicates that, again over the short term, a total of 724 jobs are created for the full dualling option, and 485 jobs are created for the strategic dualling option. These jobs include both full and part time, with an approximate 70%: 30% split between full and part time employment.

E.3.3 Although these estimated full- and part-time job totals are short term, over the 30-year appraisal period employment may potentially increase towards the maximum levels achievable with this investment. This is equivalent to circa 4,500 full-time and part-time equivalent jobs for the full dualling option, and approximately two-thirds of this total (circa 3,000 jobs) for the strategic dualling option.

E.3.4 A sensitivity test was carried out using local projections of employment changes supplied by HIE, which take into account proposals and policies set out in local economic and development strategies. These suggest there could be significant increases to the above GVA estimates.

Economic Activity and Location Impacts (EALI)

E.3.5 The EALI appraisal indicates that the impacts of the A9 upgrading are potentially very significant for the Highlands. In particular the analysis shows that Moray is particularly reliant on the A9 particularly for tourism orientated development, and manufacturing construction and retail/distribution account for nearly 75% of the total value of GVA dependent on the A9.

E.3.6 The analysis has identified that the major impacts are on the perception of the Highlands reducing concerns about remoteness and potentially:

- the benefits of A9 improvements are largely distributed throughout the study area;
- growing the population and helping to ensure that the Highlands continues to become a better place to live and work. This affects particularly the residential location choices of high skill professionals;
- travel itineries and thresholds in the tourism sector. Cultural industries are critical and demand high quality bus and coach connections using the A9; and
- life science businesses are well suited to the Highlands economy but require excellent access for international travel, where the role of the A9 and Inverness airport are critical for access.

E.4 Concluding Remarks

E.4.1 The overall conclusion from this research is that there are likely to be significant economic benefits to upgrading the A9, which would be welcomed and supported by key stakeholders and various businesses in the study area.

1. INTRODUCTION

1.1 Background

1.1.1 Scott Wilson, in association with Derek Halden Consultancy (DHC) and Napier University, were appointed by HITRANS and Highlands & Islands Enterprise (HIE) in January 2007 to assess the economic benefits that improvements to the A9 Perth to Inverness Trunk Road could bring to society. The objective of this study is to inform the process by which the A9 corridor will be considered by the Scottish Transport Projects Review (STPR) that will be undertaken by Transport Scotland.

1.1.2 The study comprises two elements: firstly a quantified economic impact assessment that will meet the Economic Activity and Location Impacts (EALI) requirements of the Scottish Transport Appraisal Guidance (STAG) methodology, and secondly a Strategic Impact Assessment (SIA) to evaluate the wider economic significance of improvements of the road.

1.1.3 The A9 is the main trunk route from the central belt to the Highlands and Islands, linking Perth and Inverness via a number of towns including Dunkeld, Pitlochry, Blair Atholl, Dalwhinnie, Kingussie and Aviemore. The A9 has been assessed as having the highest functionality of any transport link in the region, accounting for 98% of all passenger journeys between Inverness and the central belt, and almost all freight movements along the corridor[1].

1.1.4 The total length of the A9 trunk road between Perth and Inverness is approximately 182 kilometres. The route is of a generally good standard, comprising a mixture of rural single carriageway, dual carriageway and WS2+1 carriageway, with the carriageway width meeting the current minimum standard 7.3 metres over the entire length of the route.

1.1.5 The A9 between Perth and Inverness presents:

- the main commercial corridor for goods and services to be transported into and out of the Inverness and the western Moray Firth areas;
- access to the northern and western Highlands, including Caithness, Sutherland, and Wester Ross for business and leisure purposes;
- access to the Islands communities of Orkney, Lewis and Harris for supplies, business trips and for tourists; and
- important ancillary access to parts of the western Highlands, including Skye, Lochaber and Lochalsh for both business and leisure trips.

1.2 The A9 Trunk Road and Regional Development

1.2.1 Over the years, the Scottish Executive (and recently Transport Scotland) has carried out various studies along the A9. Although the A9 was the subject of improvements in the 1970s, there has been no recent economic impact evaluation of the A9 Trunk Road, largely because the improvements occurred so long ago. However, a study by TRL[2] in 1994 identified that the upgrading of the A9 was a major factor in improving the accessibility of Inverness from the central belt and also in changing perceptions about the peripherality of Inverness.

1.2.2 This is particularly important to this study as Inverness and its hinterland have emerged as examples of significant economic growth in the Scottish economy, in sharp contrast with the

[1] Complementarity of Proposals to Upgrade Road and Rail Links in the Inverness-Perth Corridor: Reference Economic Consultants, July 2006

[2] A Study of Transport and Development Changes Around Inverness 1994, by Transport Research Laboratory, authors Derek Halden and Kevin Sharman

rest of the Highlands and Islands. The extent of the influence of the A9 in a regional context would therefore have an important bearing on the economic performance and potential of the study area as a whole.

1.2.3 The study noted that significant employment growth in the region during the 1990s was almost entirely due to the improved strategic accessibility of Inverness at a time when unemployment in the rest of Scotland had been rising. The TRL report also commented that tourism benefits have resulted from the increasing ease of travelling to and from Inverness, improving the area's competitive position in an international marketplace.

1.2.4 There are a number of reasons why the A9 has stimulated the economy of Inverness and its hinterland. Some of these theoretical arguments are reviewed in Appendix A of this report. Inverness has seen strong employment growth, for instance, in the public administration, healthcare, utilities, transport and retail sectors.

1.2.5 The A9 has improved external connectivity to the south, reducing transport and therefore business costs. Inverness is an administrative centre for the region, undertaking both administrative and business-related functions. Improved connectivity plays a part in attracting a skilled workforce by reducing the perception of peripherality of the Inverness area. Undoubtedly this has facilitated the growth in healthcare and public sector employment.

1.2.6 Other trends in employment, such as home-working and the proportion of the working population in activities such as IT, have developed in parallel to improvements in trunk road connections between Inverness and its hinterland with other areas of Scotland. In particular, the growth in home-working, employment in services such as the high-tech sector and the increasing prevalence of the internet mean that it is possible for the population to enjoy the quality of life that the Highlands provides without compromising on the availability of employment, goods or services.

1.2.7 There is robust case study evidence to suggest that transport infrastructure, including major road improvements, reduce costs of production. This in turn can lead to increased competition between businesses and, where the competitive environment allows, would involve price reductions and a net gain in consumer welfare, or, where the competitive environment is less developed, increases in business profits and subsequent business expansion.

1.2.8 However, it is not so clear that major road improvements have, in practice, an unambiguous effect in increasing the potential labour catchment area. Although these improvements may extend the geographical scope of labour markets, this is usually highly sensitive to local conditions.

1.2.9 In any case, road investment is seldom the major criteria directly determining the decision to locate to a particular area. Road investment may strongly affect property development and the property market, which is an important consideration in decisions regarding business location, all other things being equal.

1.2.10 The stimulation the A9 provides to property development may be one factor why population growth within Inverness and its surrounding areas have been on a north-south axis parallel to the A9. By comparison, historically there had been little growth to the west (Beauly) or to the east (Nairn), 15-20 years ago, as a consequence of relatively little change in accessibility at that time. However, more recently this has changed with significant housing development in these towns.

1.2.11 However improvements in trunk road accessibility not only have the potential of opening up the "wider economy" to businesses in remoter regions, they may also work in the opposite direction. There is evidence that local shops lost trade when bypassed by the A9, and retail trade in Dingwall, north of Inverness, suffered as a consequence of transport improvements in the Inverness area.

1.2.12 Despite this, by opening an area up to the wider economy, road investment behaves much the same way as removing conventional barriers to trade. Some local firms exposed to increased competition from road investment will experience losses, but, with reduced prices from lower cost suppliers, local consumers and other local firms will realise real welfare gains, the sum of which outweighs the losses. Evidence suggests that road improvements in rural areas may have greater impacts on accessibility and competition than those occurring in a developed urban environment.

1.3 Strategic Context

1.3.1 The A9 is the major trunk route connecting a large part of the Highlands and Islands region with the central belt of Scotland, serving not just Inverness, but all the Highland mainland to the north of the city, including Ross and Cromarty, Caithness and Sutherland, as well as substantial parts of Moray, and Badenoch and Strathspey, Orkney and the northern part of the Western Isles.

1.3.2 This wide coverage underscores the importance of this road in meeting both the physical requirements of businesses and residents, and their transport expectations and aspirations for the Highlands and Islands as set out in *A Smart, Successful Highlands and Islands*[3] and in HITRANS' Regional Transport Strategy Consultation Document[4].

1.3.3 To achieve this it is important to understand the underlying effects of the A9 on the very distinctive economic characteristics of the Highland economy. Although marginal improvements to a well-established transport network may have quite limited impacts on economic performance, where transport related constraints exist which limit the economic interaction between resources, businesses and markets, the effects may be much larger.

1.3.4 Connectivity and accessibility between communities and their factor and product markets is as crucial to regional economic performance as connectivity between the factor and product markets themselves. This is explicitly recognised by The Highlands & Islands Enterprise (HIE) Strategy, which identifies improvements to transport links as key to reducing economic and social remoteness in many parts of the Highlands and Islands, and serves as an important tool for improving access to employment, business and development opportunities across the region.

1.3.5 There is a growing perception by the local population in the study area that the transport infrastructure, and that of roads in particular, is holding back the potential development capability of the region as a whole. This is seen most acutely in the Inverness and East Highland region, which, although has seen remarkable population and economic expansion in recent years, still lags behind Scotland as a whole in GVA per capita terms.

1.3.6 This growing anxiety over road transport infrastructure has been clearly expressed by the communities of the Highland regions, including the Western Isles, and articulated in the Highland Community Plan which highlights the need for improvements to the main arterial routes into the Highlands, principally the A9, A96 and A82.

1.3.7 HITRANS has now prepared and submitted a new Regional Transport Strategy (RTS) for the Highlands and Islands[5], a key element of which is to rate transport corridors according to both their strategic functions and adequacy. The A9 trunk road between Perth and Inverness is considered as having the highest level of importance as the prime arterial route to the Highlands, but which is incapable of delivering this function.

[3] A Smart, Successful Highlands and Islands, Highlands and Islands Enterprise, (Revised) June 2005
[4] HITRANS Regional Transport Strategy: Consultation Report, prepared by Steer Davies Gleave, March 2007
[5] Regional Transport Strategy for the Highlands & Islands, Final Strategy prepared by Steer Davies Gleave, June 2007

1.3.8 Much of the study area is characterised by limited employment opportunities, low income and, in some parts of the Highlands, by population loss and a tight housing market, leading to a lack of affordable housing. This set of regional characteristics means that the study area can be classified as a fragile and vulnerable region, and one where the highest priority should be given to reducing the conditions that promulgate this. One important set of policies to address this is, amongst others, to continue to invest in transport infrastructure, including the trunk road network.

1.4 Study Objectives

1.4.1 The study was commissioned to help inform decision-makers of the economic benefits of improvements to the A9. The purpose of this report is to both quantify and qualify the economic benefits of improvements to the trunk road between Perth and Inverness.

1.4.2 The principal objective of the study is to examine the impacts of removing the main constraints on the route linking the Highlands and the central belt of Scotland. These constraints include issues such as safety, speed and journey time reliability. It is the perceptions of these which prevent the Highland and Islands from fully exploiting the gains from recent, continuing and potential future economic growth, and achieving long-term prosperity and competitiveness for the whole catchment area.

1.4.3 Improvements to the A9 will impact on new businesses by altering perceptions of accessibility to the region and, in addition to this, will have an impact on reducing the A9 as a braking influence on the economy in the study area in a number of ways, including:

- fostering greater journey time reliability, thus reducing costs associated with delays and minor accidents and enable timely delivery of goods more cost effectively; and
- enable businesses to expand through quicker more reliable access to new markets and sources of suppliers.

1.4.4 Improvements to the A9 will have an impact on population. Research[6] undertaken by DTZ Pieda has indicated that accessible rural areas perform better than remote rural areas in the past. Therefore with improvements to the A9, by improving accessibility, the trunk route has the potential as a catalyst for further population growth.

1.4.5 Appendix A reviews further the current body of literature examining the role of transport in promoting economic development and growth, and the theoretical underpinning as to the reasons and extent transport infrastructure may impact on economic performance.

1.4.6 The subject of this report is to investigate and present the impacts of improvements to the A9 on the economy of the study area. The report examines the potential changes of these improvements to the route on business investment, business productivity, employment, population and vehicular traffic, and to do so in such a way so as to meet the STAG[7] requirements for the consideration of public investment.

[6] Factors Affecting the Competitiveness of Businesses in Rural Areas, DTZ Pieda, 2006
[7] Scottish Transport Appraisal Guidance, version 1.0, Scottish Executive, September 2003

1.5 Structure of this Report

1.5.1 The remainder of the report is organised as follows:

Chapter 2 Approach to the study.

Chapter 3 Economic characteristics of the study area.

Chapter 4 Key issues and identification of suitable improvement options.

Chapter 5 Traffic and travel characteristics of the A9 between Perth and Inverness.

Chapter 6 Findings from the Strategic Impact Assessment (SIA).

Chapter 7 Findings from the Economic Activity and Location Impact (EALI).

Chapter 8 Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis.

Chapter 9 Conclusions.

2. APPROACH TO THE STUDY

2.1 Introduction

2.1.1 This section sets out our approach to the study. As discussed in paragraphs 1.1.4 through to 1.1.6, the A9 is the main strategic route connecting most of the Highlands and Islands with the central belt of Scotland, and the transport network infrastructure of the rest of the UK and connections to overseas.

2.1.2 The catchment areas of the A9, particularly in Inverness and the surrounding region, have seen comparatively strong economic growth, compared with other areas of Scotland, despite having a relatively low population and limited, although in places, a rapidly expanding, economic and business base.

2.1.3 There is, however, a considerable amount of concern that the A9 currently does or will shortly act as a brake on the continued economic performance of the region. And this is a region that is heavily dependant on good transport links to external markets, specialist suppliers, sources of highly skilled labour and entrepreneurial flair, and to the area as a tourist destination.

2.1.4 It is feared that the current condition of the A9 is likely to foster loss in the area's competitiveness, and this will further encourage businesses and organisations based elsewhere to view the region as remote with the disadvantages associated with this.

2.1.5 Moreover, a study on business perceptions[8] has found that "*..a significant proportion of business organisations and companies view the road links…as unsatisfactory"*. Although businesses were unable to identify specific operational constraints of the A9, the study findings suggested that business growth and investment is impeded by the general perception that the A9 is unsatisfactory in terms of safety, lack of overtaking opportunities and the resultant stress placed on drivers, which, interestingly, are considered more serious issues than long or unreliable journey times.

2.2 Study Approach

2.2.1 The approach to this study has been a combination of desktop research, consultation, workshops and surveys of businesses throughout the study area. This information was then used to estimate the economic implications of potential benefits of improvements to the A9.

2.2.2 Desktop research has been undertaken in order to review:

- the literature on the impact of road improvements;
- background information on the economy of the study area; and
- recent traffic flows on a number of sites on the A9.

2.2.3 A workshop was held on the 15th of February 2007 to discuss the key issues relating to the A9, including the principal options available for consideration in terms of upgrading the A9.

2.2.4 Various organisations and representatives of the economic, planning, transport and business communities in the area attended the workshop to share their experiences of the A9, raise key issues, explore past trends and future forecasts, and identify potential options for improving the route. Further details of the workshop are set out in the later chapters of this report.

[8] Perceptions Of The A9 And A96 Among Business Organisations and Businesses: Reference Economic Consultants, 2006

2.2.5 A telephone business survey was carried out with a sample of business throughout the study area. Two separate 'waves' of interviews were undertaken to ensure a balanced and representative coverage of the main study regions and sectors within those regions. A total of 199 completed interviews were obtained throughout the study area. In addition a further 27 in-depth interviews were carried out with additional businesses and associated organisations. These in-depth interviews probed various issues raised in more detail.

2.2.6 The structure of the survey questionnaire was designed to seek information on the level of use businesses currently make of the A9, understand the problems businesses face in using the trunk route, and gauge the impact on business performance resulting from the upgrading of the A9, taking cognisance of the options available for the scale of improvements to the road.

2.2.7 Traffic data was obtained from a number of automatic traffic count (ATC) sites along the A9, and travel information was also obtained from roadside interview (RSI) surveys. Because of the differing patterns of travel experienced along the route of the A9 from Perth to Inverness, the A9 was divided into 3 sections to capture the different characteristics of movements at each section. These sections were south of the study route (just north of Perth), the middle of the study route (at Aviemore) and north of the study route (at Inverness). Information from traffic surveys was obtained for each of these sections of the A9.

2.2.8 The information from the desktop research, workshop, and business and traffic surveys on upgrading the A9 was used to provide:

- high level impacts on regional income, employment, business aspirations and practices broken down by sector and region within the study area;
- estimates on the impacts on the public service sector, including health, education and public administration; and
- estimates of future traffic flows and their impact on the study area.

3. ECONOMIC CHARACTERISTICS OF THE STUDY AREA

3.1 Introduction

3.1.1 This section provides a synopsis of the economic and demographic profile of the Highlands and Islands (H&I) study area, with a more thorough review provided in Appendix B of this report. The area examined in this appraisal is made up of four geographical tiers, comprising 13 zones as shown in Table 3.1.

Table 3.1: Description of the Zones of the Study Area

Tier	Zone	Description
A	1	Inverness & Nairn
	2	Badenoch & Strathspey
	3	Easter Ross
B	4	Moray
	5	Caithness, Sutherland & Wester Ross
C	6	Lewis and Harris
	7	Orkney
	8	Lochaber, Skye & Lochalsh
D	9	North East Scotland
	10	Central Belt
	11	Rest of Scotland
	12	Rest of the UK
	13	Overseas

3.1.2 Figure 3.1 overleaf shows the route of the A9 through the study area, clearly showing the spatial relationship between the trunk route and the zones described in Table 3.1.

3.1.3 The rest of the chapter describes the:

- demographic and economic profile of the study area;
- employment characteristics in the study area; and
- business sector.

3.2 Demographic and Economic Profile

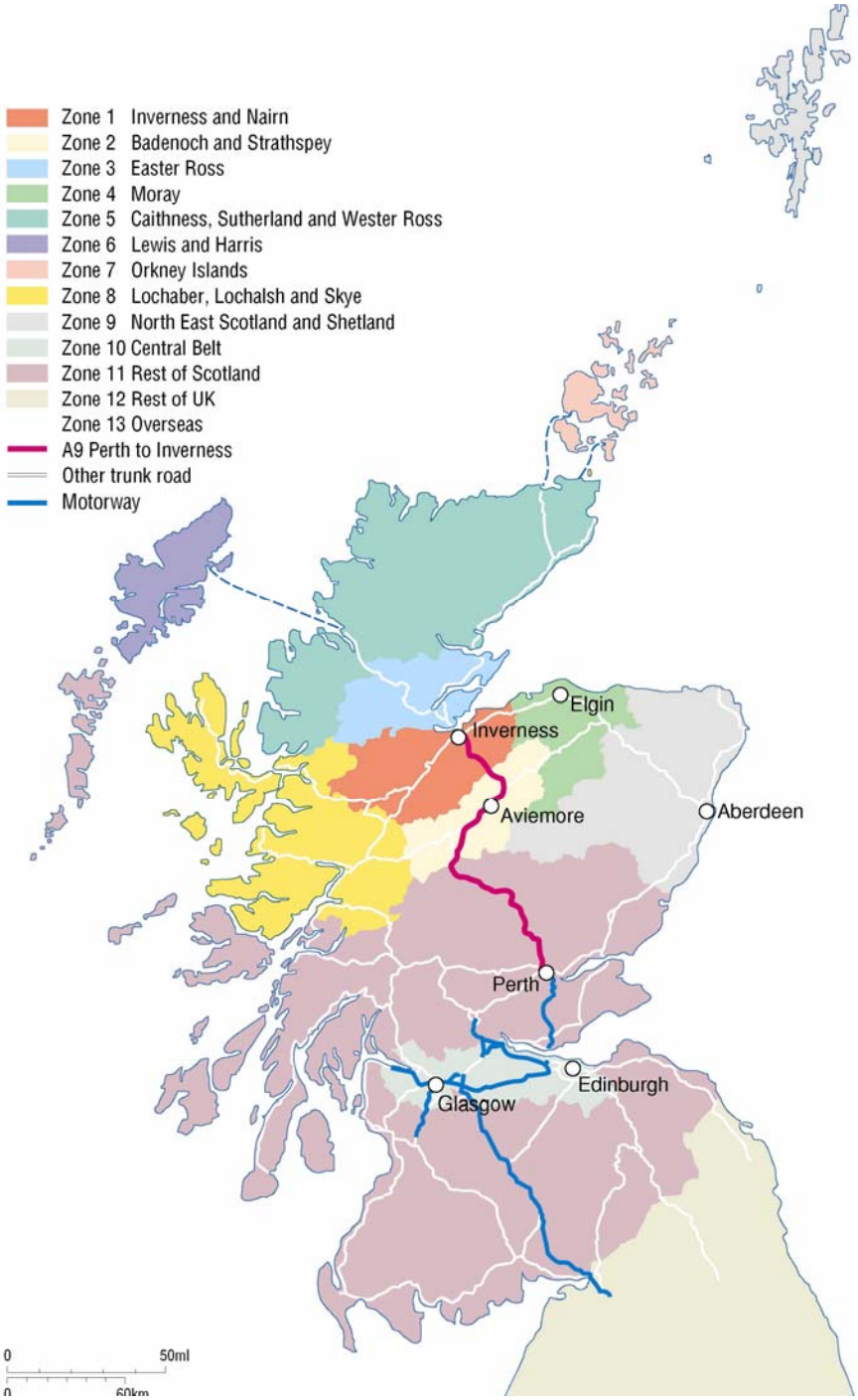
3.2.1 The population of the whole H&I study area is typically low in relation to the central belt. Moray is the most heavily populated zone, followed by Inverness and Nairn, and both zones have much higher populations than does the rest of the H&I study area.

3.2.2 In fact the core zone, zones 1 through to 3, together with Moray, contributes nearly 70% of the population of the H&I study area. In addition to a large population, Inverness and Nairn, Badenoch and Strathspey and Easter Ross have also the highest population density in the H&I study area, and a higher population density puts greater pressure on the regional trunk road network, including the A9.

3.2.3 The population in the H&I study area is expected to grow over the next 15 years. However, it is those areas that are already relatively heavily populated that will experience the greatest increase in population over this timescale, adding yet greater pressure on the trunk road network.

3.2.4 Gross Value Added (GVA) per capita provides an indication of an area's productivity. The study area has a lower GVA per capita than Scotland as a whole, reflecting the dominance of low value business activities, such as tourism and the prevalence of small firms within the study area. It can be inferred from this that productivity in the study area is generally lower when compared to Scotland overall.

Figure 3.1: A9 Trunk Road and the Study Area Zones



3.2.5 Within the study area, taken together, Inverness & Nairn, West Moray and Badenoch and Strathspey has the highest GVA per capita, which is likely to be influenced by wider economic diversity, growth in higher value sectors and the prevalence of larger firms in the region. However, with data disaggregated, Moray actually has the lowest level of GVA per capital, representing only 57% of that for Scotland as a whole.

3.2.6 The economic performance of different sectors, in terms of contribution of GVA, has varied widely over the ten years between 1995 and 2004. Of particular note:

- in all areas, agriculture, hunting and forestry has declined in importance;
- the service sector (e.g. banking, insurance, tourism and leisure services) has grown in the contribution made to GVA throughout the H&I study area; and
- Caithness and Sutherland, Easter Ross and the Western Isles have experienced high levels of growth in both industry (including construction and energy) and service sectors.

3.3 Employment Characteristics of the Study Area

3.3.1 All areas in Scotland, apart from Moray, have experienced an increase in the proportion of population who are economically active, defined as those of working age and employable (i.e. adult population net of those of pensionable age, students and those with long term disability) between 1999/2000 and 2005/2006. The decline in Moray is a result of the contraction of a number of military bases.

3.3.2 The proportion of the total population of working age is lower within all zones in the study area, zones 1 to 8, compared with the rest of Scotland. On the other hand, economic activity rates within the working population are higher within all zones in the study area than the rest of Scotland.

3.3.3 These higher economic activity rates may be influenced by lower incomes in the area relative to Scotland as a whole, with the increased need for family members to be economically active as a result.

3.3.4 Within the study area, the core zones 1 to 3 provide 44% of employment which represents as slightly larger percentage share than the area's share of population (41%). The structure of employment within the study area is dominated by the public sector, which contributes over a third of all jobs. This is followed by the distribution, hotels and restaurants sector, which accounts for another 21% of employment.

3.3.5 Of particular interest is the bigger relative importance of tourism in the study compared with Scotland, with a particularly high proportion of businesses in this sector in the western part of the study area, notably Skye, Lochalsh and Lochaber.

3.3.6 Although there has been significant growth in employment in the Highland region at the highest grades, earnings remain below the Scottish average, at only 92% of these in 2006. Full time weekly pay for Moray is slower still, representing 89% of the Scottish figure.

3.3.7 The proportion of self-employment in total employment is usually highest in areas where there is a higher than average prevalence of industries dominated by small businesses, of which those in the tourism and agriculture and fishing sectors are examples. In fact, nearly 23% of those in employment are self-employed in zone 5, Caithness and Sutherland, and other lightly populated regions such as the Western Isles (zone 6) and Orkney (zone 7).

3.3.8 This is a higher percentage than seen in more heavily and densely populated regions of the study area, such as Moray (zone 4) and Inverness (zone 1) and much higher, approximately double seen for other parts of Scotland.

3.3.9 The proportion of employment that is working part-time is consistently higher within the study area (zones 1 to 8) than in other areas of Scotland (zones 9 to 11). This again tends to relate to the types of businesses that are more prevalent in the study area compared with the rest of Scotland (tourism and the primary industries).

3.3.10 Both Highland and Moray, which are largely synonymous with the study area have experienced lower rates of unemployment (as a proportion of those economically active) than for Scotland

as a whole and for the central belt in particular. With unemployment rates relatively low, the economic focus has shifted from 'job creation' to 'raising average earnings'.

3.3.11 In terms of longer-term unemployment, which tends to be structural in nature rather than cyclical in nature, both Highland and Moray have been performing better than has Scotland as a whole. However, the areas that have witnessed the greatest growth in the proportion of the population holding qualifications, between 2000 and 2005 have been other parts of Scotland. The implication is that, if this trend continues, other areas of Scotland will realise potential gains in GVA at the expense of the study area, whose competitiveness in jobs at the higher end of the labour market will be eroded.

3.4 Business Sector

3.4.1 Data units, which do not readily correspond to the commonly used terms firms, companies or businesses, but are roughly equivalent to workplaces. Both Moray and the Inverness Region, corresponding to zones 4 and 2, have over 10 employees per data unit. This is more than for the more remote locations of Skye and Wester Ross, and Lochaber. This reflects the structure of businesses in more heavily populated areas, with fewer small businesses such as B&Bs, family run shops and small farms, and where larger retail and manufacturing enterprises predominate.

3.4.2 Over the years between 1994 and 2005 the number of VAT – registered businesses has risen slightly in Highland, but has fallen in both Moray and Orkney. This is in sharp contrast with Scotland as a whole, which has seen a growth of nearly 7% in the number of VAT – registered businesses over the same period.

3.5 Key Economic Themes

3.5.1 Based on the above, there are a number of key economic characteristics observed in the study area, namely:

- the study area has a lower GVA per capita than Scotland as a whole, suggesting that productivity is generally lower than for Scotland as a whole;
- within the study area, the Inverness and Nairn region has the highest GVA per capita, but GVA per capita is particularly low in Moray (just 57% of the average for Scotland);
- lower GVA per capita in the study area is partly a result of a lower proportion of the total population of working age than in the rest of Scotland, by economic activity rates within the working population is higher in the study area;
- these higher economy activity rates may be influenced by lower incomes in the area relative to Scotland as a whole, with the increased requirement for family members to be economically active as a result;
- the increased need for family employment reflects the fact that although there has been significant growth in employment in the Highland region at the highest grades, earnings remain below, at only 92% of the Scottish average;
- low earnings also reflect that the proportion of self-employment in total employment is high in the study area, as is the proportion of employment that is working part-time, where both rates are higher than for Scotland as a whole;
- the size of business units tend to be larger in Moray and in the Inverness region than in more remote locations of the study area, reflecting the concentration of manufacturing and large retail outlets in these areas, and the smaller proportion of small tourism businesses; and
- business growth in terms of the number of new businesses established in the study area is much lower than for Scotland as a whole.

4 KEY ISSUES AND OPTIONEERING

4.1 Introduction

4.1.1 A major aspect of the study was to involve key stakeholders in the "Pre-Appraisal" element of the STAG process. This included a workshop with key local stakeholders and a wider consultation with businesses and organisations relating to economic implications. The feedback from these consultations highlighted the key issues currently being faced by transport and economic policy makers in the study area and also identified suitable options for alleviating these issues, for testing in the economic appraisal discussed later in this report. This chapter provides an overview of the workshop carried out and the comments obtained.

4.2 Workshop Attendance

4.2.1 A ½ day workshop was held on Tuesday 15 February 2007 at HITRANS' offices in Inverness. The workshop was held with a number of stakeholders to review the key issues in the study area, discuss planning objectives and identify options which could be taken forward for onward development through the economic appraisal. The workshop was facilitated by Scott Wilson and representatives from the following organisations attended:

- Scott Wilson;
- Derek Halden Consultancy;
- Moray Council;
- Highland Council – Transportation Services;
- Highland Council – Planning Services;
- Inverness Chamber of Commerce;
- HITRANS;
- Highlands & Islands Enterprise (HIE);
- HIE Moray;
- HIE Inverness & East Highland; and
- HIE Caithness & Sutherland.

4.2.2 The workshop followed a structured presentation which was used to facilitate discussion and an exchange of ideas and information. The presentation consisted of the following sections:

- Overview of STAG;
- Economic Background;
- Policies and the Relationship with the STPR;
- Trends and Forecasts; and
- STAG Elements.

4.2.3 The following section summarises the issues identified by the key stakeholders.

4.3 Key Economic Issues

4.3.1 The discussion and feedback at the workshop raised the following issues:

- travel conditions on the A9 are deteriorating. A combination of traffic growth, vehicle platooning and the lack of overtaking facilities, combined with the physical characteristics of the road, are causing increased travel times and driving frustration along the route. In addition, there are significant variations in the reliability of travel times which cause uncertainty for businesses;
- population and employment is growing at a significant rate in the Highlands & Islands (H&I) region, much higher than the Scottish averages. For example, growth in GVA is faster than the Scottish average and has been for some time. However, GVA levels are significantly below UK and Scottish averages, with key areas of H&I being a mixture of above and below the H&I average. The existing conditions of the A9 are likely to constrain growth with knock-on effects to the economy. It is feared that the area would lose its competitive edge by businesses and organisations which perceive the H&I area to be remote. The main business sectors using the A9 include tourism (32%), construction (11%), agriculture (7%) and manufacturing (7%) giving a potential total of sectors influenced by the A9 of 57%;
- local characteristics (e.g. trip rates) are different from the Scottish average. Some significant economic developments are planned or happening in Highlands & Islands. These include Life Scan Scotland and associated medical facilities, major retailing outlets, the University of Highlands & Islands Campus, and various housing developments. These will have major changes to the employment and culture characteristics of the area. In addition, the major retailing outlets will require significant logistics and distribution needs;
- the lack of overtaking opportunities are also problematic when there are incidents along the route. These include accidents and breakdowns, which regularly occur. These cause significant delays (one stakeholder advised that it takes up to 4 hours for a fatal accident site to be cleared) with knock-on effects in terms of delays to traffic and hence additional travel and business costs to the economy;
- while the relevant transport authorities have plans to introduce more options for travelling, for many people private transport is the only real option and hence the A9 is the most important link for the Highlands & Islands area with the central belt. Furthermore, businesses and organisations in the area have identified travel and accessibility as a major issue for recruiting and retaining new staff. Combined with the high car ownership in the region, this makes reliable and reasonably fast roads even more vital;
- the impact of accessibility on staff retention, recruitment and commuting is of particular concern. In particular, it is feared that the accessibility of hospital and education facilities, and impact of delivery of related services, is being affected by the current conditions on the A9 and will worsen in time. This includes the impact of reduced accessibility on travel costs (including business costs);
- Gross Value Added (GVA) per head in the Highlands & Islands remains below Scotland level and is only 72% of that of the UK as a whole. 52% of sectors are heavily influenced by transport (32% tourism alone). Some areas (e.g. Orkney) have done poorly in terms of GVA growth compared to others;
- additional comments were made on the perception of the A9 and how it is now a barrier rather than facilitator of retail growth, and the impact this will have in constraining employment opportunities and growth; and

- attendees at the workshop were keen to mention that the A9 is now seen as reducing the Highland's comparative advantage in attracting businesses and recruiting skilled employment because of the A9's impact on issues such as quality of life, as well as evidence of increased journey times, reduced safety and stressful driving experience. This is keenly felt in comparison to Aberdeen, which is served by dual carriageway or motorway to Dundee and beyond (A90).

4.4 Transport Policy Issues

4.4.1 In terms of transportation policy, the stakeholders at the workshop raised the following issues:

- there are various policies which upgrading the A9 would compliment. These perceive the A9 as a route of national importance. Many local authorities and planning organisations would support an upgrade;
- there is a potential anomaly with transport funding and rural development being focussed on non-road projects. There is therefore a need to make the connection between making an economic case and development funding;
- congestion and value-of-time is important. There are big opportunities to make time savings. The A9 is used by a wide range of trip types and types of vehicles. These have varying values of time with some vehicles and trip purposes more important (and valued at a higher rate) than others, yet using a standard value-of-time in an economic appraisal would ignore any unique differences; and
- the A9 is a lifeline route, however there are regular incidents occurring due to accidents, breakdowns, etc. These are exasperated with only one lane open to traffic, because there is no opportunity to overtake the incident site. Moray Council understands that, due to police requirements and safety procedures, it takes up to 4 hours to clear a road site after a fatal accident.

4.4.2 The last point above about accident clearance time is particularly interesting. Using standard cost/benefit analysis procedures and Government parameters for value-of-time it is possible to quantify the monetised impacts of these incidents on society.

4.5 Options for Appraisal

4.5.1 After some discussion at the workshop, two principal options were identified for business consultation and subsequent economic assessment:

- Full dualling along the entire route between Perth and Inverness; and
- Dualling between Perth to Pitlochry and strategic dualling north of Pitlochry.

Full and Strategic Dualling Options

4.5.2 The full dualling option is to upgrade the A9 to dual carriageway over its full length between Inverness and Perth. At present, the dualled sections account for approximately 26% of the road.

4.5.3 For the strategic (partial) dualling option, we have assumed approximately two-thirds of the time savings of the full dualling option would be captured by partial dualling.

Do-Minimum Scenario

4.5.4 The above two alternatives should be appraised against a *Do-Minimum Scenario* which consists of the current committed improvements along the A9, defined as follows:

- A9 Ballinluig Junction Improvements – due Autumn 2008;
- A9 Bankfoot Junction Improvement – due February 2008;

- Overtaking facilities provided on a 1.4 kilometre, northbound section at Moy (2+1 arrangements);
- 2.7 kilometre extension to existing dual carriageway at Crubenmore – due Autumn 2008;
- Provision of north and southbound overtaking along a 3 kilometre section between Kincraig to Dalraddy – due Autumn 2008;
- North and southbound overtaking provided at Slochd along a 3.5 kilometre section (2+1 arrangements) – due Winter 2007;
- North-bound overtaking provision on a 1.8 kilometre section at Carrbridge (2+1 arrangements) – due Winter 2008; and
- Fully reconstruct a 2 kilometre section of the A9 at Kincraig.

4.5.5 The above list of projects was identified from the recent Government press release on the proposals for the A9. The *Do-Minimum Scenario* has been used to compare the two alternative options for improvements to the A9 identified from the stakeholder optioneering.

5. TRAFFIC ANALYSIS

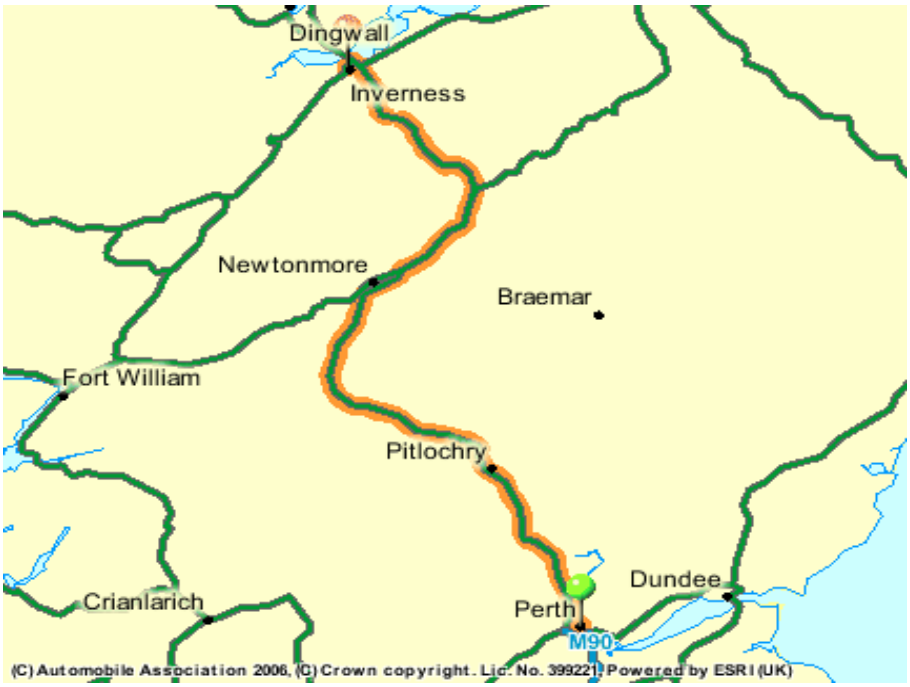
5.1 Introduction

5.1.1 During the inception period a number of existing sources of traffic and journey speeds data on the A9 were identified from current/previous work and reviewed. This identified any gaps in the traffic database and hence highlighted areas which required supplementing with new traffic surveys. The analysis of this information is described in this chapter along with estimates of future traffic flows and journey speeds, and the potential benefits of improvements to the A9.

5.2 Characteristics of the A9

5.2.1 Figure 5.1 shows the A9 between Perth and Inverness, and its surrounding area. The route is approximately 182 km in length and analysis of journey times using the AA Milemaster system suggests it takes approximately 2 hours and 10 minutes to travel by road[9]. The road is predominantly single carriageway, with only around 42 km of it dualled.

Figure 5.1: The A9 between Perth and Inverness



5.2.2 The following sections set out the key characteristics of the A9 between Perth and Inverness, including:

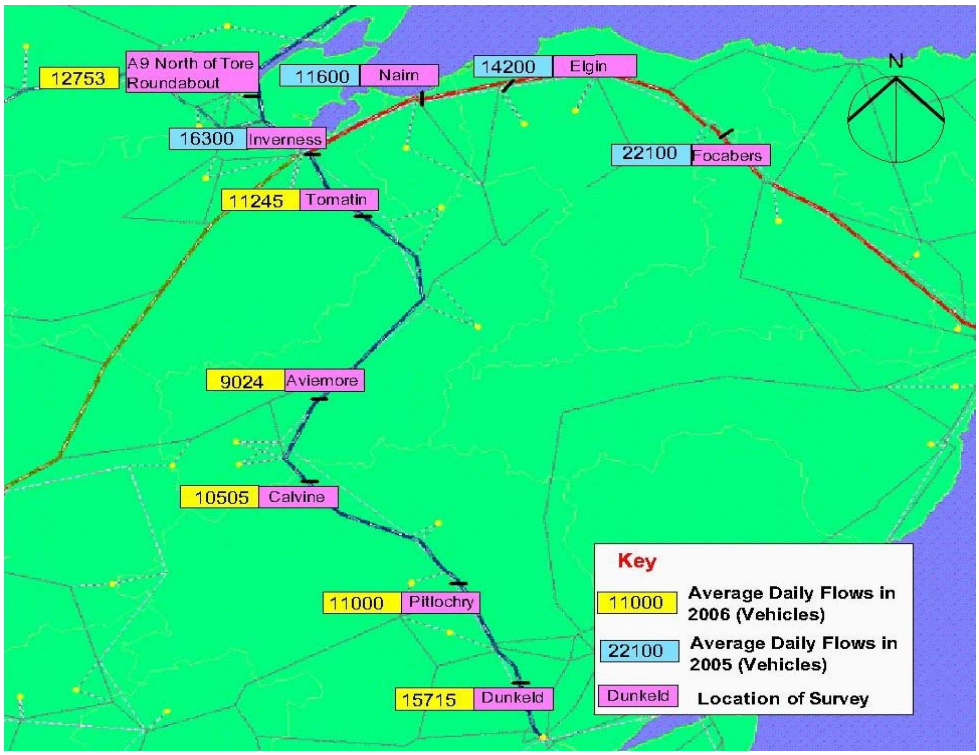
- Traffic Flows and Composition;
- Origins and Destinations of Trips;
- Trip Purpose; and
- Overall Journey Times and the Effects of Platooning.

[9] Milemaster Journey Time System, Automobile Association, 2006

Traffic Flows and Composition

5.2.3 Traffic data was collected from the Scottish Roads Traffic Database (SRTDb) for various years, by different days and months. These are a suitable source of long-term traffic flow data and seasonal variations. The analysis of this information has produced average daily traffic volumes on key roads in and around the study route, including on the A9 and some of its surrounding links. The figures are an average of 2005 and 2006 flows and are summarised in Figure 5.2.

Figure 5.2: Traffic Flows on the A9 and Surrounding Roads (Total Vehicles)



5.2.4 Focussing in on the A9, the data shows the busiest sections of the A9 are north of Perth followed by just south of Inverness. This is to be expected given the built-up nature of these important cities compared to the more rural sections of the route. However, the data also shows there are significant daily volumes along its entire route.

5.2.5 Taking an average of the traffic volumes data on the A9, it is possible to estimate an average composition of traffic along the study route. Table 5.1 shows the percentages of cars, light goods vehicles (LGVs), heavy goods vehicles (HGVs) and other traffic (e.g. coaches) on the A9. These have been split by northbound traffic flows, southbound movements and combined two-way flows.

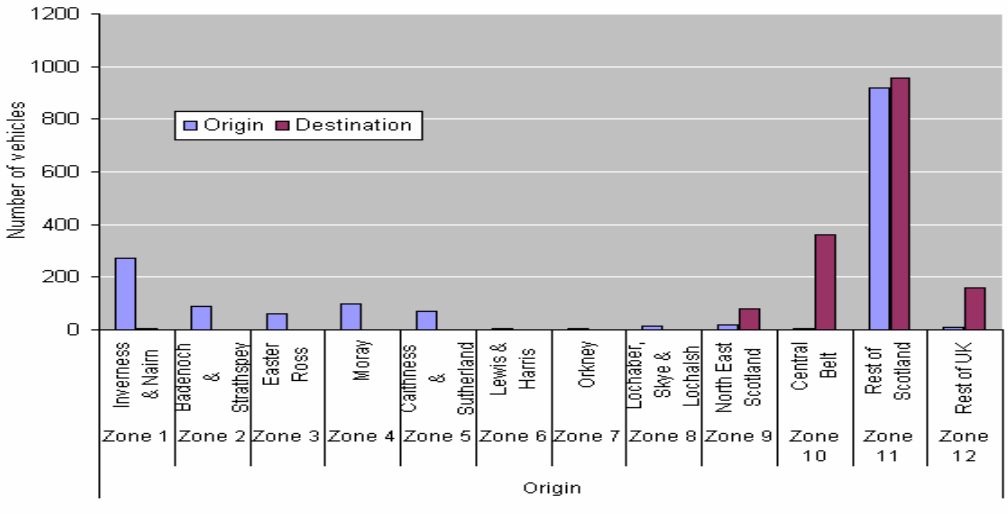
Table 5.1: Vehicle Classification

Direction	Cars	LGVs	HGVs	Others	Totals
Northbound	77.7%	10.1%	12.1%	0.1%	100.0%
Southbound	76.5%	11.9%	11.5%	0.1%	100.0%
Two-Way	***77.1%***	***11.0%***	***11.8%***	***0.1%***	***100.0%***

Origins and Destinations of Trips

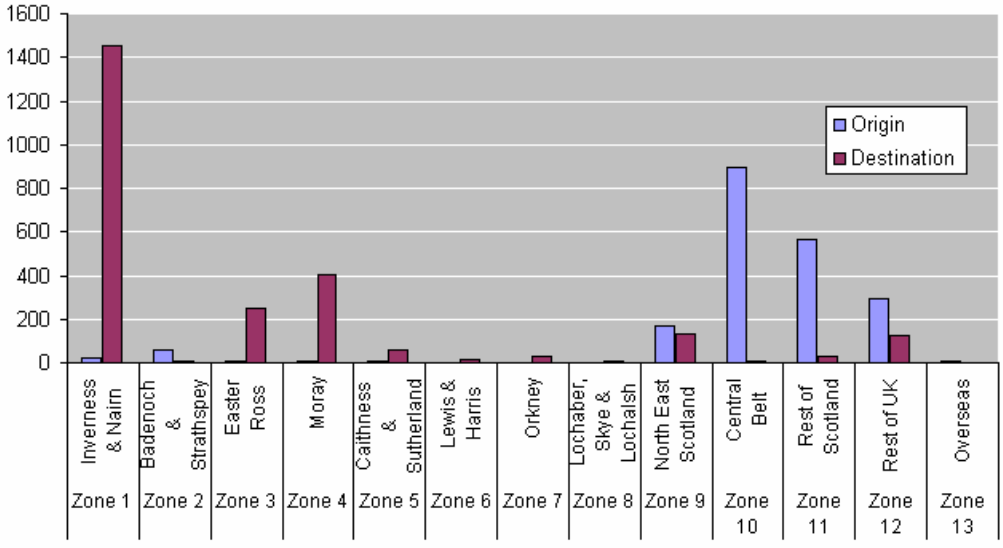
5.2.6 As well as traffic count information, data was obtained from roadside interview surveys (RSIs) which allow an analysis of the origin-destination (OD) of trips to be carried out. This included existing RSI data on the southern section of the study route (just north of Perth, southbound only) as well as the northern section (just east of Inverness). In addition, a new RSI survey was carried out near Aviemore to capture travel patterns in the middle section of the study route. Figures 5.3 to 5.5 show the origins and destinations of trips at these locations.

Figure 5.3: OD Pattern – A9 Perth Southbound



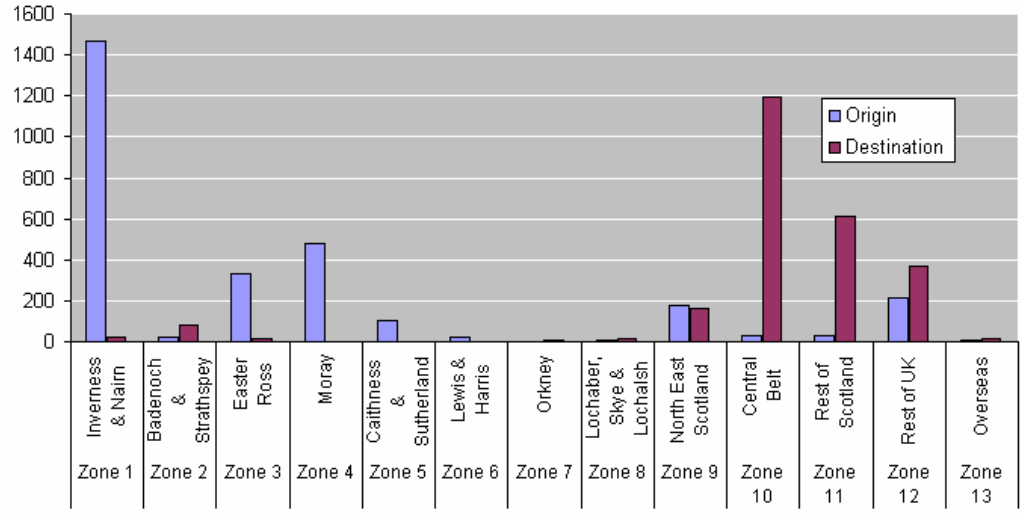
Note: 'Rest of Scotland' includes Perthshire

Figure 5.4a: OD Pattern – A9 Aviemore Northbound: 12-hour (0700-1900)



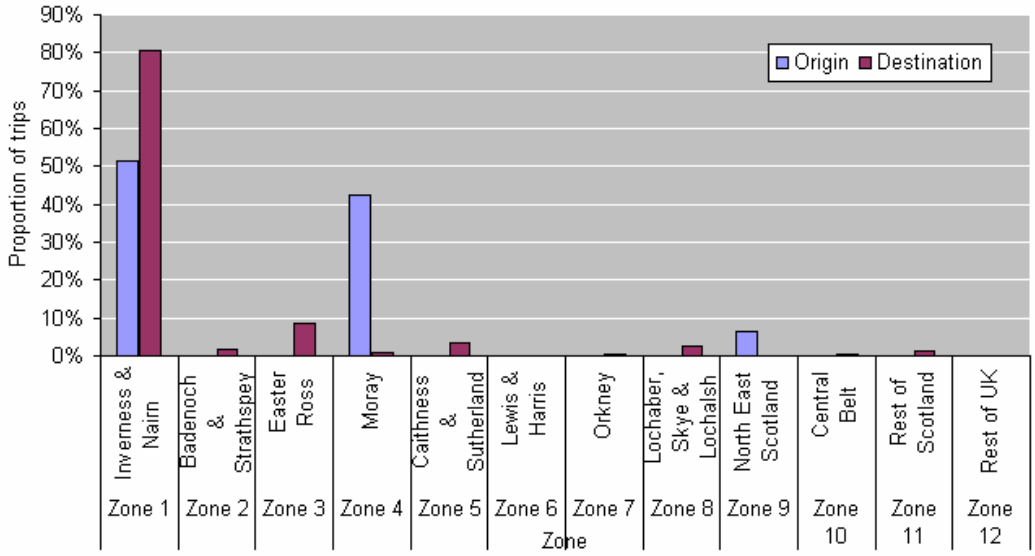
Note: 'Rest of Scotland' includes Perthshire

Figure 5.4b: OD Pattern – A9 Aviemore Southbound: 12-hour (0700-1900)



Note: 'Rest of Scotland' includes Perthshire

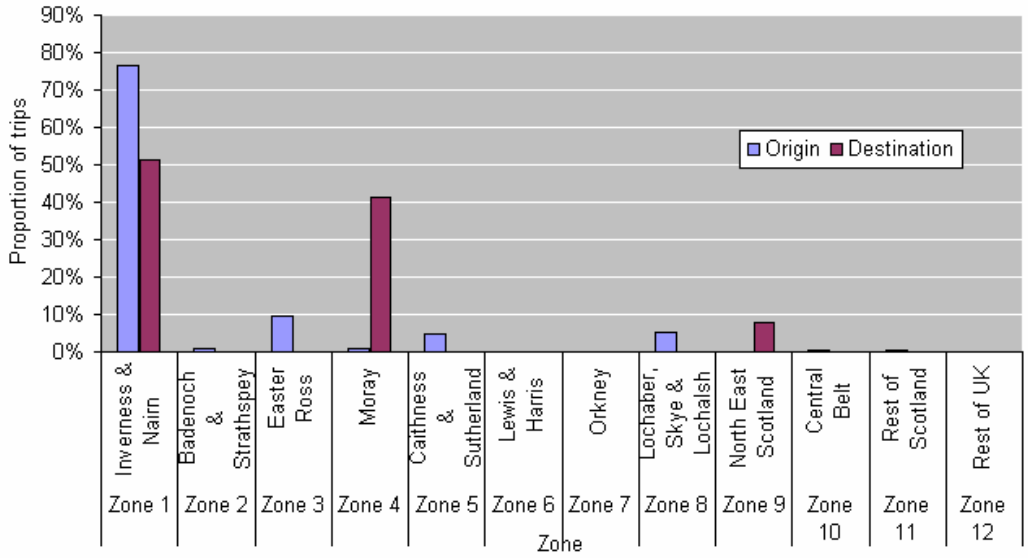
Figure 5.5a: OD Pattern – A96 Westbound (from Moray Council)



Note: 'Rest of Scotland' includes Perthshire

5.2.7 With respect to Figures 5.5a and 5.5b, only trips using the A9 were processed.

Figure 5.5b: OD Pattern – A96 Eastbound (to Moray Council)



Note: 'Rest of Scotland' includes Perthshire

5.2.8 Taking an average of the three locations and applying an annualisation factor derived from local traffic counts provides a route-wide OD trip matrix, as shown in Table 5.2.

Table 5.2: OD Trip Matrix – Annual Total Vehicles

OD	1	2	3	4	5	6	7	8	9	10	11	12	13	*Totals*
1	1,751,910	10,674	85,673	627,955	31,254	-	3,669	26,241	128,330	233,981	189,064	80,645	540	***3,169,937***
2	13,504	-	720	8,581	-	-	-	-	13,459	46,659	58,471	31,708	-	***173,104***
3	77,509	393	-	83,363	-	-	-	-	33,297	46,712	44,536	27,835	540	***314,184***
4	730,701	19,492	80,068	8,196	29,518	-	6,945	21,229	8,208	82,498	73,935	46,545	-	***1,107,334***
5	32,063	-	-	40,471	-	-	-	-	24,692	43,358	41,199	32,510	540	***214,833***
6	-	-	-	-	-	-	-	-	196	5,763	3,515	1,856	-	***11,330***
7	-	-	-	3,206	-	-	-	-	-	6,834	3,319	-	-	***13,359***
8	52,904	-	-	44,888	-	-	-	-	9,675	9,956	6,638	5,371	-	***129,431***
9	128,004	18,954	21,623	9,184	15,910	-	216	7,065	1,790	9,974	93,895	13,562	-	***320,177***
10	222,991	46,708	42,285	85,135	41,086	4,978	8,044	10,316	8,157	785	189,547	10,818	-	***670,850***
11	184,598	58,311	42,886	57,602	40,906	3,551	3,551	6,638	91,865	189,170	1,489	58,629	-	***739,196***
12	82,505	31,921	27,428	41,557	32,265	2,366	-	4,978	13,451	14,774	58,578	4,320	-	***314,142***
13	540	-	-	-	-	540	-	-	-	540	-	-	-	***1,620***
Totals	***3,277,230***	***186,452***	***300,683***	***1,010,139***	***190,939***	***11,435***	***22,425***	***76,467***	***333,120***	***691,005***	***764,185***	***313,798***	***1,620***	***7,179,497***

Zones Key:

1 – Inverness & Nairn
2 – Badenoch & Strathspey
3 – Easter Ross
4 – Moray
5 – Caithness & Sutherland
6 – Lewis and Harris
7 – Orkney
8 – Lochaber, Skye & Lochalsh
9 – North East Scotland
10 – Central Belt
11 – Rest of Scotland
12 – Rest of UK
13 – Overseas

5.2.9 Not surprisingly, the origins and destinations with the highest flows are Inverness and the central belt. It should be noted that the flows shown in the Table above are based on surveys at a limited number of locations which may not have captured all the trips along the A9. HIE are considering carrying out further analysis at a later date to refine the understanding of travel patterns, nevertheless the flows shown above are considered very useful for this study.

Trip Purpose

5.2.10 Using the RSI data obtained from the Aviemore survey as a proxy for trip purposes along the A9, Table 5.3 shows the average trip purposes of the surveyed vehicles. This is split between the northbound and southbound directions of travel.

Table 5.3: Average Trip Purposes (Surveyed at Aviemore)

Trip Purpose	Northbound	Southbound
Home/Work	28.2%	33.3%
Hotel/B&B	3.7%	5.1%
School/College/University	0.6%	0.9%
Airport/Ferry Terminal	0.9%	2.3%
Shops	3.2%	1.0%
Workplace	13.8%	18.0%
Employers Business	29.2%	23.9%
Personal Business	9.0%	7.3%
Social and Leisure Purpose	11.3%	8.3%
Totals	***100.0%***	***100.0%***

5.2.11 The surveys suggest travel in the course of employers business accounts for about a quarter of all trip purposes, and is second to travel to home (i.e. commuting).

Overall Journey Times and the Effects of Platooning

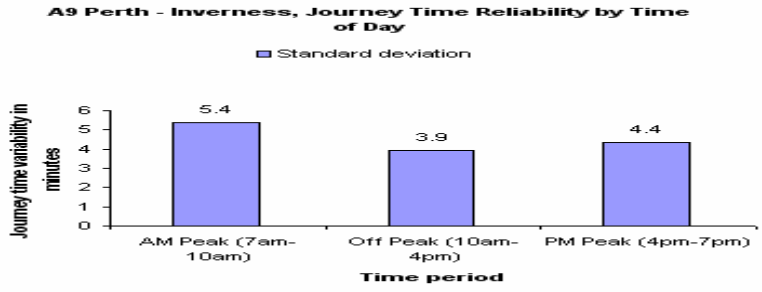
5.2.12 A recent study by Reference Economic Consultants looked at journey times, vehicle speeds and platooning along the A9[10]. The section of the A9 which was analysed is approximately 173 km long and extends from the A912 Roundabout at Perth to Raigmore Interchange, Inverness.

5.2.13 A number of surveys were carried out at different times/months and the median observed journey times for the surveyed route ranged between:

- 1 hour and 59½ minutes (giving an average speed of 54 mph); and
- slightly under 1 hour and 54 minutes (representing an average speed of 57 mph).

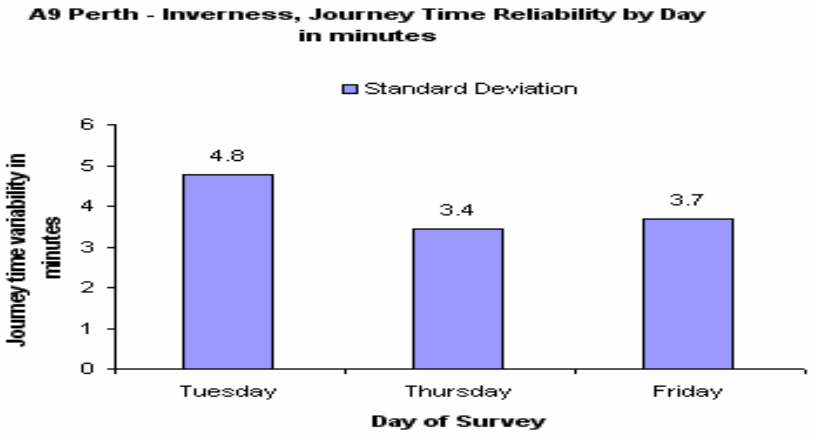
5.2.14 There is variation in journey times between the times of day. The standard deviation can be as high as 5.4 minutes in AM peak (see Figure 5.6). Variations in journey time between days of the week are also wide. Values of standard deviations range between 3.4 minutes to 4.8 minutes (see Figure 5.7).

Figure 5.6: Variations in Journey Times (by Time of Day)



[10] A9 Perth-Inverness & A96 Aberdeen-Inverness: Journey Times, Vehicle Speeds and Vehicle Platooning, Reference Economic Consultants, January 2007

Figure 5.7: Variations in Journey Times (between Days)

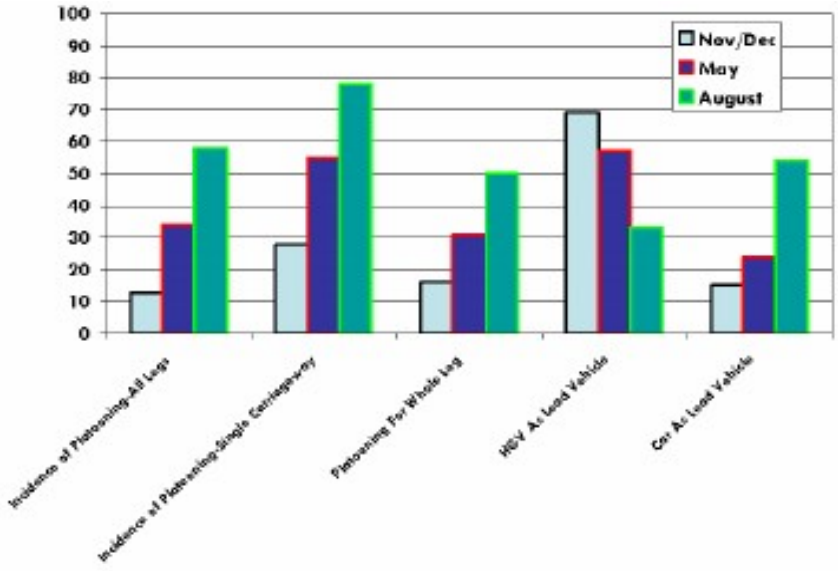


5.2.15 In addition, there is considerable variation in speeds across the route. This reflects stretches of dual carriageway followed by single carriageway and so on. In part, the variability reflects the limited lengths of the dual carriageway sections in place.

5.2.16 The average speeds surveyed for individual sections mask considerable variations in speeds within them. Single carriageway sections have greater variability of speeds than dualled parts of the A9. However, there is evidence of sharp acceleration and deceleration at the beginning and end of dual carriageway sections. This will add to driver stress, potential safety issues and reduced vehicle fuel efficiency.

5.2.17 The average speeds also mask the effects of platooning along the route. Figure 5.8 shows the frequency of platooning along the study route.

Figure 5.8: Frequency of Platooning along the Study Route



Source: Reference Economic Consultants

5.2.18 Platooning is particularly prevalent in the summer months and on the single carriageway sections. In August it occurs on over half of all legs and on over three-quarters of the single carriageway sections. This is significantly higher than in November/December.

5.2.19 There appears to be a relationship between journey time variability within a section and the incidence of platooning. Where platooning occurs in August it lasts for the entire leg in one in two cases. This compares with around one in three in May and one in six legs in the winter survey. Thus August platooning is not only relatively frequent but also more intense than in the other months. HGVs are the main lead vehicles in platoons in the winter and also in May. However, the position is reversed in the summer, where cars are the lead vehicle in more than one in two platoons.

5.2.20 Weather is also shown to have a significant impact on speeds and journey times, probably due to spray from HGVs making visibility poor and overtaking difficult. This effect is greatest on single carriageway sections in the Highlands. Seasonal traffic volumes have greatest impact on Perthshire single carriageway sections.

5.2.21 In general, platooning and lower speeds are more common on single carriageway sections in Perth & Kinross, where there are higher traffic volumes, than in the Highlands & Islands area.

5.2.22 While not apparently increasing overall journey times platooning will raise driver stress and the perception of the A9 as a "slow" road which is difficult to drive. This is supported by the findings of the HIE study *"Perceptions of the A9 and A96 Among Business Organisations and Businesses"*[11]. This concluded that the A9:

> *"is generally perceived as unsatisfactory in meeting the sample's business needs. This stems from a lack of overtaking opportunities and related stress. These are seen as greater issues than long or unreliable journey times".*

Estimates of Potential Journey Time Reductions for Full and Partial Dualling

5.2.23 The process and calculations for estimating the potential journey time reductions are set out in a separate technical note contained in Appendix C. The methodology has used the results of detailed speed surveys published in January 2007[12]. In addition, the effects of future traffic growth has been taken into account using speed/flow relationships from the NESA Manual in the Design Manual for Roads and Bridges (DMRB)[13].

5.2.24 This gives a resultant reduction in total journey time of circa 22 minutes by 2025 which has been carried forward into our strategic impact assessment (SIA).

5.2.25 For the strategic (partial) dualling option, we have assumed approximately two-thirds of the total journey time savings of the full dualling option would be captured by partial dualling.

5.2.26 This reflects the length of route which can be enhanced and dualled to improve travel conditions.

Additional Lost Time due to Incidents

5.2.27 An interesting feedback received from stakeholders during the workshop was the issue of the numbers of incidents and accidents along the study route, due to the effects of platooning and lack of overtaking opportunities which result in various accidents. One stakeholder advised that it can take up to 4 hours to clear the road after a fatal accident occurs, which is compounded by the fact that most of the A9 is single carriageway with limited overtaking opportunities, and hence has a significant cost to society and businesses in terms of lost time and productivity.

[11] Perceptions of the A9 & A96 Among Business Organisations & Businesses, Reference Economic Consultants, March 2006

[12] A9 Perth-Inverness & A96 Aberdeen-Inverness: Journey Times, Vehicle Speeds and Vehicle Platooning, Reference Economic Consultants, January 2007

[13] NESA Manual, Design Manual for Roads and Bridges, Volume 15, Section 1, Part 7

5.3 Summary of Results

5.3.1 The above findings, however, only present part of the overall potential benefits likely to be gained. There are wider strategic impacts and also EALI benefits which would further strengthen the case for carrying out improvements along the study route.

5.3.2 In particular, there are potential additional benefits in terms of Gross Value Added (GVA) to the Scottish economic, with different sectors experiencing different levels of benefits. Similarly, the EALI benefits are likely to vary by economic sector, and these are explored in more detail in the following chapters, which show the results of the SIA and EALI appraisal for the two options.

6. STRATEGIC IMPACT ASSESSMENT

6.1 Introduction

6.1.1 This section quantifies the potential impacts in income and employment terms as a result of improvements to the A9 Perth to Inverness trunk road, resulting in quicker and more reliable journey times between these two cities.

6.1.2 This appraisal has been prepared in advance of any particular schemes which may be developed as part of the Strategic Transport Projects Review (STPR) to be carried out by Transport Scotland. The analysis is therefore not based on any specific schemes, but on the assumption that investment in the A9 will result in improvements to the trunk road, specifically in being able to provide quicker, safer and more reliable journeys.

6.2 Literature Research and Historic Evidence

6.2.1 It is generally quite complex to quantify the effects of road improvements on measures of business performance, such as changes in output and employment. Although our literature research has found a number of studies which have attempted to both quantify the impacts of road investment on output and employment, few cases assess the impact after the road has been constructed with the position before it was built. Therefore difficulties arise in being able to ascribe quantifiable measures of economic growth to investment in road infrastructure.

6.2.2 Although, of course, literature relating to the up-grading of the A9 Perth to Inverness trunk road would be of particular relevance to this study, unfortunately it has not been possible to obtain a recent evaluation of improvements to the A9. However a study by TRL undertaken in the mid – 1990s showed that upgrading the A9 was a major factor in both improving the accessibility of Inverness from the central belt and also in altering perceptions about the peripherality of Inverness[14]. The findings of this study are outlined in section 1.2 of chapter 1.

6.2.3 The TRL report also noted that significant employment growth in the region during the early 1990s, and also stimulation in tourism, were almost certainly due in part at least to the improved strategic accessibility of Inverness.

6.2.4 In addition to improvements to the A9 road infrastructure, there are a number of other issues which have contributed to the success of the region.

- growth in public sector employment as a result of Inverness's role as an administrative centre, which is required to undertake administrative and business related functions for the city and the surrounding region, in particular in the delivery of health and medical services, of which the region has a concentration of skills;
- strong growth in a wide variety of sectors, such as tourism, public administration as noted above, utilities, tourism and, most notably, in retail. Growth in manufacturing has, however been slower;
- employment growth that has been driven by the region's activities as a regional capital has been particularly robust, particularly in those areas that have been developing the strongest, such as tourism and leisure, public administration, health and the utility sectors; and
- growth in some sectors such as IT which has facilitated an expansion in home-working, the flexible arrangement of which allows many people to enjoy the quality of life in the Highlands while remaining economically active.

[14] A Study of Transport and Development Changes Around Inverness, 1994 by Transport Research Laboratory, authors Derek Halden and Kevin Sharman

6.2.5 The quality of Inverness's infrastructure, including transportation and communications links, in contributing to the area's growth by facilitating the movement of people, ideas and exports has been the subject of an examination in a relative recent study. This focussed on the role that upgrading the A9 trunk road in the 1970s-80s played in strengthening the city's role as a gateway to the Northern Highlands, and opening up the Black Isle and other surrounding areas as part of the Inverness commuter belt.[15]

6.2.6 The factors described above have without doubt contributed to the high rates of population growth in this region of 7.3% between the 1991 and 2001 census, whereas Scotland's population as a whole only increased by 1.3% over the same period.

6.2.7 To further explore the linkages between road transport investment and economic performance, a number of studies have been reviewed, in particular in other areas in Scotland and the UK. The findings from these case studies have been summarised with key results presented in Table 6.1 overleaf.

6.2.8 In summary the review of evidence suggests that the following conclusions can be made:

- major road improvements do, in practice, reduce business costs in the areas which they serve. This can lead to a reduction in prices, increase in business profits and /or stimulate competition;
- the evidence on the impact of labour catchment areas is variable. Road improvements can widen the geographical extent of labour markets but the scale and importance of the effect is highly variable and sensitive to local circumstances;
- in some circumstances roads investment may influence the decision of inward investors to locate in a particular region, but the quality of transport links can be an important factor in determining the choice of location within an area by businesses (i.e. it can affect the choice of one town over another);
- at the local level, housing development can be strongly affected by roads investment, by influencing the pattern of spatial development and the rate of house building; and
- there is also some evidence that major road improvements can influence retail development, by opening up new areas and markets.

[15] Accounting for success: understanding and monitoring the growth of Inverness, March 2004. A report for Highlands and Islands Enterprise and Inverness and Nairn Enterprise.

Table 6.1: Review of Case Study Evidence

Economic Impact	Case Study Evidence
Lowering Costs of Production	A55: 30% of businesses felt the A55 road improvements had reduced production costs either through reducing delivery charges or by new suppliers entering the local market. A majority of firms indicated their delivery costs to customers were lower which improved their competitiveness.
	A838 (Kinlochbervie to Lairg): 44% of respondents thought the scheme would significantly reduce their business costs and allow them to expand turnover.
Widening Labour Catchment	M4: a minority of firms in South Wales thought the M4 would extend the labour catchment area of their plant (17% and 18% of large and small manufacturing plants and 24% of distribution firms interviewed respectively).
	A55: 35% of manufacturing companies surveyed and 34% of distribution companies surveyed in North Wales thought that improvements to the A55 would influence travel to work patterns and extend the potential labour catchment areas in their plants.
Impacts on Inward Investment	M4: Berkshire companies were asked to determine the critical reasons for their choice of location in the Thames Valley. The percentage of firms mentioned: Heathrow Airport (75%), M4 motorway (63%), other motorways/roads (40%), access to suppliers (40%), availability of premises (40%).
	Methyr: some inward investors confirmed that they would not have considered the area if the dualling of the A470 had not been completed. Six inward investment companies said it was instrumental in their decisions to locate in the area.
Opening Sites for Development	A470: contributed towards the opening up of a new retail development area to the west of Merthyr.
	A40/A82/A4119: roads and investment affected housing development. There was strong evidence that house-building rates had increased on sites near the roads following the improvements. In some cases planning policy decisions to make land available on sites near the roads supported this outcome.
	M77: evidence of urban expansion to the north of Newton Mearns and adjacent to the M77. The road is believed to have influenced the pattern of housing development leading to an increase in the level of housing completions.

6.3 Assumptions and Summary of Methodology

6.3.1 There will be an element of uncertainty associated with forecasting the economic impacts of road investment in the A9 trunk road. In order to reduce this uncertainty, in line with accepted practice, we have prepared forecasts under three investment scenarios (as described in section 4.5 of chapter 4):

- do-minimum scenario – essentially no additional investment other than current committed improvements;
- full dualling between Perth and Inverness; and
- 'strategic' (partial) dualling, with full dualling between Perth and Pitlochry, and strategic dualling north of Pitlochry.

6.3.2. As this study is being prepared in advance of the STPR, we have had to make a number of assumptions, which are as follows;

- construction of the improvements to the A9 is assumed to start in 2010;
- the construction period is 15 years for full dualling Perth – Inverness and 10 years for strategic dualling of the route;
- the assessment is undertaken over a 30 year period from 2010 to 2039 to maintain consistency with STAG (version 1.0, September 2003); and
- we have used the standard STAG discount rate of 3.5% for 30 years.

6.3.3 Improvements to the A9 will have different impacts on different sectors in the study area. Hence we have carried out the appraisal on each sector separately, and then combined the results to give a gross estimated economic impact. The appraisal for each sector is based on the following categories:

- agriculture, forestry and fishing;
- manufacturing, construction & energy (includes mining);
- banking, finance & related services;
- public administration (includes health and education);
- transport and communications;
- wholesale and retail activities;
- leisure and tourism (includes hotels, B&Bs and restaurants); and
- other.

6.3.4 The categorisation of these sectors has been based on the Government's Standard Industrial Classification (SIC) index. Most of these are self-explanatory, but for the purposes of the business survey, and the subsequent analysis using the results from the survey, it has been necessary to include IT and IT-related activities in the category labelled "other".

6.3.5 The growth projections in real terms are for 2005, the last year for which reliable data exists. These were derived for the sectors described above for the do-minimum scenario, that is, without improvements to the A9. This underlying growth rate would obviously apply also for the study options, full and partial dualling.

6.3.6 The methodology undertaken for calculating the GVA 'uplift multiplier' is shown in Appendix C, and for the employment impacts in Appendix D, with the detailed results of the investment of upgrading the A9 in Appendix E for both options, on a sector-by-sector approach, and in

both discounted and undiscounted terms. It should be noted that certain assumptions were made on:

- investment period;
- investment start year;
- relative scale of investment impacts on business performance; and
- up-scaling of impacts between partial and full dualling of the Perth to Inverness A9 trunk road.

6.3.7 The investment impacts on business performance were derived from the business surveys. Although these were reported qualitatively (characterised as major impacts, fairly major impacts, minor impacts and fairly minor impacts in descending order of strength) factors were adopted to distinguish between the strength of these impacts for each sector.

6.3.8 Businesses also reported their expectations of growth in revenue and employment terms. These were checked against those used in the appraisal, derived from Government sources[16].

6.4 Summary of Business Survey Results

6.4.1 This section only provides a summary of the key results of the business surveys. The full results of the business survey, including interviews taken on face-to-face basis are submitted in a full Business Survey Report, which is a separate report to support this appraisal[17].

General Business Outlook

6.4.2 Businesses throughout the study area by and large reported a great deal of optimism on their future performance:

- 35% of businesses predicted that they would grow by between 5% and 20% in the next five years; and
- a further 33% predicted that they would grow by over 20% over the next five years.

6.4.3 Industry, including energy, water and mining was the most optimistic for the next five years, followed closely by the banking and financial service sector. Agriculture, forestry and fishing was the most pessimistic sector (of the five businesses in this latter sector interviewed, none of them said they expect to grow in the next five years).

Business Location

6.4.4 Businesses were asked what was the most important factor for their business location. The four most important, with the proportion of businesses responding as important or very important, were in descending order:

- access to trunk roads, 70%;
- proximity to customers and/or markets, 59%;
- access to workforce, 46%; and
- access to airports, 43%.

6.4.5 Access to trunk routes was most important for businesses in the agriculture, forestry and fishing sectors and in the transport and communications sectors (for 80% of businesses respectively), although the sample base for each of these sectors was very small. Access to trunk routes was also especially important for the wholesale and retail trade and for tourism (79% and 76% of businesses respectively), and here the sample base was larger.

[16] ONS and NOMIS

[17] A9 Perth to Inverness Economic Appraisal: Business Surveys Report, Scott Wilson and DHC, August 2007

6.4.6 The biggest proportion of businesses (68%) in the retail and wholesale sector considered that proximity to customers and markets were either important or very important to their business location, and 80% of businesses in the transport and communications sector thought that access to the workforce was important or very important when considering the location of their business. Access to airports was important to 63% of businesses in the tourism and leisure sector, a bigger proportion of businesses than for any other sector.

6.4.7 Businesses were also asked what they considered were the relative strengths and weaknesses of their current location. Those factors that were recorded as a big weakness and a moderate weakness in the business location are noted below, with proportion of businesses recorded alongside:

- recruitment of skilled labour, 31%;
- recruitment of workforce, 29%;
- access to airports, 24%; and
- access to the road network, 22%.

6.4.8 Of the four weaknesses outlined above, the more serious was access to a skilled workforce for manufacturing businesses and the transport sector. For tourism and leisure the biggest weakness was access to airports. Access to the road network was only a relative weakness for the "other" category of businesses – that is mainly IT and related activities.

Business Related Travel

6.4.9 Businesses were asked the frequency of business related trips staff undertook, and the frequency of these. Table 6.2 shows the results of this enquiry.

6.4.10 The main reason why businesses travelled particularly frequently was for meetings with potential customers and this was followed closely by access to business services. In each case more than a third or about a third of businesses travelled more than once a week for these reasons. The next most important reason was picking up supplies; over a quarter of businesses responded that staff travelled for this reason at least once a week.

Table 6.2: Reason for Business Travel by Staff Who Travel More than Once a Week

Frequency of Business Travel and Reason	Proportion of Business Response
Frequency of staff travel – for meetings with potential customers	35%
Frequency of staff travel – for access to business services-banking, legal, financial etc	33%
Frequency of staff travel – for picking up supplies	26%
Frequency of staff travel – for internal business meetings	12%
Frequency of staff travel – for meetings with (potential) suppliers	9%

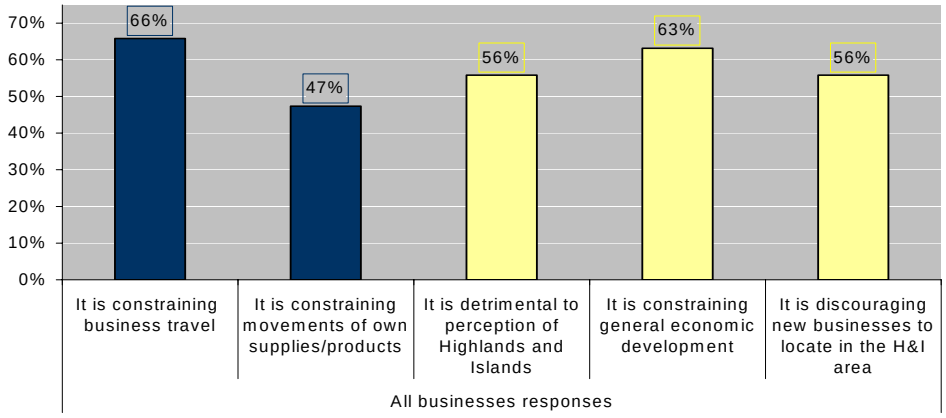
6.4.11 With the exception of picking up supplies, the two main reasons for business travel would involve almost exclusively car-based transport. The frequency of car use for business travel is borne out in the survey, where:

- 95% of staff travelling by car;
- 3% of staff travel by air;
- 2% of staff travel by rail; and
- no staff working for the businesses surveyed travel by bus or coach.

6.4.12 Although the size of the telephone interview questionnaire precluded detailed questions on business travel requirements as per use of the A9, a flavour of these have been obtained from business responses to questions on the current impact of the A9 on their business, and on the business environment in the Highlands and Islands as a whole.

6.4.13 The percentages responses for five variables for all businesses are shown in Figure 6.1. The Figure illustrates the responses in terms of the A9 directly affecting the business interviewed (the dark blue bars) compared with the A9 affecting business development in the Highlands and Islands as a whole (the pale yellow bars). The results may be interpreted as the degree to which the A9 currently fails to meet business requirements.

Figure 6.1: The Degree to Which the A9 Fails Business Requirements



6.4.14 Clearly the A9 currently appears to fall short on meeting business travel, with two-thirds of businesses indicating the A9 does not meet their requirements for this activity. A smaller percentage of businesses, slightly less than half felt that the A9 constrained the movement of their own goods and supplies. The fact that the A9 does not appear to satisfy most business needs for business travel at the moment indicates the importance of current alternatives, such as rail.

6.4.15 Setting these results against the broader impacts of the A9 on businesses in the Highlands and Islands, these deficiencies of the A9 in meeting direct business requirements don't particularly stand out.

Staff Commuting

6.4.16 A big majority of businesses surveyed, 83%, said that over 50% of their staff lived within 10 miles of the business site. 74% of these businesses indicated that over 75% of their staff lived within this 10-mile zone. The high proportion of staff living relatively close to the business may explain why quite a high proportion of employees commute to work by bicycle or walking. A third of businesses reported that more than 50% of their staff either cycle or walk to work.

6.4.17 This proportion of businesses drops to 26% who report that more than 75% cycle or walk to work. Nevertheless this is still a relatively high proportion considering that a large number of businesses are in relatively rural areas. Almost all those employees who do not walk or cycle use their cars to commute. A fraction commute by bus – only 1% of businesses reported that more than 50% of their staff travel to work this way.

Business Concerns Regarding A9

6.4.18 Businesses were asked what they regarded was the current state of the A9, and its impact on their business. Table 6.3 shows the results. The Table indicates which of the general misapprehensions of the A9 are most important to businesses, by ranking them in the following order of most concern.

Table 6.3: Current State of A9 – Impact on Businesses

Impact of current state of A9 on business	**Proportion of businesses who agree or strongly agree –** by rank (*and % response*)
It is constraining general economic development	1 *(67%)*
It is producing a negative impact on business travel	2 *(66%)*
It is producing a negative perception of the H&I area	3 *(58%)*
It is discouraging new businesses to locate in the H&I area	4 *(56%)*
It is producing inefficiencies in movement of own supplies/products	5 *(39%)*

6.4.19 The Table demonstrates that businesses regard the current state of the A9 constrains general economic development, with two-thirds of businesses agreeing, or strongly agreeing with this, and that it also produces a negative impact on business travel. Over half of businesses agreed or strongly agreed that the A9 is producing a negative perception of the Highlands and Islands region and discouraging businesses from locating to the Highland and Islands region.

6.4.20 These are all general issues encompassing the broader business environment. The specific business impact of the A9 in constraining the efficient movement of goods and supplies came last, by a long way.

Perceived Impact of Improvements to A9

6.4.21 Although, as we have seen above, relatively few businesses agree or strongly agree that the current state of the A9 produces inefficiencies in businesses operations as far as moving goods and supplies, when asked how upgrading the A9 would affect their business:

- 60% of businesses reported that this would change the travel efficiency of the business;
- 47% of businesses suggested that this would change the business growth prospects; and
- 15% of businesses replied that this would impact on business employment.

6.4.22 These responses suggest that the majority of businesses do perceive the A9 to have a positive impact on business transport activities, but the benefits of this would show up as changes to GVA in terms of changes to business operating margins, more potential profit. Relatively few businesses see a connection between these improvements in the A9 and greater scope for employment, the other major component of GVA.

Preferred Investment Option

6.4.23 Businesses were subsequently asked what level of improvements to the A9 were required to bring the A9 up to a performance level where the benefits noted above were attainable. The businesses were offered a menu of options including:

- further 2+1 route improvements or similar level of upgrade;
- further 2+1 route improvements or similar level of upgrade, but with full dualling in long term;
- strategic dualling along the route length; and
- full dualling along the whole route length.

6.4.24 The most popular option was full dualling along the entire length of the A9 route between Perth and Inverness. 85% of businesses responded that they preferred this option.

6.4.25 The following are the responses ranked in order of preference:

- dual carriageway for full length (80%);
- more 2+1 or other similar level of upgrade, with full dualling in the long term (44%);
- strategic dualling along the route length (25%); and
- more 2+1 or other similar level of upgrade (20%).

6.4.26 Full dualling is therefore the most popular option. 59% of businesses interviewed responded that full dualling the A9 between Inverness and Perth would have either a major or fairly major impact on their business. Table 6.4 summarises the proportion of businesses stating the factors that have a major or fairly major impact on their business performance.

Table 6.4: Full Dualling of the A9: Factors Having a Fairly Major or Major Impact on Performance: Proportion of Business Response

Factor	Proportion of Business Response
Facilitates access by visitors/tourists to your location	40%
Facilitate meetings with suppliers and/or clients	34%
Reduce general transport costs to the business	25%
Facilitate meetings with other parts of your business	22%
Facilitate access to regional airports	22%
Specifically reduce costs of inputs and supplies	21%
Facilitate access to railway stations	12%
Specifically reduce costs sending products to marketing outlets	9%

6.4.27 The Table clearly shows that full dualling of the A9 is expected to have a fairly major or major impact for the largest proportion of businesses in terms of making it easier for visitors and tourists visiting the business, and facilitating meetings with suppliers and clients. Interestingly, full dualling of the A9 is not seen by as many businesses as having this scale of impact on either costs of inputs or marketing goods, or on access to regional airports or rail outlets.

Positive Impacts of the A9 on Businesses

6.4.28 The stakeholder surveys reported that businesses estimated positive impacts of the A9 in terms of the following:

- the A9 reduces general transport costs to the business;
- the A9 specifically reduces costs of inputs and supplies;
- the A9 specifically reduces costs of sending products to marketing outlets;
- the A9 facilitates meetings with other parts of the business;
- the A9 facilitates meetings with clients and/or suppliers;
- the A9 facilitates access to the regional airports;
- the A9 facilitates access to railway stations; and
- the A9 facilitates access by visitors/tourists to the business location.

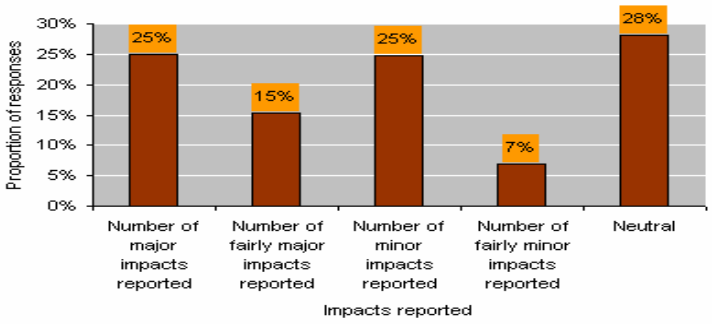
6.4.29 Table 6.5 summarises the number of responses reported by businesses on their overall estimate of the positive impacts of the A9. These results have been used to inform the appraisal on the potential impacts of upgrading the A9 on regional GVA.

Table 6.5: Summary of Reported Estimated Overall Positive Impacts of the A9 to Businesses, by Sector

Sector	Number of major impacts reported	Number of fairly major impacts reported	Number of minor impacts reported	Number of fairly minor impacts reported	Neutral	Ratio of major & fairly major impacts to neutral impacts
Agriculture, forestry and fishing	4	0	1	0	6	0.67
Manufacturing and construction and related	33	14	39	10	33	1.42
Banking, finance and related	45	31	40	11	40	1.90
Public administration, health and education	22	10	24	11	16	2.00
Transport and communications	17	14	0	1	2	15.50
Wholesale and retail	19	14	14	3	24	1.38
Tourism and leisure	75	45	91	20	119	1.01
Other - IT and related	10	10	13	6	13	1.54
Total number of impacts	225	138	222	62	253	
Impacts per business	**1.13**	**0.69**	**1.12**	**0.31**	**1.27**	

6.4.30 The above table and Figure 6.2 illustrate the degree by which businesses reported positive impacts, based on the 199 completed telephone interviews. These impacts were graded from major impacts to a neutral impact.

Figure 6.2: Proportion of Businesses Responses to Positive Impacts of the A9



6.4.31 The number of major and fairly major impacts together represents the largest category, with 40% of the total number of responses net of "don't knows" or no replies.

6.4.32 The next largest share of responses is the combined number of minor and fairly minor impacts reported, which represent 32% of the total number of responses. Neutral responses made up 28% of the total responses. From these results, it would be fair to state that the A9 has a significant or moderate positive impact on the majority of businesses surveyed.

6.4.33 The impact of the A9 varies considerably across sectors. The ratio of major and fairly major impacts to neutral impacts gives an estimate of which sectors are affected the most by the A9, and by extension improvements to the A9.

6.4.34 As can be seen, businesses in the transport and communications sector and in the natural resource sectors are the most and least affected by the A9 respectively as measured by this ratio. However it should be noted that the sample sizes for these two sectors were very small.

6.4.35 Nevertheless, from these results, it would be fair to state that the A9 has a significant or moderate positive impact on the majority of businesses surveyed. These results have been used to inform the appraisal on the potential impacts of upgrading the A9 on regional GVA, presented in the following section.

6.4.36 The impacts noted from the in-depth surveys varied widely. North of Inverness there is a perception among some businesses that traffic volumes are approaching the capacity of the A9, and problems associated with this is compounded by poor maintenance of the road.

6.4.37 Journey interruptions of two hours or more can have a serious impact on haulage and transport costs as it may involve driver having to lay–up to avoid exceeding regulated driver hours. However, this view is not universally held, and for most businesses interviewed, relatively minor hold-ups, even on a relatively frequent basis, had no effect on their company operations or performance.

6.4.38 The perception within the tourist industry is that dualling would have a positive impact on coach and bus tour operators which would, owing to faster journey times, be able to fit more into their relatively tight schedules. This may include visiting a greater range of sites and tourist attractions and covering a larger area of the Highlands.

6.4.39 The inverse view of the tourism and leisure sector is that as there is no close substitute road other than the A9 for visiting the Highlands, hold-ups on the A9, particularly if they are frequent, will have a serious impact on operator margins, and will encourage external operators to travel elsewhere, contributing to a reduction in visitor numbers to the Highlands.

6.4.40 A significant proportion of businesses mentioned that in addition to saving time, dualling the A9 would contribute to both a safer and less stressful driving experience. This is important for businesses which use the A9 regularly. One business attributed stressful driving conditions on the A9 to increasing staff turnover which had additional cost implications for the concerned.

6.5 Potential Impacts on GVA

6.5.1 Improvements to the A9 between Perth and Inverness will provide businesses located in most of the Highland region, including the Western Isles and Orkney, with quicker and more reliable access to the central belt. This will have obvious benefits where access to markets and suppliers is time-sensitive, and will depend within which sector these businesses operate.

6.5.2 Investment in improving the A9 is equally important for attracting and retaining employment in the Highland region. This is critical in order to maintain the current momentum behind the economic growth currently being sustained in the area.

6.5.3 Using a combination of survey results and Government forecasts[18] for employment and sector growth, as described in the methodology in section 6.3 above, we have estimated the changes in GVA for each of the options considered.

6.5.4 It is possible to estimate employment from GVA figures, and this has been undertaken by estimating the proportion of additional GVA that is made up between surplus revenue, or profits, wages and salaries. The results of the analysis are presented overleaf in Table 6.6 for each of the key sectors for zones 1 through to 8. An explanation of the methodology is shown in Appendices C and D for deriving the GVA and employment benefits respectively, with the detailed calculations presented in the tables in Appendix E. The values for GVA are in both undiscounted and discounted terms, and together with estimated potential employment impacts, are shown for both the strategic dualling of the A9 and for the complete dualling of the A9 between Perth and Inverness.

[18] NOMIS, ONS & NUTS 3 European classification system.

6.5.5 As the Table shows, the total discounted net increase in GVA for the strategic dualling and full dualling options are, for a 30-year investment period, circa £683m and £956m respectively. Similarly, total potential employment is 724 and 485 for full and strategic dualling, respectively.

6.5.6 These estimated full- and part-time job totals are over the short term. Over the 30-year appraisal period, employment may potentially increase towards the maximum levels achievable with this investment. As shown in Appendix E, this is equivalent to circa 4,500 full-time and part-time equivalent jobs for the full dualling option, and approximately two-thirds of this total (circa 3,000 jobs) for the partial dualling option.

Table 6.6: Impact by Sector for the Study Area for Strategic and Full Dualling Options (in £m constant 2005 prices)

Sector	Discounted GVA Estimates		Estimated Potential Employment Impacts[19]			
	Strategic Dualling	Full Dualling	Strategic Dualling		Full Dualling	
			FTEs[20]	PTEs	FTEs	PTEs
Agriculture, fisheries & forestry[21]	£10.4m	£14.0m	0	0	0	0
Manufacturing & Industry	£104.1m	£142.3m	94	10	140	15
Banking, finance & related	£121.1m	£174.0m	107	32	160	48
Public administration, health and education	£134.1m	£186.0m	37	31	56	47
Transport and communications	£83.7m	£118.1m	54	14	80	21
Wholesale & retail	£56.5m	£78.5m	11	4	16	5
Tourism & leisure	£158.7m	£223.6m	43	45	65	68
Other	£14.2m	£19.7m	1	1	2	2
Total GVA	***£682.8m***	***£956.2m***	***347***	***138***	***518***	***206***
			485[22]		***724***	

6.5.7 The biggest sectors, because of the size of their relative contribution to the local economy, will experience the largest changes in GVA resulting from improvements to the A9. For example, public administration, education and health, manufacturing and industry, tourism and leisure, will each attain circa 20%, 15% and 23% respectively of the total discounted GVA benefits under the strategic and full dualling options in discounted terms. As mentioned in paragraph 6.5.6, the potential employment figures over a 30-year period appraisal period could be significantly larger.

Sensitivity Test

6.5.8 The estimates of GVA shown in Table 6.6 are based on Government forecasts of future economic growth. This is underpinned by a forecast change in employment. The Government's TEMPRO program sets out projections of future employment and associated demographics, by regional area. This shows that Government estimates of changes in employment for the Highland region are predicted to increase by 3% from 2005 to 2020.

[19] The employment figures are derived from GVA and hence should be considered as being the potential impact expressed in job numbers instead of being expressed as GVA (i.e. they are **not** additional to GVA).

[20] FTEs is Full Time Equivalents, and PTEs is Part Time Equivalents.

[21] The agriculture, fisheries and forestry sector shows zero employment change, as the estimate indicates that the improvements will help to slow or alleviate the decline in this sector.

[22] Employment values are based on employment multipliers & adapted results from the business surveys, (see Appendix D for details of calculations)

6.5.9 However, information supplied by HIE suggests their economic strategy and other plans (e.g. land-use developments set out in the Structure and Local Plans) could increase employment by 16% over this period. Therefore, we have carried out a sensitivity test using the HIE estimate of employment change. The test indicates:

- strategic dualling : total 30-year discounted GVA increases to £759m; and
- full dualling : total 30-year discounted GVA increases to £1,019m.

6.6 Summary of Business Impacts Changes

6.6.1 There is considerable variability in the expected benefits spread across businesses from different sectors. Table 6.7 illustrates this variability in discounted annual average terms for both options, ranked from the sector that is estimated to benefit from the most to the least.

6.6.2 Of interest are the sectors that realise the largest estimated benefits as a proportion to their sector GVA, in other words, the sectors that benefit most from the investment in upgrading the A9. Rather unsurprisingly, the transport and communications sector benefits the most, with an annual average discounted benefit equivalent to 1.8% of their GVA for the strategic dualling option, and 2.4% for the full dualling option.

6.6.3 In terms of magnitude of benefits, these sectors are followed by the banking, finance and related services sector, with values equivalent to 0.9% and 1.1% of GVA. Tourism gains rather less than these with values of only 0.7% and 0.9% respectively. It is those sectors that use the route most intensively, frequency and distance, that might be expected the gain the most from investment in upgrading the A9.

Table 6.7: GVA Impact by Sector for the Study Area: Ranked in Order by Annual Increase in Level of Estimated Benefits (%)

Sector	Strategic Dualling	Full Dualling
Transport and communications	1.8%	2.4%
Banking, finance & related	0.9%	1.1%
Tourism & leisure	0.7%	0.9%
Manufacturing & Industry	0.6%	0.8%
Wholesale & retail	0.6%	0.8%
Public administration, health and education	0.6%	0.8%
Other	0.4%	0.6%
Agriculture, fisheries & forestry	0.3%	0.42

6.6.4 Given that upgrading the A9 will benefit those businesses in sectors that use the A9 most intensively, it is fully understandable that transport and communications, which include haulage companies, would benefit relatively well from improvements to the A9. Those activities that require intensive business travel other than moving goods such as the financial service sector and tourism will also be expected to benefit.

6.6.5 For the sector categorised as “other”, which is mainly IT and IT-related businesses, these may be expected to gain relatively less than businesses in other sectors as IT is particularly able to benefit from home-based working patterns. Perhaps it is rather surprising that agriculture, forestry and fisheries seems to benefit the least from improvements to the A9.

6.6.6 One explanation is that this route is not particularly heavily used by this sector. The A9 is not the most direct route to the western parts of the study area, where most of the forestry areas, and sea fishing activities are based. Forestry operations in Lochaber, Lochalsh, Skye and the northern fringes of Argyll are more likely to use the A87/A887/A830-A82 trunk road network, and may only join the A9 outside the study area. To a certain extent, the aquaculture operations based in these areas will use the same road network.

6.6.7 Aquaculture and sea fishing produce in Moray and along the Moray Firth are more likely to use the A90, large sections of which are dualled. Another explanation may be that this sector more than most would be expected to move its produce using specialised transport companies and haulier businesses, where the benefits from upgrading the A9 has been already accounted for. This is also true to a lesser extent for the businesses in the manufacturing sector and in retail. Supermarket retailers in particular make heavy use of the A9 in supplying Orkney, Caithness and Sutherland with goods and produce, some of which is moved on own account terms, and some contracted to haulage firms.

6.6.8 In addition, as suggested by the business survey, the impact of improvements to the A9 on freight movements is less significant than the impact on staff business trips. It is therefore possible that businesses that are freight intensive gain less from upgrading the A9 than businesses heavily dependant on the road for staff travel.

6.6.9 The benefits described above are regional benefits only. There will be some benefit displacement to the Scottish level (and further afield), but implications from the business surveys suggest that these would be relatively low key, largely because expenditure by most businesses and employees in the HIE study area is on local goods and services, and proportionally little is sourced from further afield.

7 ECONOMIC ACTIVITY & LOCATION IMPACT (EALI)

7.1 Introduction

7.1.1 As part of the assessment of the economic impacts of different options for upgrading the A9 trunk road, DHC has undertaken a review of the Economic Activity and Location Impacts (EALI) appraisal of the proposed changes to the A9 between Perth and Inverness. This section summarises the results of this review. A copy of the key issues pertaining to the EALI and the methodology used to estimate the GVA impacts for the various zones in the central study area is contained in Appendix F.

7.2 Assumptions and Policy Backdrop

7.2.1 The Economic Activity and Location Impact (EALI) analysis describes the impacts of the A9 on the economy, using income and employment. The analysis considers how national, regional and local economic activity and its location are likely to be affected by changes to the A9.

7.2.2 This requires a three stage process:

- a qualitative review and understanding of potential wider regional or national economic development and regeneration outputs and outcomes from the proposed upgrading;
- a review of potential impacts on business performance and an assessment of potential additional investment opportunities arising from the proposed upgrading; and
- an appraisal of national, regional and locally significant impacts, quantifying these where possible using measures of GVA and employment.

7.2.3 The aim of the EALI has been to develop a credible chain of cause and effect from the A9 upgrading and to quantify the most important factors as far as possible.

7.2.4 The appraisal has drawn from three main sources of evidence:

- national statistics;
- published policies and previous research; and
- surveys of businesses and travellers undertaken for this research.

7.2.5 The qualitative analysis identifies how the road could have an impact looking at each sector separately. Some of the impacts have been quantified based on the available data. However, there has been no accessibility modelling element to this analysis so the quantitative analysis is limited.

7.2.6 The summary of the analysis shows gainers and losers from the proposed changes both geographically and by business sector and how these impacts relate to policy aims.

7.2.7 In addition the impacts have been quantified by identifying the distribution of the overall GVA benefits shown in Chapter 6. The methodology and analysis are shown in Appendix F.

7.2.8 Table 7.1 summarises the policy context of the public agencies who have formulated policies in relation to the A9.

Table 7.1: Policies for Upgrading the A9

Organisation	Policy	Suggested Economic Impacts
HITRANS	The A9 has been identified as one of the links in the region's Strategic Network, with each link being assessed for its functionality and adequacy in achieving its intended functions.	Dualling of the A9 from Perth to Inverness is said to bring an "unambiguously positive contribution" in enabling the region to compete and support growth, and to improve safety and security.
HIE	Continued improvements in the transport infrastructure are essential to the long-term development of the Highlands and Islands.	Develop and diversify the regional business network, allowing it to compete in the global market and attract new and exciting business opportunities to the area
Moray Council	Although the A9 is outwith Moray's boundaries to policies are for appropriate partnerships to secure effective links between Moray, the rest of Scotland, the UK and Europe.	Diversifying the industrial and commercial base of Moray in a sustainable manner and laying the foundations for future economic growth.
Highland Council	Highland Council support of the campaign calling for the dualling of the A9 south of Inverness.	To develop and sustain the economy the A9 is the principal artery for a large percentage of all travel.
Perth and Kinross Council	The A9 provides the main access route to/from the Highland area.	Indirect links on development through planning policy to allow only development locations where there are good transport links. Tourism is the most important economic activity in the area north of Perth.
Scottish Tourism Forum	An urgent review of road upgrade programmes, with dualling improvements to the A9 to international standards.	Profitable growth in home and international markets from improved transport links.
Cairngorms National Park	The A9 is a core route through the area and so is important in providing access for tourists not only by car but using public transport services.	The A9 allows people living in the park area to work elsewhere and allows visitors to access the Park. Aviemore is a significant economic driver for the wider region and is closely linked with growth in the city of Inverness.
NHS Highland	Reducing travel times to/from treatment centres is a key priority for NHS, not only to serve and treat patients more effectively, but to also save money.	Growing economy for healthcare increases the need for improved access.

7.2.9 In order to review the impact, the geographic scope of the analysis needed to be established. This was undertaken based on:

- a review of the policies of public agencies in relation to the A9;
- a workshop was held with key stakeholders in the business community; and
- a review of boundaries for which data were available.

7.2.10 Based on this review it was identified that the largest impacts in the HITRANS area would be in and around Inverness so the boundaries of the zones reflect the distinct economies and become increasingly large as remoteness from Inverness increases.

7.2.11 Although data availability was a key factor in selecting the zoning system, there are other published reviews which are also useful but adopt different boundaries such as Council areas. The review of economic activity therefore starts with the broadly based coverage of the Highlands area before looking at more local impacts.

7.3 Location, Business Development and Inward Investment

7.3.1 To map these general trends on to the A9 changes, the published literature and business survey results were used to interpret how local and national companies would react to the changes in accessibility with and without upgrading of the road.

7.3.2 The positive and negative impacts of upgrading are summarised in Table 7.2 overleaf. There are no negative national impacts identified but regionally and locally there are both positive and negative effects.

7.3.3 Employment location is becoming a less critical factor for many people selecting their home location. With the growth in life sciences and knowledge-based employment generally within an increasingly globalised marketplace, there may be potential for more people to identify Highland region as a location within which to set up a business base or their home.

7.3.4 Growth in high skilled, professional and senior managerial employment may mean more employment can be undertaken remotely, with travel to work only required occasionally. This is not a significant trend at present, but may be one that is developing where the A9 could be critical.

7.3.5 Reducing the perceptions of the remoteness of Inverness (and other parts of the Highlands) may have a greater impact on decision makers than the actual travel time- savings and improved comfort resulting from the dualling of the A9.

7.3.6 Overall the analysis shows that perceptions of the A9 are much more important for location choice than the actual time of travel. The quality of travel on the A9 is therefore likely to be most important for:

- growing the population and helping to ensure that the Highlands continues to become a better place to live and work. This affects particularly the residential location choices of high skill professionals;
- travel itineries and thresholds in the tourism sector. Cultural industries are critical and demand high quality bus and coach connections using the A9; and
- life science businesses are well suited to the Highlands economy but require excellent access for international travel. The role of the A9 and Inverness airport are critical for access.

Table 7.2: National and Regional Impacts

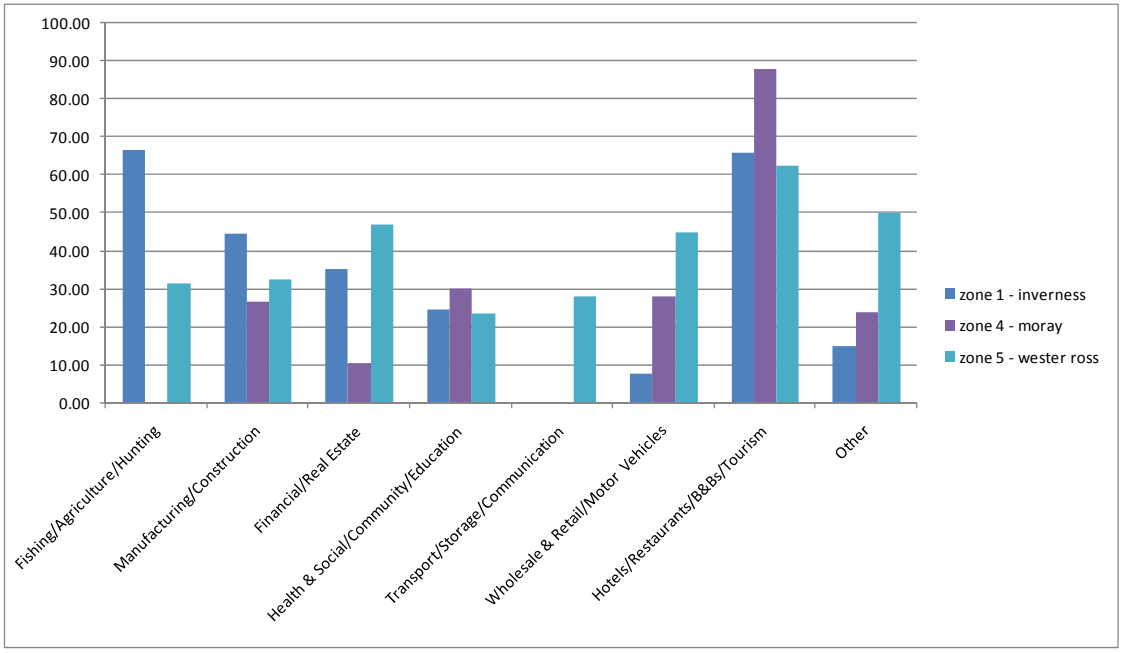
Effect	Positive	Negative	Scale
Multi-national company expansion	Highly correlated with population trends and culture. The largest effect is that a growing population leads to a more extensive branch network in large companies (e.g. Tesco/IKEA).	Improved roads means that remote locations can be served from central locations.	The scale of the positive mechanisms is much greater than the scale of the negative mechanisms but the road upgrading has a greater effect on the negative mechanisms.
Growth of markets for local companies	Road upgrade potentially allows local companies to become more significant national players. Many examples in the food and drink sector. Growth of lifestyle businesses dependent on reducing stress of travel. Reduced costs from being able to source material from further afield improve competitiveness.	National companies can serve Highland economy without local presence. Examples include central belt builders and printers taking more of the market in the north.	Transport is relatively unimportant relative to other factors.
Establishing a presence in new markets	Transport can be the critical factor constraining the choice of a location in the north. The tourism sector has many examples where the quality of the A9 could be critical.	None identified.	Could be critical if a large employer or market is involved.
Growing employment catchments	Ability to attract high skill staff is dependent on some workers travelling long distances so stress free travel is required.	None identified.	Skill levels are the critical factors so growing the high skill populations could be a critical factor.
Business purchasing and supplies	Improves access to national business networks potentially enhancing competitiveness, but no examples identified where the A9 would be the critical factor.	Local businesses more likely to access higher quality services and supplies from the central belt and further afield.	Could be significant if Highland businesses are perceived to be less remote.

7.4 The distribution of A9 Impacts and Geographical 'Footprint' of the A9

7.4.1 Using the business surveys the distribution of income for businesses has been analysed. For each sector, the proportion of income from clients based in locations that would involve the use of the A9 (using the most direct route) has been assessed. This shows the 'footprint' of the A9 by sector on the economies of the zones at the northern end of the A9.

7.4.2 There are insufficient businesses at the southern end of the A9 to be able to assess the distribution of income by sector, but few businesses in the central belt would be reliant on the A9 for a substantial proportion of their business. In some sectors the sample sizes are small (see Appendix F) but this analysis shows fairly robustly that the largest benefits are for zones 1, 4 and 5. Figure 7.1 shows the 'footprint' as the percentage of income from clients from the zones and sectors relying substantially on the use of the A9 for connectivity.

Figure 7.1: % of Northern business income by sector dependent on exports using A9



7.4.3 This analysis shows that:

- Moray is particularly reliant on the A9 for tourism orientated development; and
- manufacturing construction and retail/distribution account for nearly 75% of the exports dependent on the A9.

7.4.4 In Chapter 6, the total GVA impacts were described in Table 6.6. An estimate has been made of how these benefits are distributed across the analysis zones. The calculation methodology is described in Appendix F.

7.4.5 Tables 7.3 and 7.4 summarise the GVA benefits by zone and sector.

Table 7.3: GVA benefits by zone and sector for strategic dualling

	Zone 1 - Inverness	Zone 2 - Aviemore	Zone 3- Easter Ross	Zone 4 - moray	Zone 5 - Wester Ross	Zone 6 - Western Isles	Zone 7 - Orkney	Zone 8 - Fort William	Zone 9 – NE Scotland	Other	Totals
Fishing/Agriculture/ Hunting	2.6	0.6	1.9	0.0	2.1	1.3	0.5	0.7	0.2	0.5	10.4
Manufacturing/ Construction	35.5	6.2	4.9	25.7	8.3	12.7	1.3	1.9	2.4	5.2	104.1
Financial/Real Estate	51.7	4.9	6.8	12.9	22.2	0.0	1.5	3.5	11.6	6.1	121.1
Health & Social/Community/ Education	36.7	7.6	7.6	53.5	11.3	0.0	0.7	3.6	6.4	6.7	134.1
Transport/Storage/ Communication	0.0	0.0	0.0	0.0	34.2	0.0	17.6	9.2	18.4	4.2	83.7
Wholesale & Retail/Motor Vehicles	7.1	1.6	0.0	25.1	13.3	0.0	1.4	2.2	3.1	2.8	56.5
Hotels/Restaurants/ B&Bs/Tourism	69.5	16.7	0.0	36.2	21.1	2.6	0.5	2.5	1.6	7.9	158.7
Other	4.0	0.0	0.0	3.2	4.4	0.0	0.4	0.7	0.8	0.7	14.2
Totals	***207.2***	***37.5***	***21.2***	***156.6***	***116.9***	***16.5***	***23.8***	***24.4***	***44.5***	***34.1***	***682.8***

Table 7.4: GVA benefits by zone and sector for full dualling

	zone 1 - inverness	zone 2 - aviemore	zone 3- easter ross	zone 4 - moray	zone 5 - wester ross	zone 6 - western isles	zone 7 - orkney	zone 8 - fort william	zone 9 - NE	other	Totals
Fishing/Agriculture/Hunting	3.5	0.8	2.6	0.0	2.8	1.7	0.6	0.9	0.3	0.7	14.0
Manufacturing/Construction	48.5	8.4	6.7	35.1	11.4	17.3	1.7	2.6	3.3	7.1	142.3
Financial/Real Estate	74.3	7.0	9.8	18.5	31.8	0.0	2.2	5.1	16.6	8.7	174.0
Health & Social/Community/Education	51.0	10.5	10.5	74.2	15.6	0.0	1.0	5.0	8.9	9.3	186.0
Transport/Storage/Communication	0.0	0.0	0.0	0.0	48.3	0.0	24.9	13.0	26.0	5.9	118.1
Wholesale & Retail/Motor Vehicles	9.8	2.3	0.0	34.8	18.4	0.0	1.9	3.1	4.3	3.9	78.5
Hotels/Restaurants/B&Bs/Tourism	97.9	23.6	0.0	51.0	29.8	3.6	0.6	3.6	2.3	11.2	223.6
Other	5.6	0.0	0.0	4.5	6.1	0.0	0.6	0.9	1.1	1.0	19.7
Totals	***290.7***	***52.5***	***29.6***	***218.2***	***164.3***	***22.6***	***33.5***	***34.2***	***62.8***	***47.8***	***956.2***

7.4.6 Figures 7.2 to 7.9 show the distribution of these GVA benefits by sector for the full dualling and strategic dualling options. Given the small sample sizes in some sectors these results need to be treated with some caution. However it is clear that:

- remote areas would benefit more from the time savings for sectors producing and transporting goods such as fishing and manufacturing;
- less remote areas such as Inverness would face increased competition from the central belt for some services such as transport; and
- the service economy would benefit from the A9 in core areas such as Inverness but this could lead to increased competition on more remote areas.

Figure 7.2: Agriculture, Forestry and Fishing

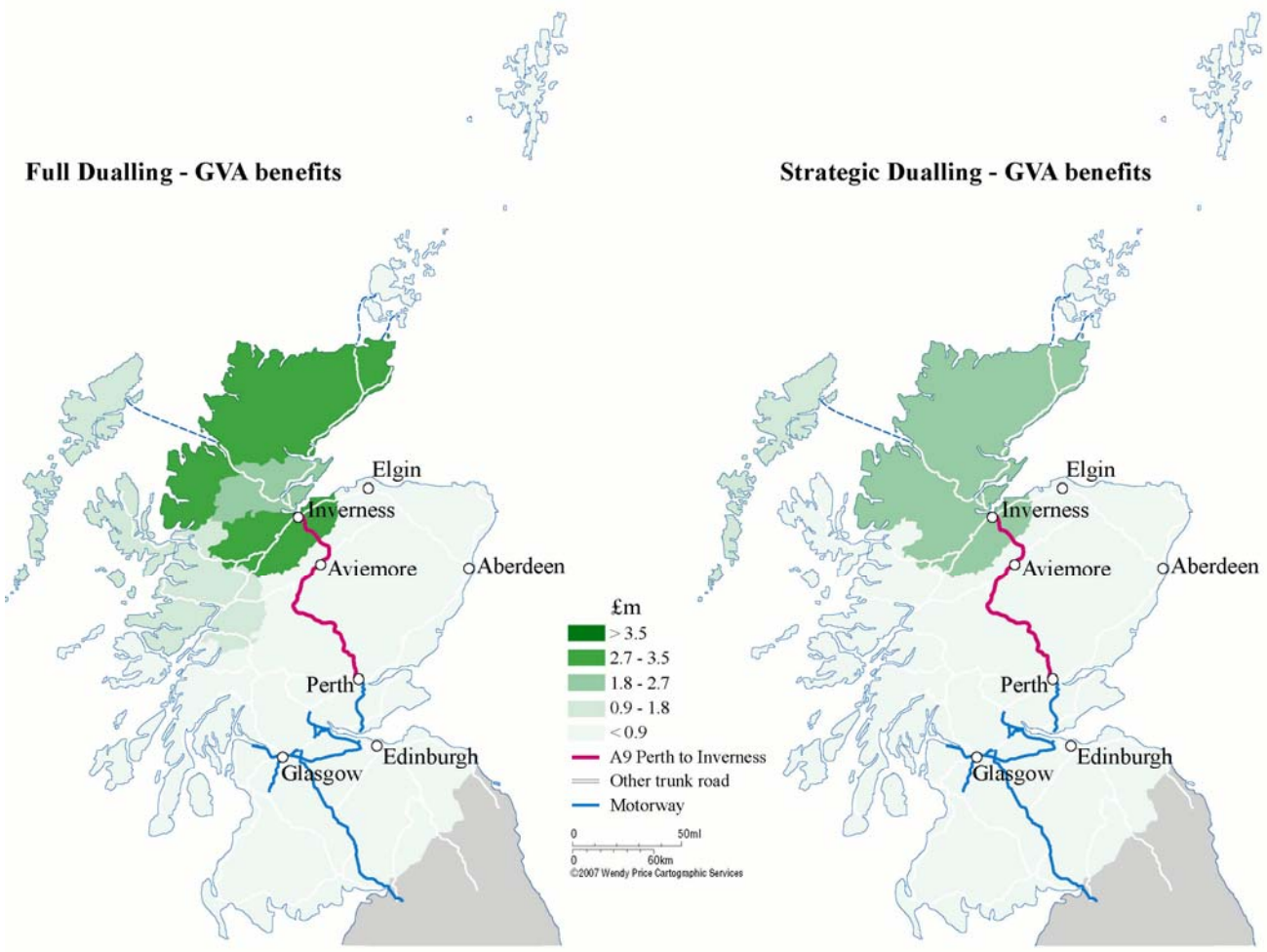


Figure 7.3: Industry, Energy and Construction

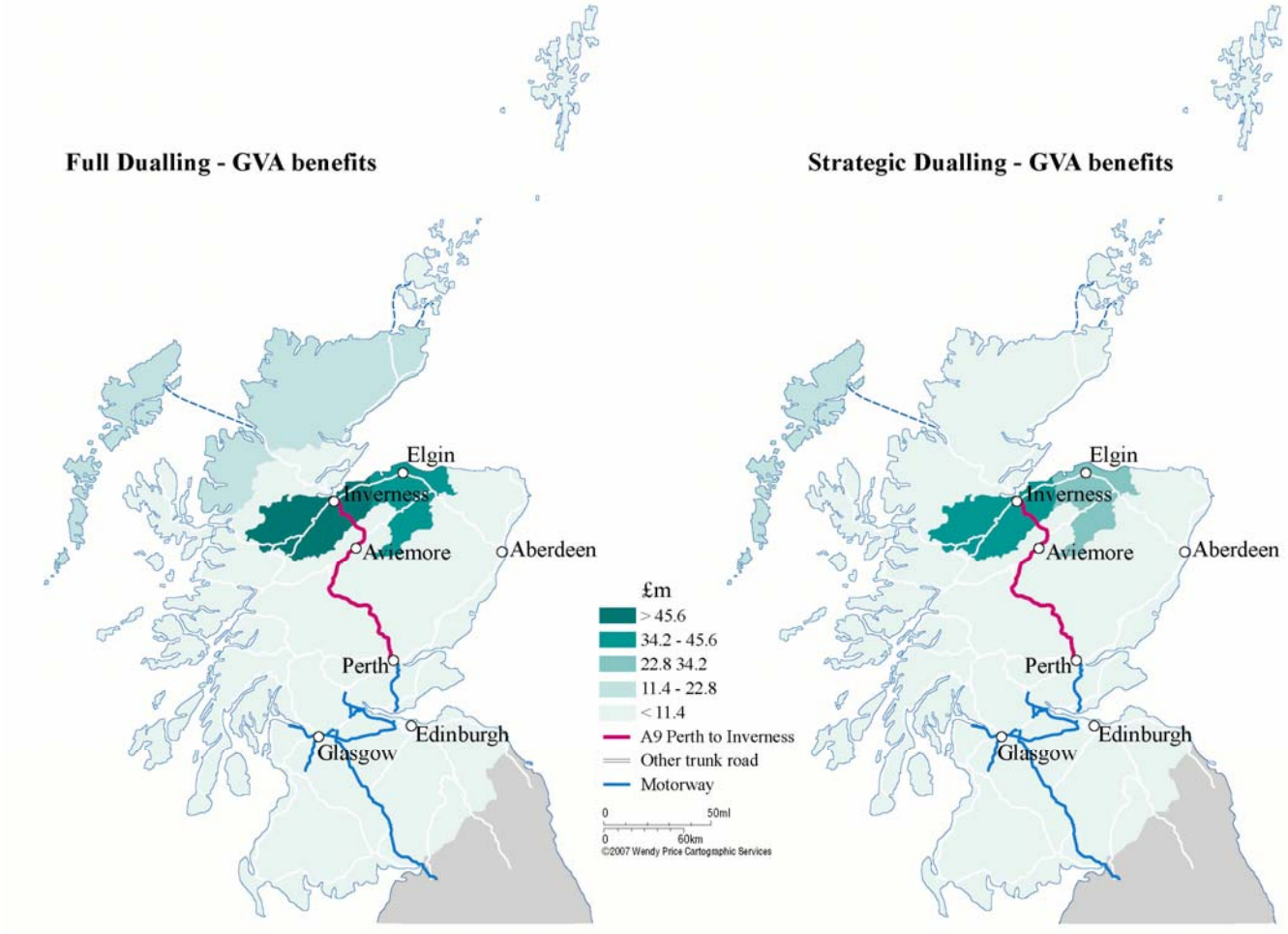


Figure 7.4: Banking, Finance, Insurance and Related

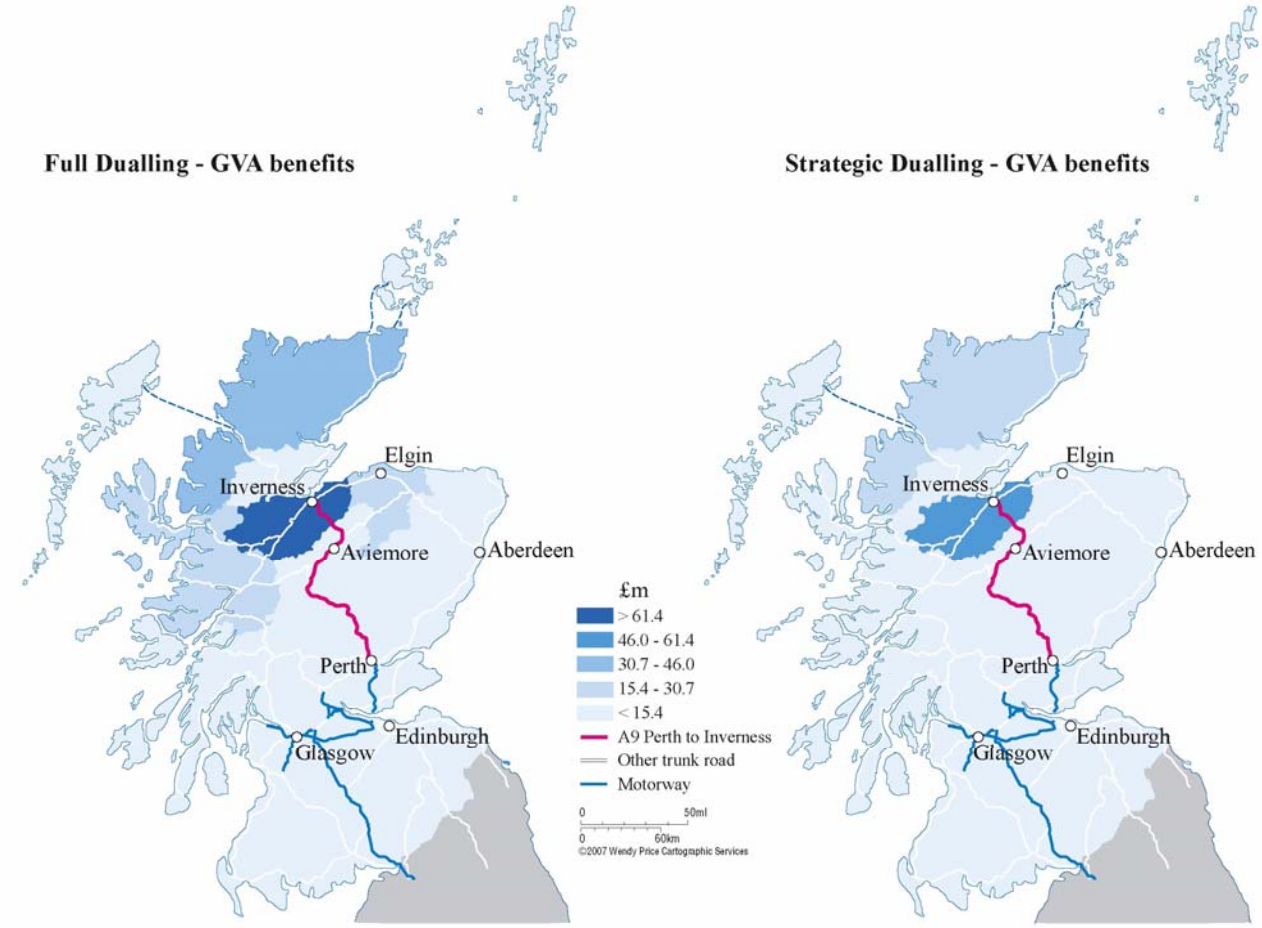


Figure 7.5: Public Administration, Health and Education

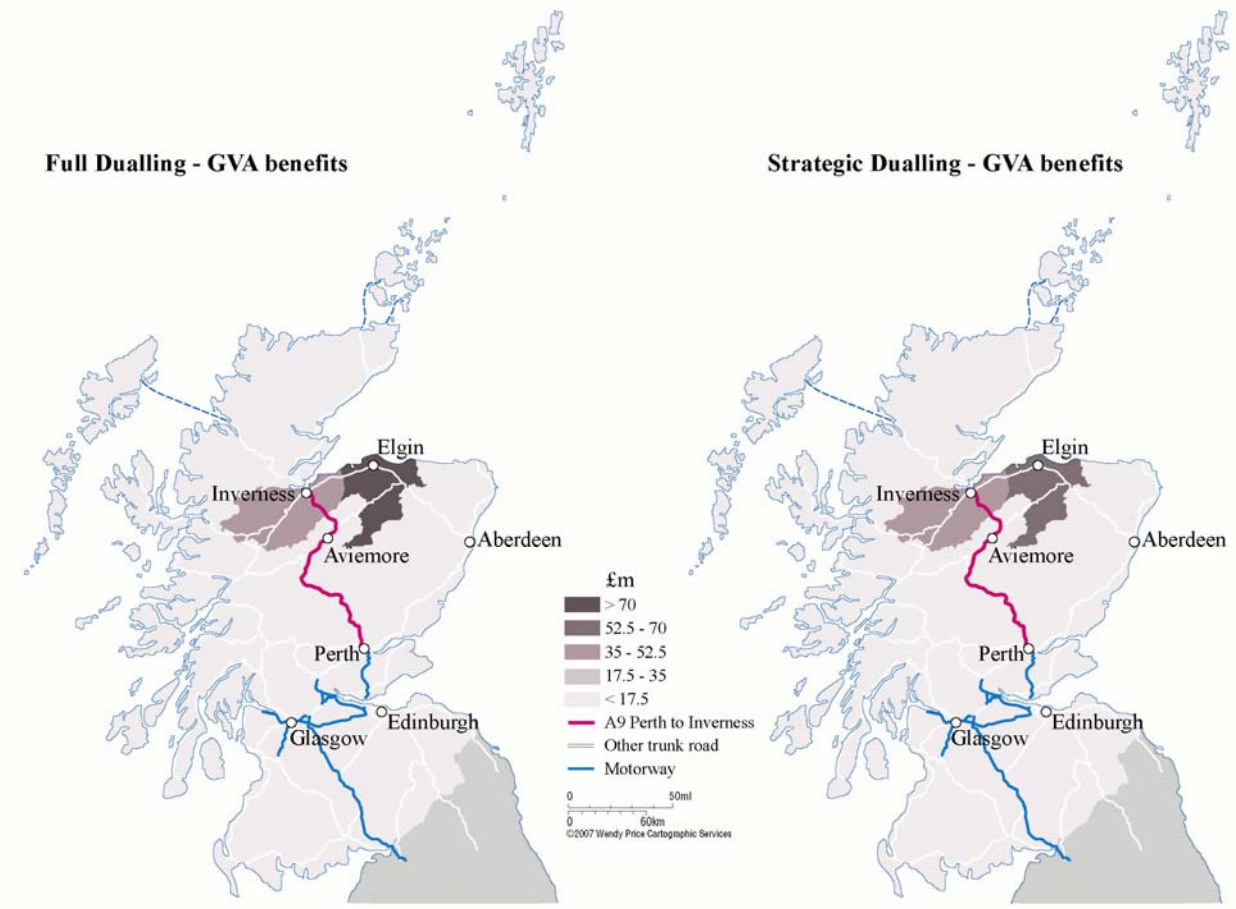


Figure 7.6: Transport and Communications

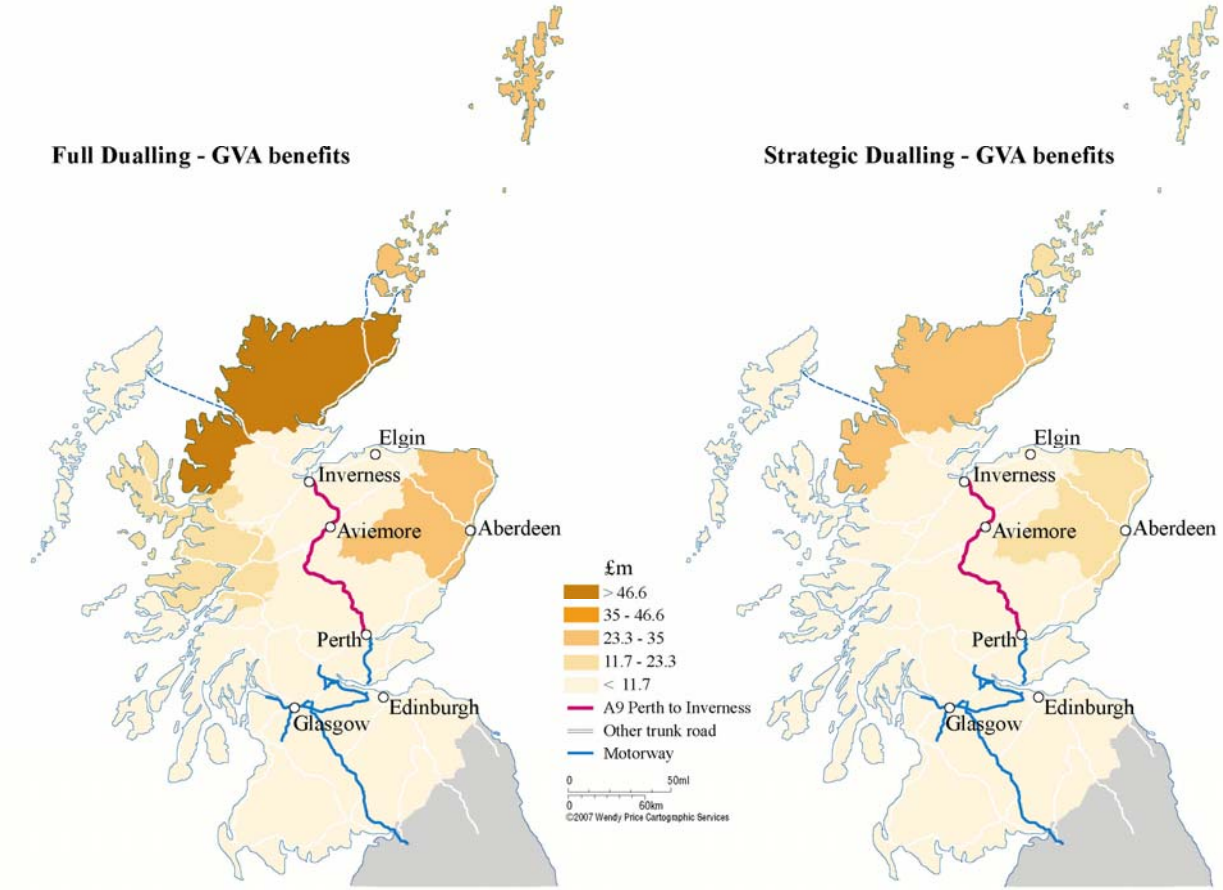


Figure 7.7: Wholesale and Retail

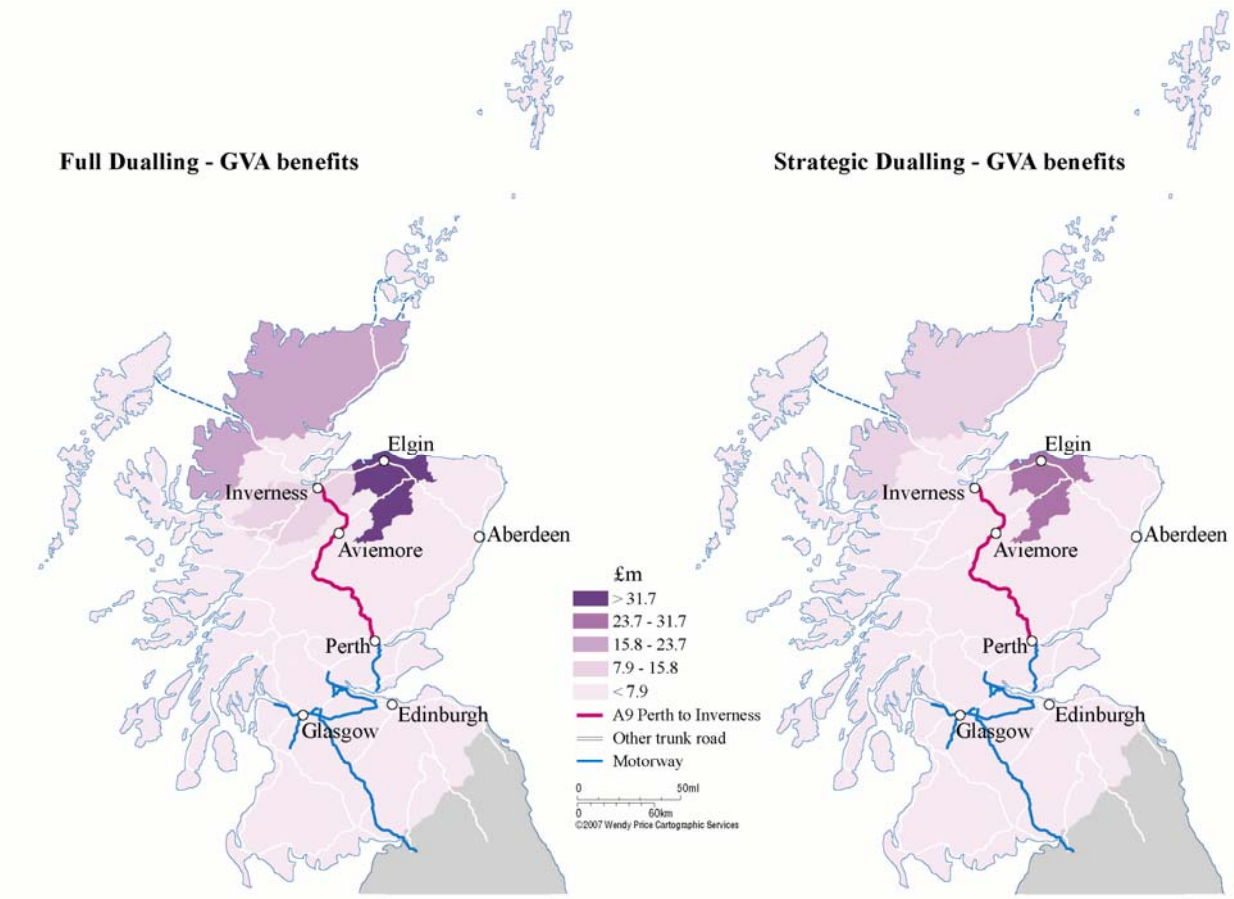


Figure 7.8: Tourism and Leisure Trade

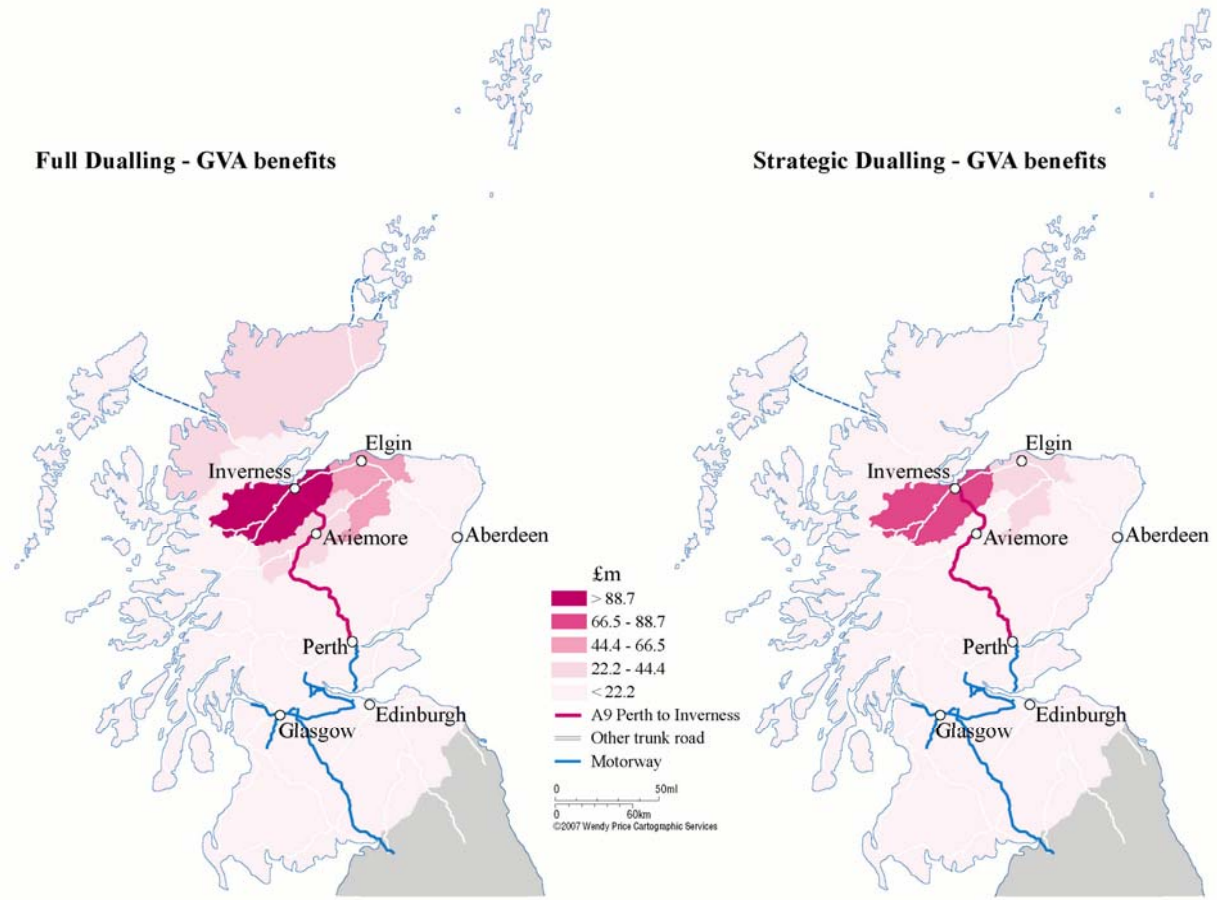
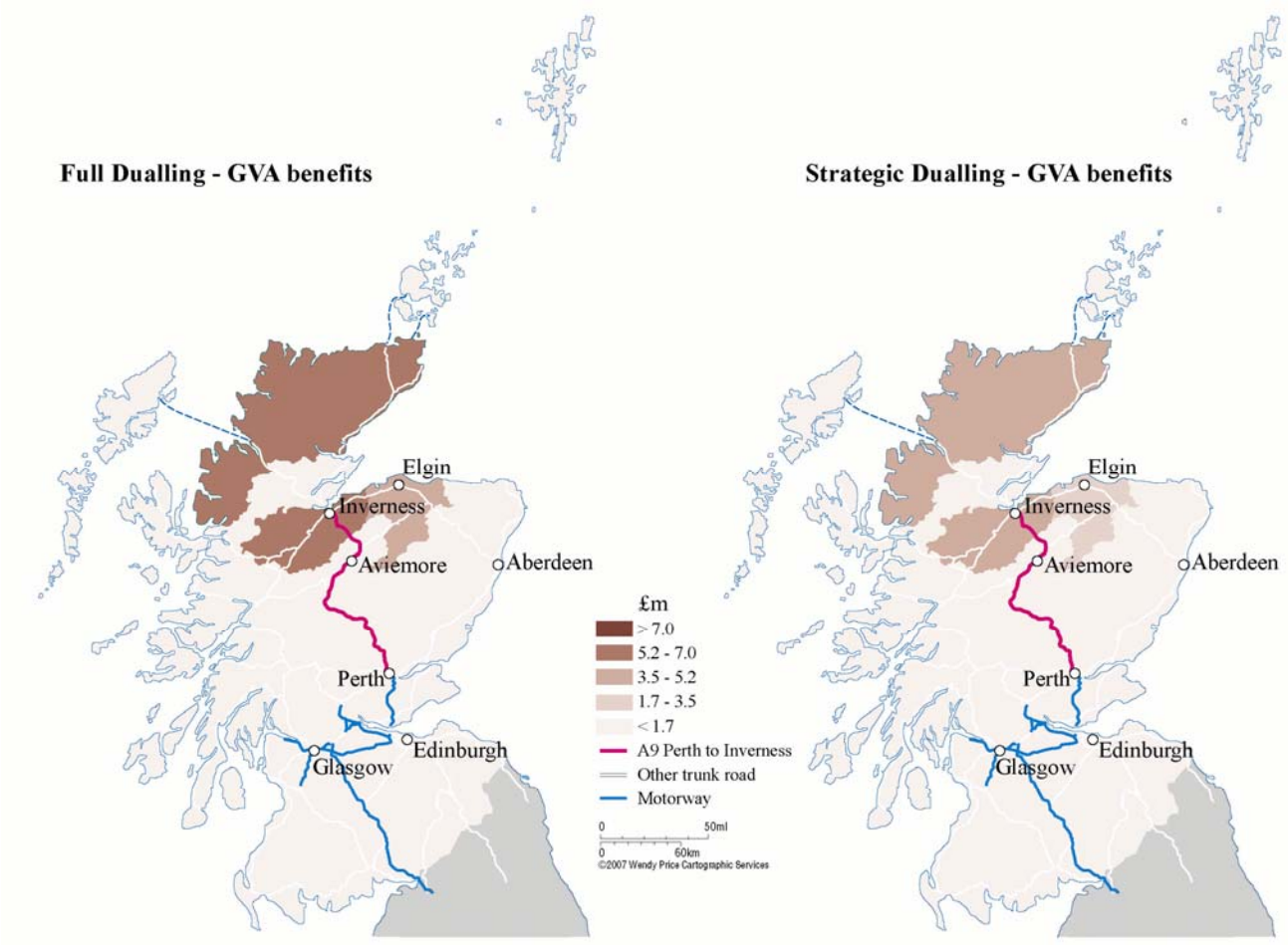


Figure 7.9: Other (IT, etc.)



7.4.7 Figures 7.2 to 7.9 clearly show that the benefits from upgrading the A9 will be, for the most part, relatively widely distributed throughout the study area. However, in some sectors, benefits are concentrated in the Inverness, Nairn and Moray area, most notably in manufacturing and construction, finances and real estate, health, social community and education services, and hotels, restaurants, B&Bs and tourism.

7.4.8 This is most definitely not the case however for the transport, storage and communication sector, the sector in which the more peripheral areas clearly benefit from improvements to the A9 to a greater degree, with the exception of Harris and Lewis.

7.5 Appraisal of Impacts

7.5.1 This appraisal has been based on the findings of sections 7.2 to 7.4 covering:

- published policies and analysis on the economy of Scotland and the Highlands;
- a qualitative overview based on the business interviews carried out for this research;
- economic linkages identified in the business surveys and analysis of the scale of each sector.

7.5.2 Impacts of the A9 upgrading are potentially very significant for the Highlands. However to quantify these requires detailed modelling work such as is being proposed for the Strategic Transport Projects Review (STPR). In reviewing the available data it is of note that:

- users of the A9 cannot visualise what travelling conditions would be like if traffic grew and base responses to questions on their current perceptions;
- the survey programme has not been designed to establish the views of households that might consider locating in the Highlands (e.g. sampled from the central belt or further afield); and
- the A9 is a relatively minor impact on location choice for businesses but could become the critical factor if conditions do not reflect the aspirations of inward investors of if there are labour market shortages as a result of it being difficult to attract people to live and work in the north.

7.5.3 As a result the summary of impacts in Table 7.5 overleaf relies mainly on the qualitative analysis.

7.5.4 The greatest impacts are on residential location choice. However, the impacts of dualling need to be seen in context. The north of Scotland will remain remote and at 170 miles from central Glasgow to Inverness the economy in the north will continue to be adapted to remoteness.

7.5.5 Impacts in the Newtonmore and Aviemore areas could be more significant as the total journey times to the central belt are more easily achievable, (e.g. Glasgow to Newtonmore it is 123 miles and to Aviemore it is 138 miles).

Table 7.5: Summary of EALI Impacts

Sector	Summary of Impacts			
	Local		National	
	Gainers	Losers	Gainers	Losers
Manufacturing and processing	Food and drink sector is more likely to locate in the area.	No significant effects.	No significant location impacts. Efficiency gains are measured elsewhere.	No significant effects.
Local trade	Some concentration of markets in major centres such as Inverness.	Smaller towns and villages.	No significant effects.	No significant effects.
Inward investment	Perceptions of travel will be the largest impact but indirect impacts via wider employment markets are also significant.	No significant effects.	No significant effects.	No significant effects.
Tourism	Important positive impacts on tourism sector allowing more choice and opportunity in these markets.	No significant effects.	Will help to improve Scotland's tourism offering.	No significant effects.
Residents	Potentially large impacts on residential location if people find the road less stressful to drive.	No significant effects.	Could help to support national population growth if more people move to the area as a result of higher quality driving opportunities.	No significant effects.
Agglomeration effects	No significant effects.			

7.6 EALI Conclusions

7.6.1 The A9 is a route of national significance affecting the economy of a large part of the north of Scotland. The locational impacts resulting from the route need to be reviewed at a national level. Future location choices by residents and businesses will be affected, not just by changes to the A9 but the complementary and competing transport investment on other strategic road, rail and air routes.

7.6.2 This analysis has sought to complement, rather than duplicate the STPR. It therefore presents only a partial picture of the economic and location impacts of the A9.

7.6.3 Nevertheless the analysis shows that:

- the northern end of the A9 provides residential and business locations with unique international attributes. High quality and stress-free travel on the A9 is needed to help protect and improve these opportunities. Scotland's economy will not be able to capture the full benefits of these unique assets without at least some improvements to the A9. However further work would be needed to benchmark the opportunities in the North of Scotland against other peripheral parts of Europe (e.g. North West Spain where a dual carriageway has recently been completed to the remote communities). This has been beyond the scope of this work. Scotland's future economic success depends on the availability of premium living and working locations able to compete internationally. The stress of driving on the A9 could potentially undermine this;
- there are also impacts of national significance in the tourism sector. In increasingly competitive international markets Scotland needs to be able to be a destination of global significance. It was very clear from the surveys of tour operators that the opportunity to make attractive day trips from Edinburgh and Glasgow using the A9 is an increasingly important market. If conditions on the A9 reduced the options for trips to the Cairngorms, Inverness, Speyside distillery tours and other tourist trips then there could be some consequential effects on the overall competitiveness of the national tourism product;
- linked with this, cultural industries are increasingly critical and generate peak demands. Music festivals are not just one off events but are attracting international audiences and raising awareness of the Highlands as a unique European asset; and
- life science and other knowledge economy businesses are well suited to the Highlands economy but require excellent access for international travel. The role of the A9 and Inverness airport are critical for access.

7.6.4 These national impacts are difficult to survey but the evidence from previous research, combined with analysis of changing economic trends shows that the impacts could be significant not just for the region at the northern end of the A9 but for Scotland's economy as a whole.

7.6.5 There would be both local winners and losers at a local and regional level from:

- the expansion of employment markets;
- some centralisation in major centres of local trade and retailing;
- remoter food and drink companies being better networked; and
- changes in the relative attractiveness of tourist attractions, but within an overall climate of growth.

8. STRENGTHS, WEAKNESSES, OPPORTUNITIES AND THREATS

8.1 Introduction

8.1.1 The Strengths, Weaknesses, Opportunities and Threats (SWOT) analysis used here is an appropriate and useful technique for understanding the strength and weaknesses of investing in improvements to the A9, and examining the opportunities and threats that face the successful implementation and outcomes of this investment.

8.1.2 SWOT analysis is a useful tool for assisting in the development of a strategic approach and more detailed strategy formulation for trunk route development in the Highlands region, and for assessing risk in the operating and wider environment.

8.1.3 It needs to be borne in mind that the strengths and weaknesses of any proposed investment often relate to the operating environment within which the investment occurs. For instance, when upgrading the A9 these strengths may relate to increased journey times and journey time reliability, and weaknesses may relate to the disruption to road traffic as a result of route improvement works. Both of these will impact on the ability of the A9 to deliver improved business accessibility to other parts of the Highlands and Scotland, and the accessibility of the Highlands to visitors.

8.1.4 On the other hand, opportunities and threats often relate to external factors occurring beyond the immediate operating environment of the A9. A threat may be that product markets may change as a result of changing costs or fashion, making products exported out of the Highland region less competitive, prompting a decline in the use of the trunk route.

8.1.5 Macro-economic factors may well feature as a threat, possibly where exchange rates move against overseas tourists, reducing the benefit of better links to the Highlands simply because fewer tourists will come and use the route. Opportunities may arise as an inverse corollary of these trends – for example, a weaker pound sterling will assist Strathmore to sell more bottles of water to Spain, and assist the NHS in Inverness in deciding to import more dressings from France, both of which may involve heavier use of the A9, and benefit from the improvements to the road.

8.1.6 Because strengths, weakness, opportunities and threats frequently play out at different levels, the SWOT analysis is sometimes referred to as an Internal-External (IE) Matrix Analysis.

8.1.7 Strengths, weaknesses, opportunities and threats associated with road improvements are subjective to some extent, and the relative influence between these rather more so. In the absence of a SWOT-specific debate, the parameters adopted here covering strengths, weaknesses, opportunities and threats have been abstracted from the workshop conducted in February 2007, and the in-depth business interviews undertaken in May and June 2007, and reflect the views of the stakeholder consultation and participation in the study.

8.2 The Identification of Strengths, Weaknesses, Opportunities and Threats

8.2.1 A review of the business surveys and of other stages in the study has revealed a raft of SWOT parameters, which are shown in the SWOT matrix in Table 8.1. This is not meant to be a completely exhaustive list of all possible SWOT parameters regarding the A9, but reflects the views of the participants in the study.

Table 8.1: The SWOT Matrix for Improvements to the A9 Perth – Inverness Trunk Route

Strengths:	**Weaknesses:**
S1. Increasing the size of the local market – capturing customers who would otherwise go to the central belt – critical for growth and new investment; S2. Reducing stressful journeys make undertaking their business more fulfilling – improvements may avert population leaving the highlands and staff can undertake more productive work; S3. Staff travel to work problems where there are recruitment difficulties for relatively low cost labour; S4. Staff flexibility important, need to improve staff travel and the ability to travel by car in the uncongested Highlands is a competitive advantage of the Highlands; S5. A9 is perceived to be of a much higher quality than other roads - many companies rely on some staff travelling considerable distances to work, hence any improvements should maintain this; S6. Perceptions of access to and within the Highlands improves in other regions; S7. Perceptions by Highland businesses that other markets are more accessible; S8. Avoid staff having to stay overnights in the central belt or other parts of Scotland which would increase costs; S9. Reduce costs associated with scheduling of driver hours; S10. Reduce delays to (life-line) ferry traffic; and S11. Raise benefits to public transport users.	W1. May facilitate drain in relatively low-skilled employment; W2. Environmental concerns; W3. Improvements may discourage travellers switching to rail – regional and national policy implications; W4. Improvements to A9 perceived as increasing competition with central belt; W5. Improvements to A9 may mean settlements en-route lose on passing trade traffic; W6. Perceptions that A9 congestion not the problem, congestion in central belt the problem; and W7. The cost of carrying out major improvements on the A9 including capital (construction) costs and annual expenditure for maintenance.
Opportunities:	**Threats:**
O1. Growth of these (larger) business sectors was closely linked to population trends; O2. Emergence of new markets (e.g. biofuels); O3. Availability of natural resources; O4. (Exporting) brand associated with the Highlands, including improvements to road-side tourist signage; and O5. Increase visitor numbers to the whole Highland region, both short- and long-stay.	T1. Regulatory barriers to growth; T2. Increasing competition; T3. Other micro-economic trends, changes in factor/product markets; T4. Poor regional transport infrastructure and articulation including lack of public transport; T5. Macro-economic trends, exchange rates, interest rates; T6. Rail real alternative to A9 for business trips to central belt if priced/timed competitively; T7. Local companies have evolved to optimise operations within the local business environment – perception by some that there is no need for improvements to the A9; and T8. Weak complementary transport policy environment.

8.2.2 It should be noted that most of these SWOT issues are covered in the separate Business Surveys Report[23], and are not dealt with to any great depth here. Although this exercise is designed to keep subjectivity to a minimum, some of these issues could arguably be placed in more than one category.

8.2.3 It is useful, however, to identify which of the strengths and weaknesses may be influenced by policy measures complementing improvements to the A9, and which are outwith the control of local policy makers. Because opportunities and threats tend to be factors external to the operational environment of the A9, local policy makers would be expected to have less, limited or no control over these. This seems to be true in particular for threats to A9 improvements.

8.3 Complimentary Policy Measures

8.3.1 There are a number of complementary measures that can be adopted to increase the size of the local market for all businesses. Full coverage of these is beyond the scope of this study. However, local authorities can encourage in-migration using a wide variety of local and strategic planning policies covering local housing and industrial land-use policies to facilitate residential and industrial expansion, and adopt policies such as quality bus partnerships to strengthen the local public transport network.

8.3.2 Introducing more stopping facilities, providing signposting to local attractions, encouraging improvements to both existing stopover sites and roadside services on the A9, could all complement the engineering solutions to upgrading the A9 in order to reduce stressful journeys.

8.3.3 Although current planning policy tend to be set against such developments, local authorities may, where necessary and appropriate, call for the relaxation of planning regulations for improvements and new-build, and be in a position to use financial incentives for physical expansion or improvements to these sites.

8.3.4 In order to address staff travel to work problems inhibiting recruitment of relatively low cost labour; a faster and safer A9 can be complemented by policies outlined above to increase the number of bus services using the route to access remoter business sites. Consideration could also be given to measures encouraging cycling and walking to work where this is feasible.

8.3.5 One opportunity that local authority can build on to the improvements to the A9, and one that has been clearly expressed by businesses, is upgrading the tourist signage on the route. This is a very visible local branding of the Highland region and is considered poor at present. An overhaul of these facilities is relatively straightforward and inexpensive.

8.3.6 Improvement of local transport infrastructure may also counteract the perception among some businesses that improvements to the A9 encourages the drain of relatively low-skilled employment to other areas of Scotland, most notably the big cities in the central belt.

8.3.7 The environmental concerns of the construction of the A9 can be allayed with assurances that this will meet with full compliance of national and EU environmental regulations regarding the construction and/or expansion of major roads. However environmental concerns over the use of the upgraded A9 will be more difficult to address at a local level, beyond installing measures to monitor changes to air quality and other sensitive environmental factors.

8.3.8 Improved signage and better roadside information is one option available to local authorities to address the concerns that upgrading the A9, especially if dualling will mean that settlements en-route will suffer by losing out to passing trade traffic. Assisting in improving public transport penetration from the major cities such as Inverness into rural areas is another. In fact measures to improve the provision of public transport services is one threat category that local policy makers have a real opportunity at addressing.

[23] A9 Perth to Inverness Economic Appraisal: Business Surveys Report, Scott Wilson and DHC, August 2007

8.3.9 Table 8.2 below summarises the strengths, weaknesses, opportunities and threats and the degree over which local policy makers are able to exert influence, where:

✓✓✓ major policy influence

✓✓ moderate policy influence

✓ minor policy influence

✗ no policy influence

Table 8.2: The SWOT Matrix & the Opportunity and Scale of Policy Influence on Improvements to the A9 Perth – Inverness Trunk Route

Strengths:	**Level of policy influence – support**	**Weaknesses:**	**Level of policy influence - mitigate**
S1.	✓✓✓	W1.	✓✓
S2.	✓✓✓	W2.	✓✓
S3.	✓✓	W3.	✗
S4.	✓	W4.	✗
S5.	✓	W5.	✓✓
S6.	✗	W6.	✗
S7.	✗	W7.	✗
S8.	✗		
S9.	✗		
S10.	✓		
S11	✓✓		
Opportunities:	**Level of policy influence –support**	**Threats:**	**Level of policy influence - mitigate**
O1.	✓✓✓	T1.	✗
O2.	✓✓	T2.	✗
O3.	✗	T3.	✗
O4.	✓✓	T4.	✓✓
O5.	✓✓	T5.	✗
		T6.	✗
		T7.	✗
		T8.	✓✓

8.4 Summary

8.4.1 Table 8.2 suggests that improvements to the A9 have a large number of strengths associated with it. Where local government is able to support these, it is able to do this in depth, with an armoury of measures. However there are a number of strengths resulting from the improvements, four of which have been identified, that the local authority would be unable to directly lever policies in to support these.

8.4.2 Local Government is in a position through policy support to assist the Highland's ability to exploit the opportunities which improvements to the A9 will assist in opening up, and to do so also in some depth. In terms of the broader threats there is only a very limited amount local authorities are able to do to mitigate these. This is unsurprising given that the threat environment is largely at a level external to local authority control.

9 CONCLUSIONS

9.1 Introduction

9.1.1 The A9 is the main trunk route from the central belt to the Highlands and Islands, and as such, has been assessed as having the highest level of functionality of any transport link in the region, accounting for almost all passenger journeys and freight movements between Inverness and the central belt along the corridor. It is also a lifeline route for the island communities of Orkney, Lewis and Harris for supplies and business connections and is an essential route for tourist trips visiting the far north of Scotland.

9.1.2 The importance of the A9 has emerged in sharp relief as the economy and population of Inverness and the surrounding Moray and East Highland region has grown significantly in recent years. There is a growing perception that competitiveness and continuing economic success of the sub-region cannot be guaranteed without investment to upgrade the A9, in particular dualling of the sections of the route, or dualling the entire route between Inverness and Perth.

9.1.3 Upgrading the A9 will reduce the braking influence of the route on the economy. It will achieve this by both encouraging greater business efficiency by which businesses are able to access, at reduced cost, new markets and sources of suppliers, and by altering perceptions of accessibility to the region.

9.1.4 Evidence from the literature suggests that the general perception of the A9 is that the route is substandard in terms of safety and the lack of overtaking opportunities, both of which cause considerable stress placed on drivers. This is deemed as a more serious issue than long or unreliable journey times.

9.1.5 Reporting on the adequacy of the A9 in completing its strategic functions is central to HITRANS's new RTS. Although the A9 is considered as critical in the transport mix of delivering transport services as a prime arterial route to the Highland region, which is classified as fragile and vulnerable, it is unable to undertake this function to a satisfactory standard.

9.2 Study Focus

9.2.1 The study was commissioned to help inform decision-makers of the economic benefits of improvements to the A9. Its purpose is to report the economic benefits of improvements to the trunk road between Perth and Inverness in both quantitative and qualitative terms at a level that meets the STAG requirements for the consideration of public investment in transport.

9.2.2 The study comprised of desktop research, a workshop, traffic surveys and telephone and face-to-face business surveys to provide information on the high level impacts on regional income, employment, business aspirations and the public sector, and to estimate future traffic flows and their impact.

9.2.3 The core zones of Inverness and the surrounding region have the highest population density in the study area, and are expected to experience the greatest increase in population over the next 15 years. This in turn is anticipated to boost regional economic growth and employment.

9.3 Key Economic and Policy Issues

9.3.1 Growth in the study area has been consistently better than that of Scotland as a whole, but remains substantially worse off in terms of GVA per capita, with a value for Moray of only 89% of that of Scotland in 2005. Low GVA per capita and low earnings, despite some recent positive trends, is characteristic of the area compared to Scotland as a whole.

9.3.2 The public sector provides most jobs, about a third of those employed, followed by the tourism and leisure sector with over a quarter of jobs. However the core zones of Inverness and the surrounding region have one the highest proportion of unemployed with high (tertiary) qualifications of any part of Scotland.

9.3.3 This suggests that although the region is growing fast, it is not growing fast enough to absorb new graduates and post-graduates residing in the study area. If conditions do not improve, the concern is that there could be, in effect, a brain drain to other parts of Scotland and the UK, which will impact on regional GVA growth. It will also reduce the opportunities of the region in diminishing its reliance on the public sector and the relatively low skills based tourism and leisure sector for most of its jobs.

9.3.4 As a transport measure, improvements to the A9 alone cannot be expected to provide a robust solution to this kind of problem on its own. As part of a broader package to increase the competitiveness of the region, upgrading the A9 can assist business efficiency and help reduce the perceptions of remoteness, and in doing so, assist in retaining the skills base essential to building a successful Highland economy.

9.3.5 Discussions with the study stakeholders have highlighted the concern that travel conditions on the A9 are deteriorating, with increased travel times and driving frustration, less reliable journey times and uncertainty for businesses. As the traffic surveys indicate, by far the majority of businesses using the A9 are those in the tourism and leisure sector (32% of which use the trunk route), followed by construction (11%) and agriculture and manufacturing (7% each respectively). It is these sectors that will be disadvantaged the greatest by the lack of new investment in improving the route.

9.3.6 Businesses and organisations in the area have identified accessibility as a major issue for staff retention, recruitment and commuting, and a major cause of concern. Combined with high levels of car ownership in the study area, this makes reliable and safe roads, including the A9, even more vital.

9.3.7 Although the A9 is a lifeline route, road improvement issues have, in the past, been viewed in isolation rather than as a package of transport measures designed to improve the transport capacity of the region. This has led to the general perception of a weak policy environment, which HITRANS's new RTS is designed to address.

9.3.8 Central to HITRANS' and HIE's approach has been stakeholder identification and selection of two principal options for the A9 for appraisal in this study: full dualling along the entire route between Perth and Inverness and strategic (partial) dualling north of Pitlochry.

9.4 The Potential Benefits of Upgrading the A9

Potential Time Savings

9.4.1 Apart from improving the overall driving experience, if the dual carriageway speeds are maintained over the whole route length, it is estimated that the total journey time would fall by around 22 minutes by 2025. This also takes into account the improvements due to the existing planned or committed improvements on the A9.

9.4.2 This time saving has been estimated to provide a GVA uplift multiplier effect of 5.06% for the full dualling option. For the strategic (partial) dualling option the benefits have been assumed to be about two-thirds of the timesavings of the full dualling option. These estimates have been used in the economic appraisal.

9.4.3 Most of the benefits are associated with timesavings, so the benefits are more significant for business users than for others undertaking trips on the A9, and for the option with a greater proportion of dualling.

Other Impacts

9.4.4 However, there are other benefits such as vehicle operating costs, carbon benefits, safety and stress reduction benefits, which important though they are, have not been quantified in this study.

9.4.5 Carbon benefits relate to a greater incidence of vehicles maintaining constant speeds rather than frequently accelerating and decelerating, and stress reduction benefits relate to an improved overtaking environment over the whole route.

9.4.6 The stakeholder feedback from the workshop has suggested that it can take up to 4 hours to clear the A9 after a fatal accident. This is due to the limited overtaking opportunities. Hence, the PVB estimates shown above could significantly increase if delays associated with personal injury accidents were alleviated.

9.4.7 Improvements to the A9 have a large number of strengths associated with them. Where local government is able to support these, it is able to do this in depth, and with an armoury of measures.

9.4.8 Not least amongst these is the raft of complementary measures that can be adopted to increase the size of the local market that upgrading the A9 should facilitate. This may include policies to encourage in-migration such as a wide variety of local and strategic planning policies covering local housing and industrial land-use, and transport policies such as quality bus partnerships to strengthen the local public transport network.

9.4.9 Improvement of local transport infrastructure may also counteract the perception among some businesses that improvements to the A9 encourage the drain of relatively low-skilled employment to other areas of Scotland.

9.4.10 Introducing more stopping facilities or encouraging improvements to existing stopover sites on the A9 would complement the engineering solutions to upgrading the A9 in order to reduce stressful journeys where necessary and appropriate.

9.4.11 Local Government is also in a position, through complementary investment support, to assist in opening up opportunities that improvements to the A9 bring, and to do so in some depth. An example of an opportunity here is upgrading the tourist signage on the route, which would represent a very visible local branding of the Highland region.

9.4.12 However, in terms of the broader threats to the successful improvements to the A9, there is only a very limited amount a supporting policy able to do this, although it is unsurprising given that the threat environment is largely at a level external to local authority control.

Gross Value Added (GVA) Impacts

9.4.13 In terms of estimating the investment impacts on business performance and GVA, a combination of survey results and Government forecasts for employment and sector growth were used to estimate the changes in GVA as a result of upgrading the A9. This was undertaken for each sector in turn for each dualling option.

9.4.14 The results suggest there is potentially an increase in GVA in discounted terms of:

- £956m over a 30-year appraisal period for the full dualling option; and
- £683m over a 30-year appraisal period for the strategic dualling option.

9.4.15 Translated in terms of employment changes, this indicates that a total of 724 jobs are created for the full dualling option, and 485 jobs are created for the strategic dualling option. These jobs include both full and part time, with an approximate 70%:30% split between full and part time employment. However, over the longer term, the maximum potential employment benefits may be much larger, up to 4,500 jobs and 3,000 jobs for each option respectively.

9.4.16 A sensitivity test was carried out using more local projections of employment changes supplied by HIE, which take into account proposals and policies set out in local economic and development strategies. These suggest there could be significant increases to the above GVA estimates as follows:

- £1,019m over a 30-year appraisal period for full dualling; and
- £759m over a 30-year appraisal period for strategic dualling.

9.4.17 The sectors that appear to gain the most from upgrading the A9 will be public administration, education and health, manufacturing and industry, and tourism and leisure. That the public sector and tourism and leisure sectors gain the most is largely a reflection that these sectors employ the most people. Investment in improvements to the A9 will benefit those businesses in sectors that use the A9 most intensively.

9.4.18 The fact that tourism and leisure sector benefits most of all from investment in the A9 trunk route indicates just how dependent on the A9 as a primary arterial route bringing in customers and supplies this sector is. Apart from the public sector and tourism, both transport and communications and the financial service sectors will also be expected to benefit to a considerable extent.

Economic Activity and Location Impacts (EALI)

9.4.19 The EALI appraisal has been based on:

- published policies and analysis on the economy of Scotland and the Highlands;
- a qualitative overview based on business interviews;
- economic linkages identified in the business surveys; and
- analysis of the scale of each sector.

9.4.20 The analysis indicates that the impacts of the A9 upgrading are potentially very significant for the Highlands. In particular the analysis shows that:

- Moray is particularly reliant on the A9 particularly for tourism orientated development; and
- manufacturing construction and retail/distribution account for nearly 75% of the total value of GVA dependent on the A9.

9.4.21 STAG requirements are to show the direction of change and to quantify as far as possible the scale of change. The greatest impacts are on residential location choice. However the impacts of dualling need to be seen in context. The north of Scotland will remain remote and at 270

kilometres from central Glasgow to Inverness, and approximately 4 hours at current medium traffic conditions, the economy in the north will continue to be adapted to remoteness.

9.4.22 Impacts in the Newtonmore and Aviemore areas could be more significant as the total journey times to the central belt are more easily achievable (e.g. Glasgow to Newtonmore is 197 kilometres and to Aviemore it is 221 kilometres).

9.4.23 The qualitative analysis has identified that the major impacts are on the perception of the Highlands reducing concerns about remoteness and potentially:

- growing the population and helping to ensure that the Highlands continues to become a better place to live and work. This affects particularly the residential location choices of high skill professionals;
- travel itineries and thresholds in the tourism sector. Cultural industries are critical and demand high quality bus and coach connections using the A9; and
- life science businesses are well suited to the Highlands economy but require excellent access for international travel. The role of the A9 and Inverness airport are critical for access.

9.5 Concluding Remarks

9.5.1 Overall, the conclusion from this research is that there are likely to be significant economic benefits to upgrading the A9, which would be welcomed and supported by key stakeholders and various businesses in the study area. However, in order to fully capitalise on benefits from improvements to the A9, these should be viewed as part of a broader complementary policy package to road transport improvements, both on the A9, and throughout the study area.

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