8 Summary

8.1 Introduction

The STPR is being delivered within the context of the Scottish Government's strategic objectives for Scotland. In particular, the National Transport Strategy identifies three KSOs that are to be the focus for the future vision for transport in Scotland. These are:

- **Improve journey times and connections**: to tackle congestion and the lack of integration and connections in transport;
- **Reduce emissions**: to tackle the issues of climate change, air quality and health improvement; and
- **Improve quality, accessibility and affordability**: to give people a choice of public transport, where availability means better quality transport services and value for money or an alternative to the car.

Looking to the future, an effective transport network can be considered within the following hierarchy:

- maintaining and safely operating existing assets;
- promoting a range of measures, including innovative solutions, that make better use of existing capacity to deliver the strategic outcomes of the National Transport Strategy. (Interventions may include technology based, fiscal and 'soft measures' in addition to engineering solutions); and
- promoting targeted infrastructure improvements to deliver the National Transport Strategy's strategic outcomes.

The principal focus for most movements in Scotland, whether of people or freight, is in, around and between cities. The economic draw of the cities extends their influence over a wide area. Ensuring effective means of travel for work, both for people and freight, is therefore essential for the economic well-being of the country.

8.2 Existing Transport Infrastructure

The existing road and rail networks generally perform well but in the Central Belt there is peak congestion. Implementation of planned schemes, such as the new upper Forth crossing, new rail links, and the Edinburgh tram, will not fully meet the forecast transport demand in south east Scotland.

The major road and rail assets of Scotland are managed and maintained through programmed plans. The management of the strategic road network is through four long-term contracts with the private sector. Network Rail manages rail maintenance directly. The asset condition appears to be satisfactory overall and generally in line with experience from the rest of the UK. However, data on the condition of the road asset shows significant variations across the country. The challenge will be to develop a strategy that ensures that there is a more consistent approach to maintaining the asset.

On the roads, intelligent transport systems, including motorway controls, and demand management systems, including integrated traffic control, are used to increase the operational efficiency of the network, but are limited in scope. Systems have been developed in isolation and have not been fully coordinated between the local and national systems. Within urban areas, there are opportunities to better integrate the operation, maintenance and management of urban traffic control systems and public transport priority and information systems. There are opportunities better to provide pre-travel and interchange information through such internet and telephone based systems as Travel Scotland for passengers and Freight Scotland for freight operators.

The continuation of the planned maintenance regime will result in about six to eight percent of the road network requiring substantial maintenance works at any one time over the period 2012 to 2022. The Forth Road Bridge is a key link in the strategic road network. Due to the condition of the existing bridge and its identified lifespan problems it was decided that a replacement was required. On 19th December 2007, Ministers announced their choice for a cable stayed bridge as a replacement for the existing Forth Crossing.

Network Rail manages the rail network in Scotland and is required to maintain the condition and capability of the network as set by the Office of Rail Regulator. In recent years there has been an uplift in investment. Despite this (investment), there are a number of infrastructure capacity constraints on the network which particularly affect journeys to work in the Central Belt. Increasing demand, without additional capacity, will lead to crowding becoming more frequent and widespread. Modern management and communication systems are used routinely across the rail network. The implementation of the maintenance regime appears to provide effective protection of the asset base.

While priority measures may help to sustain the competitiveness of the bus, its market is threatened by the growth in car ownership.

8.3 Socio-economic context

Forecast increases in population and economic growth will lead to increasing travel demand. This underlying demand will be further increased by changes in demographics as people commute longer distances by car and economic prosperity leads to higher car ownership and use.

The population of Scotland is forecast to increase over the study period. Indeed, an increasing population is one of the Government's economic targets. Increasing population will lead to increased demand for travel. Employment is also expected to increase as activity rates rise.

The greatest population and employment increases are expected to be in the Central Belt, particularly in and around Edinburgh. Within the urban areas, there is some move to peripheral locations. This dispersal of homes and jobs to the edges of cities will lead to increases in travel demand, over and above that from economic growth alone. In addition, significant growth in levels of both population and employment are forecast in the Inverness area, particularly to the east of the city.

As the nation becomes more prosperous, there will be higher levels of car ownership. Dispersed homes and jobs cannot readily be served by public transport, for example the areas of economic activity identified are generally located on the periphery of our cities. Coupled with this, longer commutes and higher reliance on the car will lead to greater car usage. This will therefore result in greater demand for travel by car on the road network, adversely affecting road freight movements and bus travel while increasing demand for rail travel.

8.4 National perspective

Edinburgh and Glasgow are the main economic drivers of the nation, with Gross Value Added levels of £12.5 billion and £13.5 billion respectively, over 30 per cent of the total for Scotland. The prosperity of these two cities is recognised by Government as essential for realising sustainable economic growth. This means making best use of the synergies between the cities and enhancing their respective catchment areas for business. Recognising this, an early part of the STPR commission involved an assessment of options to improve rail connections between the two cities.

Despite technology changes, there is still a need to travel to do business, and much of this "daily business" is focussed on Edinburgh and Glasgow. Effective business communication depends on a reasonable travel time which is consistent and reliable. Improving the connectivity between the cities in the Central Belt and between them and the other urban centres in Scotland will therefore help to underpin economic growth and spread the benefits of that growth. Reasonable and reliable journey times are also critically important in the context of the effective movement of freight. In Scotland, as with much of Western Europe, the vast majority of freight is carried by road and therefore freight traffic suffers from congestion in the same way as private vehicles and buses do. Rail freight also plays an important role, particularly in the movement of heavy, bulk goods and long distance haulage. Connections to the main ports and airports, both by road and rail, are therefore of strategic significance.

While Edinburgh, Glasgow, Perth and Dundee are all within a reasonable travel time of each other, Aberdeen and Inverness are not. Aberdeen is more than three hours away and Inverness is more than three and a half hours away from the centre of Edinburgh. These two centres are isolated not only from the main centres of economic growth but also from each other.

Heavy commuter flows in and around the Urban Networks and across the Central Belt, cause congestion and reduce journey time reliability. The forecasts suggest that in those areas that currently experience peak congestion, the problem is likely to spread through the day, with much of the off-peak period having operating conditions that are similar to the current peak situation.

8.5 Regional perspective

The four Urban Networks and two Strategic Nodes each support a significant hinterland beyond the immediate commuter catchment. These more remote areas, including the far north and north-west of Scotland, Argyll and Kintyre, much of Aberdeenshire, Dumfries and Galloway and much of Scottish Borders, rely on their nearest urban centre for services and other opportunities.

The strategic transport network in these areas are not affected by congestion. However, these areas generally are not well served by public transport, with limited frequencies and coverage. Tackling the isolation of these areas is a key challenge in realising a more cohesive and integrated Scotland.

8.6 The journey to work

Over sixty per cent of travel to work in Scotland is by private car. This is broadly consistent throughout the country, with the exception of Edinburgh and Glasgow, where the private car accounts for approximately 40 per cent of journeys to work. In these two cites bus then accounts for the second greatest proportion of work journeys, representing approximately 30 per cent in Edinburgh and 20 per cent in Glasgow.

Ensuring that businesses readily draw on an available pool of labour is essential to support economic growth. While forecasts suggest that the labour catchment area will be maintained around most of the major employment centres, the Central Belt stands out as an exception.

Access by road to Edinburgh is expected to be increasingly affected by congestion by 2022, shrinking its viable commuting zone. While the road access zone for Glasgow is expected to remain broadly similar, this could change if forecast reductions in population and employment levels are reversed. This has major implications, given the key role of the twin-city region in the national economy.

Rail access journey times are not expected to change significantly for most of the major centres although crowding will worsen during peak times. Existing investment plans effectively exploit most of the easy opportunities to increase capacity so increased demand and desired modal transfer may therefore require major step changes in infrastructure and/or train services.

8.7 Journey time reliability

The Congestion Report[818] highlights that currently, across the busiest sections of the road network from Aberdeen through Edinburgh and Glasgow to Ayr, journey time reliability is good overall, over most of the day. However, there is evidence already on some road sections approaching capacity in the peak, that poor journey time reliability is already a significant problem.

With the traffic volumes forecast for 2022 on the strategic road network, the use of the road capacity on approaches to most of the major urban centres and on the main roads across the Central Belt will be approaching levels at which higher impacts on journey time reliability will be experienced. Journey times in the height of the peak will become predictably long with consistently low speeds. Periods of turbulent travel conditions will extend deeply into the rest of the travelling day, significantly affecting travel time reliability.

8.8 Emissions

The forecasts for 2022 indicate that total road transport emissions will increase by some 22 per cent overall with above-average increases in those parts of the network where planned development results in higher car use and congestion, especially significant in Aberdeen and Edinburgh.

Emissions from rail transport are small in comparison, contributing about three per cent of total transport emissions. While encouraging modal shift to rail will be helpful, the impact on total emissions will be small given the dominance of road transport.

[818] Congestion on Scottish Trunk Roads, 2003 and 2004, Transport Scotland

8.9 Conclusion

Effective transport is a key to supporting the delivery of the Government's economic strategy. Our analysis identifies a number of issues:

- a forecast increase in congestion in central Scotland, the country's economic power house, particularly around Edinburgh. This impacts on the connectivity between our major urban centres and the journey time reliability required to support business sustainability and growth;

- the relative isolation of places outside of the Central Belt, of cities such as Aberdeen and Inverness, and of the more remote peripheral areas and islands. This impacts on the access to key services required to support the solidarity and cohesion aims; and

- the trend towards the reliance on the private car with declining bus use and increasing demand for rail as road based congestion rises. This will impact on the ability to provide competitive public transport access to emerging employment areas.

As the STPR proceeds, the focus will be on finding effective solutions to meeting these challenges, ensuring that the transport system plays its full role in helping to deliver the Scottish Government's strategic objectives and overall purpose to promote sustainable economic growth for Scotland.