

Scotland's rail system

Gearing up to drive the low-carbon economy

1. INTRODUCTION

"Scotland's railways are one of our most valuable assets" – so said Transport Minister Tavish Scott in his introduction to December 2006's *Scotland's Railways* policy statement from the Scottish Executive.¹ He's right, but much more needs to be done to realise the full potential of our railways as a key component of a sustainable transport system for Scotland.

Scotland's railways have suffered systematic under-investment over the past four decades. Too much track was rationalised by British Rail under cost pressure from successive governments, privatisation caused a long investment hiatus, and now the rail system has to compete with a massive road-building programme plus cut-throat competition from airlines whose low prices simply don't reflect their disastrous environmental impact.

As a result, rail journey times between Scotland's main cities have become uncompetitive with the car – the flagship Edinburgh-Glasgow route is slower than it was thirty-five years ago, while some Edinburgh-Perth and Edinburgh-Dundee train journeys take longer than 100 years ago.

Belatedly, the Executive now has a decent rail reopening programme and a reasonably bold vision for rail's future, but how much will actually be delivered and will it be the right schemes?

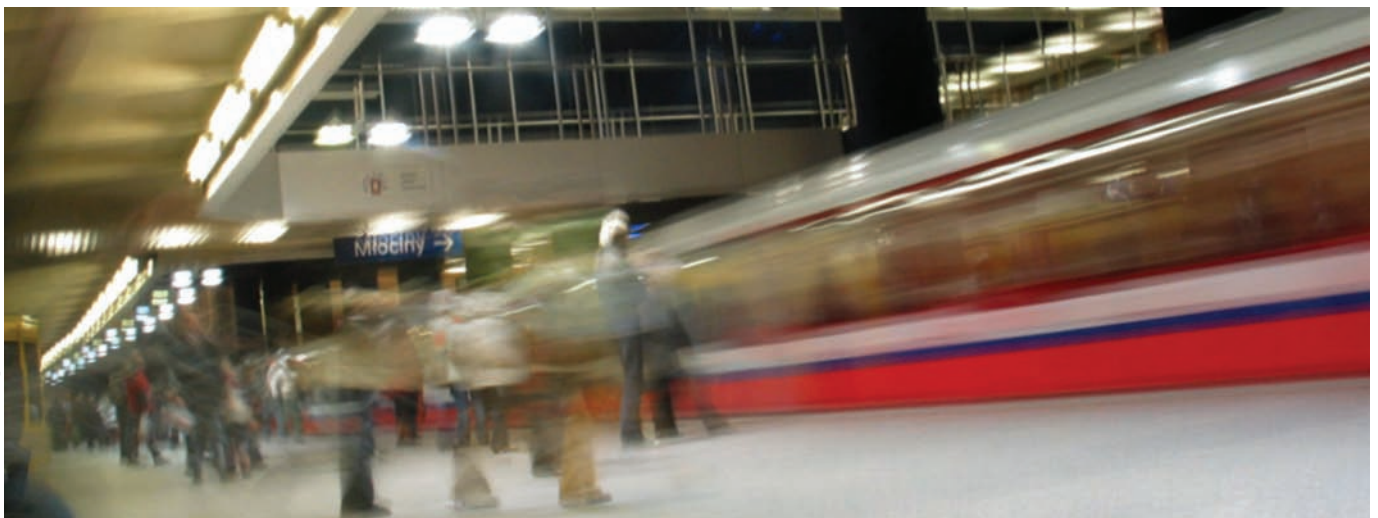
2. WHY RAIL?

Railways provide substantial economic benefits through the relief of road congestion and the opportunities to engage in productive work while travelling. Rail is also a substantially safer mode of travel, and offers substantial environmental advantages over competing forms of transport. In particular, rail offers significant advantages in terms of carbon emissions compared to road and air transport.²

Trains can also offer major advantages over road transport in terms of toxic air pollutants which every year contribute to thousands of premature deaths in Scotland. This is particularly the case with rail freight, which produces (per tonne-kilometre) a small fraction of the particulates, carbon monoxide, nitrogen oxides and volatile organic compounds emitted by even the latest, most 'environmentally friendly' Heavy Goods Vehicles.

3. THE SCOTTISH RAIL SYSTEM IN 2007

Despite major cuts during the 'Beeching Era' of the 1960s (particularly in south-west Scotland, the Borders and the North East), Scotland still has a **network** of over 1,700 miles of railway and 345 stations. However, just 23% of the system is electrified, compared to 39% for Britain as a whole, and substantially higher figures in countries such as France and Germany.



Poland's rail system! Image: Cameron Duguid.

Rail's **market share** in the passenger sector is low overall (just 1.6% of all trips in Scotland³) but it plays a crucial role in the Strathclyde commuter system and between Edinburgh and Glasgow. Rail freight has an 11% share of the market (as measured by tonne-kilometres)⁴ but this is substantially dominated by movements of imported and opencast coal to English power stations, plus container movements to Deep Sea ports in England.

In general, **journey times** (with the exception of Edinburgh-Glasgow) are significantly shorter than twenty years ago. Following the West Coast Main Line upgrade and introduction of new trains by Virgin, journeys to Manchester, Birmingham and London Euston have been significantly speeded up, but some services on the East Coast Main Line to London are slower than those provided by British Rail fifteen years ago.



Image: First ScotRail

Rail **fares** across Britain have grown substantially since 1980, a period during which motoring costs have remained stable in real terms. While cheap advance purchase tickets are available to many stations, 'walk-on' fares have increased in price far above inflation, and there remain a number of significant pricing anomalies – for example, a cheap day return from Edinburgh to Glasgow (47 miles) costs just £9.30, yet the equivalent ticket from Edinburgh to Dundee (59 miles) costs £21.20. Anyone in Glasgow wanting to spend a weekend in Edinburgh cannot get a reduced rate train ticket, despite travelling in the off-peak, and has to buy two singles costing £18.40.⁵ The past year has also seen the expansion of restrictions on use of tickets (mainly on early-morning trains).

Finally, although the Channel Tunnel opened nearly fifteen years ago, Scotland's main stations no longer sell continental rail tickets, and plans to run through day-time and sleeper trains from Scotland to the continent were scrapped some years ago.

Much of the ScotRail **train fleet** is relatively new, and the Class 170 trains ('Turbostars') used on inter-urban routes have been mainly hailed as a success. However, there is perhaps no outstanding 'top of the range' train to capture the imagination - and persuade more drivers to leave their cars at home.

The current picture is therefore mixed – and the Scottish Executive at least implicitly acknowledges this in its vision set out in *Scotland's Railways*.

4. THE EXECUTIVE'S ASPIRATIONS

In stark contrast to the situation south of the Border, the Executive has a big programme of rail reopening projects. Hamilton-Larkhall was re-opened in 2006, the new through freight route from Stirling via Alloa to Kincardine is under construction, and the 'Phase 1' Edinburgh Waverley upgrade will be completed early in 2008.

Parliamentary powers have been obtained for the Waverley Railway, the Airdrie-Bathgate rail link, the Glasgow Airport Rail Link and the Edinburgh Airport Rail Link. However, the last of these is expensive (£600m and rising) and we consider that other rail schemes should be of higher priority in receiving funding. With public spending expected to be tightened, and rail competing against a £1bn+ roads programme and at least the same again for a proposed Second Forth Road Bridge, some are concerned that there may be limited scope for further rail infrastructure projects.

The Executive's *Scotland's Railways* policy document lists 30 different infrastructure and service enhancements which "might" be undertaken, but there is no guarantee that all or even a majority of these will actually happen. However, there are some very worthwhile schemes on the list, including:

- Faster connections to Manchester (short-term)
- Improved signalling on the Forth Bridge (short-term)
- At least 9 out of 10 trains to arrive on time (short-term)
- More frequent Glasgow-Kilmarnock services (short-term)
- Development of multi-modal ticketing (short-term)
- Explore locations for strategic intermodal freight hubs (short-term)
- Hourly service between Perth and Inverness (medium-term)
- Reductions in journey times to London and the north of England (medium-term)
- A programme of rail electrification in the Central Belt (medium-term)
- Conversion of some Glasgow suburban lines to light rail (long-term).

Following the completion of Network Rail's *Scotland Route Utilisation Strategy*⁶ in March 2007, the Executive will set out the medium-term 'outputs' (infrastructure, services, etc.) that it wishes to purchase from the rail industry in July 2007. However "implementation will depend...on availability of resources and value for money".⁷

5. WHAT'S MISSING WITHIN SCOTLAND

It appears that the Executive at last recognises the importance within Scotland of **speeding up inter-urban journey times** so that they become more competitive with the car. 'One size fits all' train services end up with too many stops to achieve decent speeds, but if stops are withdrawn they should be replaced by a stopping service, feeding into the express services at key interchanges. The Executive's

short-term aim to revise stopping patterns between Glasgow/Edinburgh and Perth/Dundee/Aberdeen “to reduce inter-urban journey times”⁸ could be a good start if it’s complimented by feeder services, but this must be followed through by more radical action.

To upgrade the quality of the main routes north of the Central Belt, the obvious step-change in infrastructure would be **electrification from Edinburgh to Aberdeen**, bringing cleaner and quieter trains with fast acceleration to cut journey times.

Rail’s speed advantage on the **Aberdeen-Inverness** route have been eroded by the large amounts spent in recent decades on road-building on the A96 on the approaches to each city. There has however been no equivalent spend on the parallel rail route, and a priority should be improving services at either end, from Inverurie-Aberdeen and from Elgin-Inverness.

Network Rail’s aspiration to upgrade the **Edinburgh-Perth** route for faster services is very welcome, and should be prioritised as part of a sustainable alternative to the proposed Second Forth Road Bridge. On the largely single-track **Perth-Inverness** route, where crossing trains adds significantly to the rail journey time, more crossing loops and extension of double-track are needed.

The Executive has taken the first steps to upgrade the **Glasgow-Kilmarnock-Dumfries-Carlisle** line by redoubling the single-track section between Annan and the English border. This needs to be followed through by upgrading the single-track section between Barrhead and Kilmarnock.

For **Edinburgh-Glasgow** travel, there are already three routes (the main ‘E&G Line’ via Falkirk, the Shotts Line, and the route via Carstairs) with the Airdrie-Bathgate project providing a fourth. Over the past decade, the E&G Line has seen a doubling of its frequency; however, coupled with increasing patronage at intermediate stops, the end-to-end journey time is now slower than it was 35 years ago.

A strategic approach to route development is long overdue, as it is not yet clear which of the routes between the cities should be prioritised for ‘flagship’ treatment. We favour the development of the E&G Line as the key route between the two cities. While some new track, and possibly some relatively short sections of new line may be needed, a multi-billion pound, entirely new route is simply not required to get substantial reductions in journey time from the current 48 minutes down towards 30 minutes.

The fantasy of a ‘bullet train’ taking twelve minutes should remain just that – the new infrastructure for ‘Maglev’ type hovertrains would be enormously expensive and very destructive of the urban fabric unless long sections were put in tunnel. Ultra-high-speed trains are highly energy-intensive, and need vast amounts of new traffic to justify their existence – thereby creating the danger of increasing rather than reducing overall CO₂ levels from transport.

Conurbation commuter routes could play a much bigger role in reducing city congestion, for example reopening Edinburgh’s current freight-only South Suburban line, and using ‘tram-trains’ to get good rail penetration of city centres in Glasgow, Edinburgh, Dundee and Aberdeen. A full upgrade of

Edinburgh Waverley station should be undertaken, to accommodate increased commuter traffic and to ensure that Waverley can be properly developed as Scotland’s main rail hub.

Now that the Executive has taken over responsibility for delivering the **Waverley Railway** from Scottish Borders Council (and Network Rail has backed double-tracking between Portobello and Newcraighall⁹), there is a great opportunity to re-specify the service. Provision of express trains to Galashiels and Tweedbank would be much more attractive to motorists than the currently-proposed ‘one size fits all’ timetable of trains calling at every intermediate station in the Borders, Midlothian and Edinburgh.

Scotland’s **rural routes** need a distinctive approach. Many of them depend on tourism and leisure travel, yet the trains provided are standard designs used for suburban services in the Central Belt. Unlike the situation in Switzerland, our scenic routes have no special panoramic railcars aimed at the tourist, and too many of the Highland lines are saddled with work-a-day Class 158 units with poor window views, badly designed toilets and a cramped atmosphere.

Greater community involvement in the specification and (non-financial) support of rural routes has helped to revitalise branch lines south of the Border. This kind of innovative approach needs to be explored within the Scottish context – there is potential to apply such an approach to the line from **Ayr to Stranraer**, which will lose its Northern Ireland ferries next year and needs to find a new and expanding tourist role.



Image: Passenger Focus

To create a fast, high-quality and sustainable route from Caithness and the Orkneys to the rest of Scotland, a **Dornoch rail bridge** will be needed, to avoid the circuitous current routing of the Far North Line from Inverness.

However, getting more people out of cars and planes and into trains isn’t just about new infrastructure and new trains – the **‘soft issues’** such as price and quality of journey experience are absolutely crucial to modal switch. For example, the condition of train toilets and the sense of security on evening trains can be significant deterrents to travelling by train. And while current legislation prevents the Executive from interfering in ‘non-regulated’ fares, action needs to be taken by government and the Train Operating Companies to stop rail fares rising faster than the price of driving or flying.

6. INTERNATIONAL CONNECTIONS

Compared to the train, air transport is disastrous in terms of climate change emissions – as recent advertising by Virgin Trains and Eurostar has emphasised – and it also has serious air pollution and noise nuisance consequences. It should be a priority for both the Scottish Executive and the UK Government to facilitate and encourage **air-rail substitution** for journeys from Central Scotland to London; and, when the Channel Tunnel Rail Link ('High Speed 1') and St Pancras International station are completed later this year, for connecting journeys to France, Belgium, Holland and Germany.

There is a growing debate over the environmental impacts of constructing and operating an Anglo-Scottish high-speed line,¹⁰ but it is clear that much can be done *now* to get faster journey times on the existing East Coast and West Coast Main Lines. With appropriate investment in signalling, and bypasses of particular pinchpoints, the existing 225 electric trains should be capable of linking Edinburgh and London in just 3 hours 30 minutes. Virgin Trains believes that with one or two bypasses and quadruple tracking, 3 hours 45 minutes is achievable from Glasgow to London with their Pendolino tilting trains and the existing signalling system.

However, to complement the 'carrot' of rail investment, the 'stick' is also needed – including fairer aviation taxation to reflect its environmental damage, and a moratorium on airport expansion in Edinburgh, Glasgow and London.

7. GETTING FREIGHT ON RAIL

One of the Executive's transport successes has been the Freight Facilities Grants scheme, which has encouraged modal shift from road haulage to rail freight (and coastal shipping), with many millions of lorry miles removed from the road system.

The Executive is also funding 'loading gauge' clearance between the Central Belt and Aberdeen/Elgin, to enable the modern generation of tall containers to switch from road to rail. However, it has taken years to get approval for the paltry investment of £4m required – the equivalent of just 220 yards of the planned M74 Northern Extension.

Amongst the priorities needed to achieve radical modal shift are:

- 'Loading gauge' clearance for 9'6" high containers on the Glasgow-Kilmarnock-Dumfries-Carlisle line (an important diversionary route for the West Coast Main Line), and to the Port of Grangemouth, Scotland's biggest multi-modal hub
- Longer crossing loops on the Perth-Inverness and West Highland single-track routes – for timber and other freight traffics
- Reopening the southern end of the Waverley Route from Carlisle and extension to Kielder Forest to provide a sustainable alternative to heavy timber trucks
- The development of a strategic intermodal rail hub in Dundee, which is one of the largest cities in Britain with no rail freight facilities
- Tougher enforcement of speeding, overloading and maintenance regulations which are routinely broken by a significant minority of truckers, providing unfair competition to rail freight – lorries are involved in 22% of fatal crashes but account for just 7% of road traffic¹¹
- Resistance to proposals for 60 tonne / 25m or longer mega-trucks which would seriously undermine the economics of rail freight for heavier loads and long-haul intermodal traffic.

8. CONCLUSIONS

Scotland's rail system has a much bigger part to play in a sustainable future for our country. After many years of work by rail campaigners, the Scottish Executive is at last mapping out the shape of a serious railway development programme. But in the era of Peak Oil and worsening climate change, truly radical action will be required to equip our rail system to meet the coming challenges of the low-carbon economy.

The railway is not a panacea for all our transport problems, but for inter-urban traffic, conurbation commuter routes, vital rural links, freight and international connections, it can do much more.

Economic, social and environmental needs all point to a properly-funded and revitalised rail system. While a variety of players in the private and public sectors have important roles to play in unlocking the railway's potential, the key lies with the Scottish Executive.

9. REFERENCES

1. Scottish Executive (2006) *Scotland's Railways*
2. See, for example, the tables in TRANSform Scotland (2006) *Are High-Speed Railways good for the Environment?*
3. Scottish Executive (2007) *Travel by Scottish Residents: some National Travel Survey results for 2004/2005 and earlier years* – see <www.scotland.gov.uk/Publications/2007/01/12092407/7>
4. Scottish Executive (2006) *op cit.*
5. First ScotRail website, March 2007
6. Network Rail (2007) *Scotland Route Utilisation Strategy*
7. Scottish Executive (2006) *op cit.*
8. *ibid.*
9. Network Rail (2007) *op cit.*
10. TRANSform Scotland (2006) *op cit.*
11. Department for Transport (2004) *Transport Statistics Great Britain 2003*; also Freight on Rail (2005) *Rail freight: Facts and Myths.*

Scotland's rail system briefing - Version 1.0

Published by TRANSform Scotland, April 2007

Lamb's House, Burgess Street, Leith, Edinburgh, EH6 6RD, Scotland

Tel: +44 (0)131 467 7714. Fax: +44 (0)131 554 8656.

Email: <info@transformscotland.org.uk> Web: <www.transformscotland.org.uk>