



Strategic Transport Projects Review

Edinburgh – Glasgow Rail Improvements



Executive Summary

Introduction

The Strategic Transport Projects Review (STPR) is a Nationwide study for Scotland which will recommend a programme of interventions for implementation between 2012 and 2022. This study is a key part of the STPR and examines potential improvements to the current rail services between Edinburgh and Glasgow and is being published in advance of the main study in recognition of the potential to achieve early benefits.

Edinburgh is the second largest financial centre in the UK after London and houses the global headquarters for firms such as the Royal Bank of Scotland, HBoS and Standard Life. It has a population of almost 460,000 and is the home of the Scottish Parliament and the Scottish Government. The city creates seventy per cent more wealth per head of population than Scotland as a whole. Tourism is important for the city and with Edinburgh Castle it incorporates a UNESCO World Heritage Site.

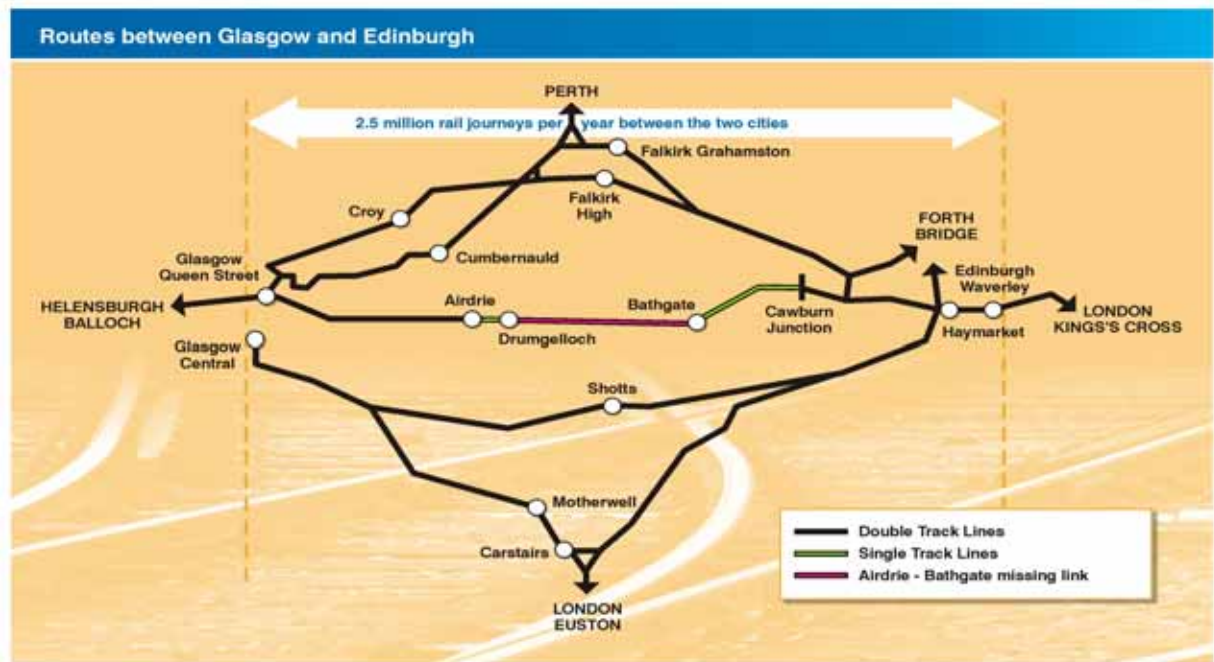
Glasgow is Scotland's largest city, with a population of almost 580,000 and is the largest manufacturing and office centre in Scotland. Key employers include National Australia Group (owners of Clydesdale Bank), British Telecom, Lloyds TSB, Scottish Power and the BBC. It is home to three Universities and nine colleges of further education. Tourism is growing in importance to the city and it is bidding to host the 2014 Commonwealth Games.

The corridor across the 42 miles between these two cities encompasses much of Central Scotland and includes the areas of East Dunbartonshire, North Lanarkshire, South Lanarkshire, Falkirk and West Lothian. This includes major towns such as Motherwell, Cumbernauld, Falkirk and Livingston. People choosing to live in many of the towns within the corridor have access to the job markets, leisure and cultural opportunities within both cities. Edinburgh Airport is located within the corridor to the west of Edinburgh, and is an important international gateway for much of Scotland. In 2003 the airport handled around 7.5 million passengers, a growth of 36 per cent since 2000.

Rail Connections

The figure below shows that the two cities are today linked by three rail routes which have a dual role, serving intermediate communities as well as meeting the need for Edinburgh-Glasgow journeys.

Figure 1



- The route via Falkirk High (known as the E&G) provides the fastest rail journey time of around 50 minutes and a high frequency service with four trains per hour. There are a number of stops located along the route and some of these are key points for commuter traffic.
- The route via Shotts provides a link for intermediate communities into both Edinburgh and Glasgow, but the journey time of around 80 minutes and the frequency of one train per hour means that this is not a competitive option for city to city travel.
- The route via Carstairs is the longest of the routes and is fully electrified. It is served by a mixture of Intercity and regional services which provide journey opportunities between the cities and intermediate stations such as Motherwell. While journey times of between 60 and 70 minutes are achieved, the frequency of service is low. This route is fully electrified.

Transport Scotland is funding the construction of a fourth route that will link from Airdrie and Drumgelloch in the west to Bathgate in the east by reinstating a former railway alignment. This will allow electrified services to link Glasgow, North Lanarkshire, West Lothian and Edinburgh and it is to be completed in 2010. The route is aimed at connecting the areas in between rather than providing for significant city to city traffic. Transport Scotland has also provided funding towards the provision of a new tramway in Edinburgh that will provide a link from the airport to the city centre and beyond, with key interchanges with the heavy rail network at Edinburgh Park and Haymarket. The project is being taken forward by City of Edinburgh Council and is expected to be completed in 2011.

Scotland's Railways, published by the Scottish Executive in 2006, acknowledges the important role that rail plays between Scotland's two biggest cities in "underpinning the interaction between the two cities, providing for essential commuter flows and facilitating access to cross border rail and air services as well as other connecting routes within Scotland". The report also identified a number of key constraints to future growth such as:

- capacity constraints on the approaches to Queen Street station in Glasgow and the western approaches to Edinburgh;
- growth on the route via Falkirk is already leading to some overcrowding on services, which will only get worse if action is not taken;
- continued growth on these and other routes will mean capacity at Glasgow Queen Street station is likely to be a constraint beyond 2011;
- population growth in areas, such as West Lothian, will also drive up demand for better services on the other routes; and
- there is a growing need for improvements in connections from the areas to the west of Glasgow.

Ministerial Statement

On 27 June 2007 the Minister for Transport, Infrastructure and Climate Change made a commitment to Parliament to significantly improve connectivity between the two cities by focussing on improvements to the reliability, attractiveness and journey time of the Edinburgh to Glasgow rail route and to consider possible alternatives to the Edinburgh Airport Rail Link.

Over the last few months, Transport Scotland, Network Rail and First ScotRail have worked closely with Jacobs to assess how the Minister's commitment might be delivered. For this study we have considered a range of potential improvements to the existing rail routes plus new high-speed routes. We have also considered alternatives to the Edinburgh Airport Rail Link (EARL). For this report we have followed the Scottish Transport Appraisal Guidance (STAG) process, starting with a review of demand to travel and an assessment of the issues and opportunities on the routes.

Demand to Travel & Passenger Opinion

In terms of demand, the major demand to travel flows is to and from the following key points:

- Between Edinburgh and Glasgow city centres;
- Between Edinburgh city centre and Haymarket/West End;
- Between Edinburgh city centre and West Edinburgh;
- Between Edinburgh city centre and West Lothian;
- Between Glasgow city centre and the A80 corridor;
- Between Glasgow city centre and Haymarket/West End;

- Between Forth Bank (Linlithgow/Bo'ness/etc) and Edinburgh Western Approaches;
- Between West Lothian and West Edinburgh; and
- Between West Lothian and South Edinburgh.

These key flows reflect the overall demand to travel. In terms of rail travel only, around 37 per cent of all journeys on the E&G line are between Edinburgh (Waverley and Haymarket) and Glasgow (Central and Queen Street). The remaining 63 per cent is made up of journeys between intermediate stations and one of the two cities, or between intermediate stations themselves. The commuter usage of the E&G line is significant with 88 per cent of the 12-hour boardings at stations such as Lenzie occurring during the AM peak.

In terms of what rail passengers want, Passenger Focus recently surveyed those travelling on the route via Falkirk. Sixty eight per cent of those surveyed would prefer faster links between Edinburgh and Glasgow with less stops whilst thirty two per cent were happy with the current service. On the Glasgow to Edinburgh via Shotts route, the passenger priorities were much the same. However, sixty six per cent were keen to see an increase in frequency of service with trains running every 30 minutes to meet their needs. Twenty per cent of those surveyed said they would definitely make more journeys as a result of an increased frequency.

Planning Objectives

Having considered these and various other findings, the following planning objectives for the study were set.

Planning Objective 1

A programme of cost effective improvements to strengthen the connectivity between the centres of Edinburgh and Glasgow through:

- *Reducing rail journey times between the city centres of Edinburgh and Glasgow;*
- *Improving rail system capacity between Edinburgh and Glasgow;*
- *Improving attractiveness of rail travel experience; and*
- *Improving reliability of rail services between Edinburgh and Glasgow*

Planning Objective 2

An effective linkage between the rail network and Edinburgh Airport

Intervention Packages

Working with the key industry stakeholders, a list of potential interventions ranging from minor timetable improvements through to major national infrastructure enhancements was compiled. Due to the complex interactions between potential choices of infrastructure, timetable and rolling stock improvements, individual options were grouped to create twelve packages exploring a range of short, medium and long term interventions to address the planning objectives. These packages are described below.

Short Term Interventions (up to 2010)¹

Package A1 – E&G Revised Stopping Pattern 1

This package offers improved end to end journey times on the Edinburgh to Glasgow via Falkirk High route, potentially reducing the current 50-minute end to end journey time to 46/47 minutes in the inter-peak. This is based on a revised inter-peak stopping pattern with reduced intermediate calls at Falkirk High, Polmont and Linlithgow. This package does not offer additional seating capacity and there are no changes to the peak services with this package.

Package A2 – E&G Revised Stopping Pattern 2

This package offers improved end to end journey times on the Edinburgh to Glasgow via Falkirk High route through a reduced frequency of calls at Falkirk High and a mix of 'fast' and 'stopping' services. For the 'fast' services, it is estimated that journey times could be reduced from 50 minutes to 42 minutes, while the 'stopping' services would have an increased journey time to 53 minutes (both journey times are in the inter-peak only). This implementation of this package may require strengthening of off-peak services. This option would not provide any additional seating capacity and there are no changes to the peak services with this package.

Package B1 – Hourly Services via Carstairs

This package would provide additional services between Glasgow Central and Edinburgh Waverley via Carstairs, which, when added to the existing Intercity services on this route, would give an hourly frequency. The indicative journey time on this route would be 65 minutes assuming stops at Motherwell and Haymarket and it would require rolling stock to be sourced. This package also has the ability to improve the rail option for North Lanarkshire to Edinburgh flows and reduces cross Glasgow transfers – thus freeing capacity on the existing E&G. The number of seats would be increased by up to two hundred every second hour.

Package B2 – Caledonian Express²

¹ For the short term measures, with the exception of Package B2 and B3, it is assumed that the packages do not require capital investment for infrastructure enhancement. It is also assumed that current rolling stock is sufficient for A1 and A2.

² It should be noted that either B1 or B2 could be delivered in the short term but not both. If both are to be implemented (see package B3), the infrastructure works required will extend the delivery timescale into the medium term horizon

This package offers an improved timetable, improved journey time and approximately two hundred additional seats per hour on the Edinburgh to Glasgow via Shotts route through the implementation of the 'Caledonian Express' semi-fast services, which would offer an hourly semi fast service in addition to the existing service on this route. These new services would provide an Edinburgh to Glasgow service taking around 67 minutes.

Medium Term Interventions (2010 – 2014)

The medium term measures would require capital investment for infrastructure enhancement and additional rolling stock.

Package B3 – Caledonian Express + Hourly Services via Carstairs (B1+B2)

This combination would provide improved journey times, two Edinburgh to Glasgow trains per hour 'semi-fast', additional seating capacity on the Edinburgh to Glasgow via Carstairs and Shotts route as well as better connections at Glasgow Central Station. As with B1 this package also has the ability to improve the rail option for North Lanarkshire to Edinburgh flows and reduces cross Glasgow transfers – thus freeing capacity on the existing E&G. It would require some infrastructure changes and journey times would be as B1 and B2 but the combination of both packages would deliver up to four hundred additional seats per hour.

Package C1 – Electrification of E&G/Dunblane/Alloa

This package offers improved journey times on both the peak and off peak services on the Edinburgh to Glasgow via Falkirk High route through electrification of the route (and key diversionary routes). This package retains the current stopping and timetable pattern though other variants are possible. This package offers an indicative journey time reduction from 50 minutes to 46 minutes city to city with additional journey time benefits for passengers travelling from Glasgow and Edinburgh to Dunblane, Stirling and Alloa. However, there would be no increase in seating capacity with this package.

Package C2 – E&G Line Development (conflict removal)

This package offers a mix of 'fast' and 'stopping' services as well as additional capacity to allow six trains per hour on the Edinburgh to Glasgow via Falkirk High route. This would be achieved by tackling the physical network constraints on the E&G line through a range of infrastructure improvements and using existing rolling stock.

As with Package C1, journey time improvements would benefit not only city to city passengers but passengers travelling to and from Dunblane/Stirling and Alloa. The additional capacity would also allow an interchange at Gogar with the tram to allow access to Edinburgh Airport. 'Fast' services would see journey times reduce from 50 minutes to 42 minutes. Meanwhile, 'stopping' services would be able to retain the current journey time of 50 minutes end to end. This package would also provide four hundred additional seats per hour or eight hundred additional seats per hour if six-car sets are used.

Package D – Electrification of Shotts Line

This package offers improved journey times and enhanced frequency of services on the Edinburgh to Glasgow via Shotts line through revision of the stopping pattern and electrification of the remainder of the route that is currently not electrified, as well as other infrastructure enhancements along the route. This package would reduce journey times on the Shotts line from 84 minutes to 55 minutes with four hundred additional seats per hour being provided or eight hundred additional seats per hour if six-car sets are used.

Long Term Interventions (2014 – 2022)

Package C3 – E&G Line Development & Electrification

This package combines the benefits of C1 and C2 and would deliver six services per hour between Edinburgh and Glasgow on the E&G line. It offers improved journey times through a mix of 'fast' and 'stopping' services on the Edinburgh to Glasgow via Falkirk High route. It also provides additional seating capacity, allows for increased frequency of services and creates an improved interchange with the tram to allow access to Edinburgh Airport. These benefits would be achieved through electrification of the route and significant infrastructure enhancements. The indicative journey time could be reduced significantly from 50 minutes at present to 37 minutes for 'fast' services and to 47 minutes for 'stopping' services. Four hundred additional seats per hour could be provided, though this could be increased to eight hundred if six-car sets are used. A number of component parts of this package are deliverable within the medium term horizon and the full package could potentially be delivered by 2016.

Package E - E&G Major Upgrade and Tilting Train

This package offers a step change in seating capacity, service frequency, journey time and overall performance of the Edinburgh to Glasgow via Falkirk High route and associated services through a programme of electrification and major infrastructure enhancements including increasing the linespeed to 125mph. The indicative journey time would reduce significantly from 50 minutes to 34 minutes with additional journey time savings and benefits on other routes. It would also provide additional seating capacity with an increase of nine hundred seats per hour. A total of six services per hour would be provided between Edinburgh and Glasgow.

Package F –New/Upgraded High Speed Route

This package provides a high speed link between Edinburgh Waverley and Glasgow Central providing improved journey time, increased service frequency and additional seating capacity through significant infrastructure enhancements to the existing route via Carstairs as well as major new railway construction. However, this route would be longer than the E&G route so journey times would remain slightly longer than Package E.

The fastest journey time from city centre to city centre would be significantly reduced from the current 50 minutes to 35 minutes for 'fast' services and reduced to 40 minutes for services stopping at Motherwell. Substantial additional seating capacity would be provided with 1,400 additional seats per hour, which could be increased to 2,200 additional seats per hour with longer trains.

Package G – New High Speed Route

This package provides a brand new dedicated high-speed route between Edinburgh and Glasgow offering a step change in journey time, service frequency and performance through major construction works. This could provide a journey time of 27 minutes between the two cities; the quickest journey time of all the options considered. Additional seating capacity of 1,400 to 2,200 per hour could also be provided. For the purposes of testing, it has been assumed that this route is high-speed conventional rail, but this could equally be any high-speed technology such as Maglev.

The table below shows comparative journey time reductions achievable through implementation of each of the packages on a route basis.

Table 1

Route	Package	Fastest Journey Time		
		Short Term (2010)	Medium Term (2014)	Long Term (2022)
E&G <i>(current 50 mins)</i>	A1	46 / 47 mins inter peak only		
	A2	42 mins inter peak only		
	C1		46 mins	
	C2		42 mins	
	C3			37 mins
Shotts / Carstairs <i>(current 84 mins Shotts and 60 – 65 mins Carstairs)</i>	E			34 mins
	B1	65 mins		
	B2	67 mins		
	B3		67 mins (Shotts) 65 mins (Carstairs)	
	D		55 mins (Shotts - fast)	
Alternative Routes	F			35 mins
	G			27 mins

The following table shows the comparative additional seating capacity which could be provided through implementation of each of the packages.

Table 2

Route	Package	Additional seats per hour per direction between Glasgow and Edinburgh ³		
		Short Term (2010)	Medium Term (2014)	Long Term (2022)
E&G <i>(current seating around 800 interpeak and 1600 peak)</i>	A1	None		
	A2	None		
	C1		None	
	C2		400 (up to 800 if 6-car)	
	C3		400 (up to 800 if 6-car)	
	E			900
Shotts / Carstairs <i>(current seating around 150 interpeak and 300 peak Shotts only)</i>	B1	200		
	B2	200		
	B3		400	
	D		400 (up to 800 if 6-car)	
Alternative Routes	F			Minimum of 1,400 Possible 2,200
	G			Minimum of 1,400 Possible 2,200 +

Complementary Packages

Two additional packages were developed for further consideration. These packages consist of a range of measures to improve the attractiveness and quality of the services on the Edinburgh to Glasgow routes. These were split into two areas comprising improvements to customer services, such as through ticketing and station facilities, and relocation, addition or reconstruction of key stations. Included within this latter category was the potential to provide a new station at Gogar to better link Edinburgh Airport with the rail network as an alternative to EARL.

Performance of the Packages

The estimates of benefits and costs of the packages are as robust as time would allow and are based on standard rail industry models and techniques. Further timetable development work is required to fully test the interactions with other services that operate over these corridors. This will also inform the infrastructure development process by value engineering the requirements to support particular timetable options.

The packages have been assessed against the planning objectives and against the five government objectives, and this is reported using a seven point scale, comprising:

- major benefit (+ + +) these are benefits or positive impacts which, depending on the scale of benefit or severity of impact, the planner feels should be a principal consideration when assessing a proposal's eligibility for funding;
- moderate benefit (+ +) the proposal is anticipated to have only a moderate benefit or positive impact. Moderate benefits and impacts are those which taken in isolation may not determine a proposal's eligibility for funding, but taken together could do so;
- minor benefit (+) the proposal is anticipated to have only a small benefit or positive impact. Small benefits or impacts are those which are worth noting, but the planner believes are not likely to contribute materially to determining whether a proposal is funded or otherwise;
- no benefit or impact (neutral) the proposal is anticipated to have no or negligible benefit or negative impact;
- small minor cost or negative impact (-) the proposal is anticipated to have only a small cost or negative impact. Small costs or impacts are those which are worth noting, but the planner believes are not likely to contribute materially to determining whether a proposal is funded or otherwise;
- moderate cost or negative impact (- -) the proposal is anticipated to have only a moderate cost or negative impact. Moderate costs /negative impacts are those which taken in isolation may not determine a proposal's eligibility for funding, but taken together could do so;
- major cost or negative impacts (- -) these are costs or negative impacts which, depending on the scale of cost or severity of impact, the planner should take into consideration when assessing a proposal's eligibility for funding.

The table below shows the performance of the packages against the planning objectives. It also shows the comparative capital cost ranges, net present value and BCR figures.

Table 3

Package	Planning Objective 1a <i>Reducing rail journey times between the city centres of Edinburgh and Glasgow</i>	Planning Objective 1b <i>Improving rail system capacity between Edinburgh and Glasgow</i>	Planning Objective 1c <i>Improving attractiveness of rail travel experience</i>	Planning Objective 1d <i>Improving reliability of rail services between Edinburgh and Glasgow</i>	Planning Objective 2 <i>An effective linkage between the rail network and Edinburgh Airport</i>	Cost	NPV	BCR
A1	+	Neutral	+/-	Neutral	Neutral	None	<£10m	1.3
A2	++	Neutral	++/-	Neutral	Neutral	Not significant	£25-£50m	2.7
B1	+	+	+/Neutral	-	Neutral	None	£10-£25m	1.2
B2	+	+	+/Neutral	-	Neutral	£10m - £50m	£150m-£200m	3.8
B3	+	+	++/Neutral	+	Neutral	£10m - £50m	£100m-£150m	1.8
C1	+	Neutral	++	+/-	Neutral	£250m - £500m	£50m-£100m	1.3
C2	++	++	++	++	++	£500m - £1bn	-£50m to -£100m	0.9
D	+	++	++/Neutral	+/-	Neutral	£100m – £250m	£50m - £100m	1.4
C3	++	++	++	++	++	£500m - £1bn	£50m-£100m	1.1
E	+++	+++	+++	+++	++	£1bn - £1.5bn	-£100m to -150m	0.9
F	++	+++	+++	++	Neutral	£1.5bn - £3bn	-£1bn to -£1.5bn	0.4
G	+++	+++	+++	++	Neutral	£7bn +	-£3bn to -£4bn	0.3

The table above shows that in the **short term** on the E&G route, packages A1 and A2 perform relatively well in terms of reducing journey time, but provide no additional seating capacity and no direct improvement to linkage to Edinburgh Airport. Packages A1 and A2 offer no improvement to services in the peak. There is a negative impact on passengers using intermediate stations due to the reduction in stops. However A2 offsets this by providing new intermediate journey opportunities, though journey times for some intermediate journeys increase. These packages also offer the opportunity for an additional express service through Stirling which helps boost the Benefit Cost Ratio. A2 performs better, but there may be a need to increase train length to 6-cars on the stopping services due to the differential demand loadings that are likely to occur. The present timetable operating on the E&G route is optimised for all trains using the route and any alterations to individual trains are likely to have an impact on other services uses the route e.g. Stirling/Dunblane etc.

On the Carstairs and Shotts lines, packages B1 and B2 perform relatively well against the objectives, but do not address the issue of linkage to Edinburgh Airport and introduce additional services through existing heavily trafficked sections of route. Package B1 provides increased seating capacity together with a more frequent timetable, leading to a better spread of passenger loadings. This package also has the ability to improve the rail options for North Lanarkshire to Edinburgh flows and reduces cross Glasgow transfers – thus freeing capacity on the existing E&G. Furthermore, it offers an easier interchange in central Glasgow for passengers from the south of Glasgow, Renfrewshire and Ayrshire. However, the ability of the service to give a high BCR is limited by its frequency. Package B2, the Caledonian Express, provides a very significant improvement to journey time for both current users and new passengers from key intermediate points into the cities. It provides a high BCR but as with B1 does not address the issue of linkage to Edinburgh Airport.

The tables show that in the **medium term**, on the Shotts and Carstairs routes Package B3 performs relatively well against the objectives. The additional infrastructure included within these options, addresses the impacts on the heavily trafficked sections. The BCR is significantly impacted by the costs of providing this infrastructure but remains significantly positive. This package provides a step change in the connectivity between Glasgow Central and Edinburgh Waverley.

On the E&G route, Package C1 provides some benefits when measured against the objectives, particularly in terms of journey time and attractiveness improvements, but it does not provide additional capacity nor does it improve the linkage to Edinburgh Airport. The potential environmental benefits of electrification are however noted.

Package C2 provides additional capacity to and provides enhanced access to Edinburgh Airport. However, the high level of infrastructure provision increases costs to a level where they outweigh the benefits, giving a BCR below 1.

Package D provides an enhanced version of B2 by increasing frequency to two semi-fast services per hour via Shotts and increases attractiveness through new rolling stock and general upgrading. The remaining forty seven per cent of the route would be electrified and there would be a significant journey time benefit to the stopping services compared with the current diesel traction units. The provision of a two train per hour service would give a step change in provision between Glasgow Central and Edinburgh Waverley, but it offers no improvement to access to Edinburgh Airport and would route additional services through already busy sections of route.

In the **longer term**, Package C3 combines the benefits of C1 and C2 by providing improved journey times, increased seating capacity, allows for increased frequency of services and creates an improved interchange with the tram at Gogar to allow access to Edinburgh Airport directly from Glasgow and has the potential environmental benefits of electrification. A number of component parts of this package could be delivered early, with the full package being delivered by 2016.

Packages E, F and G all perform well against the objectives. However packages F and G do not offer improved linkage to Edinburgh Airport. Each of these packages offers significant improvements to seating capacity and journey time. The potential for wider economic benefits resulting from these considerable reductions in journey time have been analysed. This has suggested that a reduction of 15 minutes could add around £300 million to the benefits. Taken together with the BCR results, this suggests that the E&G line remains the best option for long term development and that even when these wider economic benefits are taken into consideration, investment in a major new line is unlikely to result in a positive BCR. While major new lines bring many benefits, they are likely to have a significant negative environmental impact and result in severance of intermediate communities.

In terms of the complementary packages, a number of potential enhancements to customer services have been identified that could improve any of the above packages. A number of options for providing improvements to the accessibility of intermediate stations have been identified, some of which would also result in operational benefits. These are primarily aimed at providing more Park-&-Ride capacity.

Specifically, the option to provide a new station at Gogar adjacent to Edinburgh Airport would give significant benefits both in the shorter term by allowing services to and from Fife and the North-East more immediate access to the airport via a short tram ride, together with the planned connection to the tram from Edinburgh Park serving Dunblane/Stirling and Airdrie-Bathgate areas, and in the longer term by combining with the implementation of the Dalmeny Chord to allow wider access to the airport from Falkirk and the West of Scotland.

Conclusions

The key conclusions of the study are:

- The short term packages do provide journey time improvements and additional benefits but they do not offer an improved link between the rail network and Edinburgh airport in the short term.
- In the short term, A2 has the biggest impact on reducing journey times but there may be difficulties in implementing it and it only provides benefits in the off-peak period.
- Package B2 performs well and would take some pressure from the E&G route. The BCR is high but it only benefits a relatively small proportion of the study area.
- B3 provides a step change in connectivity for Glasgow Central to Edinburgh. and could be seen as an intermediate step to achieving Package D, which has enhanced cross connectivity potential with the Glasgow suburban electrified network.

- For the E&G line, Package C3 represents the most cost-effective way of achieving the benefits set out within the planning objectives in the medium term. It offers additional seat capacity and services with the benefits of electrification and an improved link between the rail network and Edinburgh airport.
- For the long term, a bespoke new route is unlikely to offer better value for money than continued investment in the E&G route. However, the options put forward could be augmented by further service alterations and additions that have a wider impact across the study area and beyond. Packages E, F and G should therefore be referred back to the main STPR study with the analysis developed to date for further consideration.