

# RAIL FOR ALL

Delivering a modern, zero-carbon rail network in Scotland

Policy Briefing  
Green Group of MSPs



# SUMMARY

The Scottish Greens are proposing the Rail for All investment programme: a 20 year, £22bn investment in Scotland's railways to build a modern, zero-carbon network that is affordable and accessible to all and that makes rail the natural choice for commuters, business and leisure travellers. This investment should be a central component of Scotland's green recovery from Covid, creating thousands of jobs whilst delivering infrastructure that is essential to tackle the climate emergency, that supports our long-term economic prosperity, and that will be enjoyed by generations to come.



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This briefing is based on the report *Rail for All – developing a vision for railway investment in Scotland* by Deltix Transport Consulting that was prepared for John Finnie MSP. The Green Group of MSPs would like to thank the authors for their advice and support in developing the Rail for All programme.

# KEY POINTS

The Rail for All programme is based on the following principles:

- 1 Everything proposed here and in the accompanying expert report is based on existing technologies
- 2 The rail network should be zero-carbon, and full electrification is the best way of doing this given that the often-suggested alternative, hydrogen from renewable energy, is a limited resource that is best used in sectors where there are no alternatives, such as heavy industry.
- 3 Journey times should be significantly reduced, particularly between key Scottish cities and economic centres, to enable rail to become the dominant mode for long-distance travel
- 4 All communities of more than 5,000 people should be connected to the national rail network, and where this is not possible at realistic cost they should be provided with an integrated coach route as part of the national strategic rail network.
- 5 Rail freight showed itself to be resilient throughout the pandemic, and a continued shift in freight from road to rail will substantially reduce carbon emissions and ease congestion on the road network.

## INTRODUCTION



Whilst many European countries have built high-speed lines and long-distance connections that criss-cross the continent and provide an affordable, comfortable and low-carbon option for commuting, business and leisure travel, Scotland and Britain as a whole has systematically under-invested in the rail network in favour of roads. While important improvements have been made to the Anglo-Scottish lines and in and around Glasgow and Edinburgh, the network north of the Central Belt has been largely neglected, leaving passengers dependent on an ageing network that in some cases performs poorly compared to historical performance. In 1895, for example, one could make the trip from the Capital to Dundee in just 57 minutes, compared to today's 64 minutes.

Yet there is no reason why we should accept this decline. Scotland can enjoy the environmental, economic and quality of life benefits of a comprehensively modernised rail network that the people of Germany and the Netherlands enjoy – and public and political support for an investment-led green recovery from Covid is our opportunity. Investing in building a modern rail network now should be a key pillar of our green economic recovery, creating jobs and stimulating the economy whilst building infrastructure that is essential to a zero-carbon Scotland and that will underpin our economy for generations to come. To map what a modern, zero-carbon rail network that is fast, reliable and accessible would look like in Scotland, John Finnie MSP, the Scottish Greens spokesperson on transport, commissioned an expert report from Deltix Transport Consulting. This briefing is based on that report.



# 1 CREATING THE DELIVERY INFRASTRUCTURE

To catalyse the expansion and improvement of our rail network we urgently need to reform the institutions and decision-making processes so that they are aligned behind this goal, coordinated, and streamlined.

## i Streamline decision-making processes and rebalance them in favour of rail

Currently, Scottish Government processes and decision-making are bureaucratic and stacked against rail. All transport infrastructure investment projects must go through the Scottish Transport Appraisal Guidance (STAG) process, which is extremely detailed, complex, time-consuming and costly. Its application by Transport Scotland is pedantic, and it leads to major additional costs for proposed developments. In the context of the climate emergency and our ambitious emission reduction targets for the 2020s, the STAG process needs to be significantly reduced and aligned behind the over-arching aim of rapidly

delivering low carbon transport infrastructure. Network Rail's parallel Governance for Rail Investment Projects (GRIP) will need to be similarly streamlined, as will the Scottish Government's Business Case Process, which brings together STAG and GRIP. Of critical importance in achieving the Scottish Government's 2035 rail decarbonisation target is the need to treat the core rail electrification work as a single project, with a single appraisal, delivered by a number of discrete contracts, in the same way as the A9 and A96 dualling projects are being delivered.

## ii Create one publicly-owned operator

The costs of new rail infrastructure and upgrades to the existing network are also higher in Britain than elsewhere in Europe because of the fragmented nature of the system. Re-integrating ScotRail and Network Rail (Scotland) into one publicly-owned company with oversight by Scottish Ministers would provide a much more

efficient structure, cutting costs by reducing overlapping work, speeding up decision-making and project design, and removing the cost of compensation paid when lines are shut for engineering works. Effectively, we recommend a return to the very successful ScotRail that existed before privatisation.

### iii Make a strategic decision to deliver a modern, zero-carbon rail network and align behind this

It is vital that the Scottish Government – as early as possible in the next Parliamentary term – makes a clear strategic decision to prioritise the delivery of a modern zero-carbon rail network that is accessible to all, and that key institutions like Transport Scotland are fully aligned behind that goal. This clear long-term plan for the network and strategic direction will ensure delivery is consistent with the 20-year timetable set out in Rail for All, and ensure that our transport infrastructure plans are aligned with Scotland’s target of reducing emissions by at least 75% by 2030.

### iv Establish a task force to plan and steer the expansion and improvement of the rail network

The scale and urgency of the Rail for All programme means that there will be a need for close cooperation between the Scottish Government and the relevant agencies, local government and passenger groups. We therefore recommend that a small multi-agency and multi-disciplinary Task Force be created and empowered to press forward with delivering not only the large schemes proposed in this programme, such as electrification and route modernisation, but also the smaller incremental schemes which will impact on local connectivity, often in much shorter timescales. The delivery of early successes will visibly put us on the right trajectory, demonstrate commitment, and build public support for Rail for All. Examples of early successes that could be accelerated with the funding and change in approach to delivering rail infrastructure proposed here could include:

- Provision of additional stations on existing routes
- Opening existing freight lines for passenger trains, where there is sufficient demand to justify passenger train services (the UK Government is adopting this approach)
- Initiating the national rolling programme of rail electrification
- Small-scale electrification to eliminate pockets of diesel working in generally electrically-operated areas, including possible use of electric / battery bi-mode trains
- Provision of large numbers of low-cost all-day electrical ‘trickle’ charge points at railway station car parks to stimulate connected all-electric travel using car to the station and train to the destination.
- Development of walking and cycling plans for all stations (recognising that the two modes often have different infrastructure requirements), including provision for electric bikes, with the objective of widening access to train services.

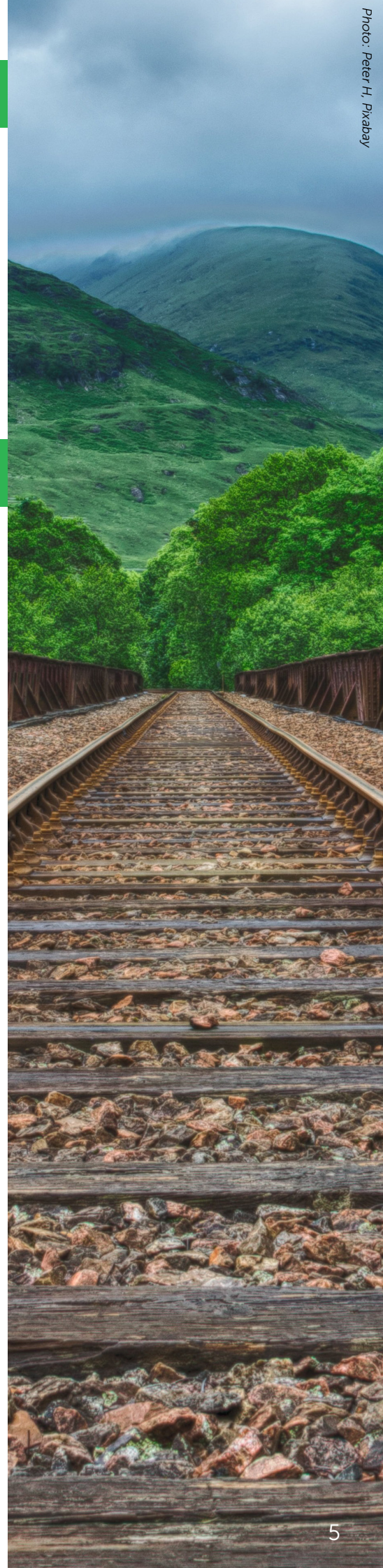




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## INTER-CITY SERVICES

The inter-city network in Scotland provides links between the seven designated cities, Aberdeen, Dundee, Edinburgh, Glasgow, Inverness, Perth and Stirling. The Scottish Government have announced plans for full electrification of the network, and we are calling on this to be completed by 2030 – rather than the planned 2035 – to allow the current stock of diesel trains that are over 40 years old to be replaced with modern high-performance electric trains.



**The Glasgow- Stirling- Perth-Dundee line** is already relatively fast, but upgrades are still needed to cut carbon and reduce travel times. Upgrades should include electrifying the 60% of the line that still depends on diesel traction, accommodating high-acceleration trains that can exploit higher speeds, and reducing conflicts at junctions and the length of single-track sections. This would reduce journey times by up to 10 minutes.

**The Edinburgh-Perth and Dundee lines** were built in the Victorian era and are too slow, with a long stretch of single-track route to Perth and sections with speeds as low as 30-50mph. These lines are simply not fit for purpose, and major investment is needed.

**The West Coast Main Line** is congested, particularly between Carstairs and Glasgow, suffers from limited overtaking facilities, and speed is limited by level crossings. A programme of upgrades including a high-speed bypass from south of Carstairs to west of Rutherglen and a high-speed link towards Edinburgh using the existing Shotts line, as well as provision of more loops for freight, would cut journey times and increase capacity on the line significantly.

## A Firth of Forth Tunnel to transform east coast transport

The current network focuses all trains linking Edinburgh to the rest of Scotland through Haymarket, which, along with our dependency on the speed-limited Forth Bridge, creates a major bottleneck that affects the whole network. We are proposing a Firth of Forth Tunnel to ramp up capacity on east coast services and provide a fast and direct connection between Edinburgh and Fife, going on to Dundee and Aberdeen. This would reduce journey times between Edinburgh and east Fife, Dundee, Perth, Aberdeen and Inverness by 25 minutes and bring Kirkcaldy, Glenrothes, Levenmouth, north and east Fife, Perth and Dundee to within an hour of central Edinburgh. It would also massively increase capacity on the wider network and make freight transport an option between Fife, Edinburgh and the East Coast Main Line. The tunnel concept would incorporate a station at Leith, greatly improving connectivity for the c.50,000 residents of the district as well as the wider North Edinburgh area.

Rail experts Deltix advise:

“Using modern technology we suggest that two 9-mile, single-bore, rail tunnels are driven under the Firth of Forth from Abbeyhill to Seafield, between Kinghorn and Kirkcaldy, passing under Leith. These would be connected to the east end of Waverley station using the former Abbeyhill loop off the East Coast Main Line east of Calton Tunnel, with the railway burrowing underground below Leith (served by an underground station) then the Firth of Forth, returning to the surface near Seafield.

“It should be noted that there has been a long history of boring under the Forth for coal mining, and railway tunnels much longer than this have become relatively common in mainland Europe. The very recently opened Ceneri Base tunnel in Switzerland, which at 9.6 miles is virtually the same length, had a quoted cost of €3.6b. There are several other sub-Alpine tunnels of recent construction.

“The Öresund or Øresund Bridge between Denmark and Sweden includes both a 5-mile (8km) bridge and the 2½ mile (4km) immersed-tube Drogden Tunnel over a similar distance and incorporates a dual-carriageway road as well as a double-track railway.

“The Lower Thames Crossing will provide two 2.6mile (4km) road tunnels under the Thames, with each being the third largest bored tunnels in the world, all part of a 14.3 mile new dual-carriageway road. The budget cost for the whole scheme is £5.3b to £6.8b. The Crossrail tunnels in London are each 13 miles long and the London Tideway tunnel will be 25km long.

“As part of the under-Forth scheme, a double-ended underground station could be provided in Leith, with the south end at the Foot of Leith Walk and the north end near the Waterfront. An indicative first estimate of the cost of the under-Forth project is £4bn-£6bn, including the station at Leith, based on the out-turn costs of recent tunnelling projects.”



The Ceneri Base tunnel recently opened in Switzerland and is the same length as the proposed Forth tunnel

**The Dundee-Aberdeen line** could benefit from incremental improvements alongside electrification, such as replacing manual signals with automatics and removing level crossings, as well as long loops installed to enable slower freight trains to be overtaken.

**The Highland Main Line** is two-thirds single-track, putting severe restrictions on capacity and speed. Electrification could bring substantial journey time savings. Adding “dynamic loops” to the line and extending shorter existing loops with a view to building another 30 miles of double track would be enough to make a further substantial difference to capacity and journey times for both passengers and freight. In addition to other upgrades to the line where speeds are currently restricted, the travel time between Perth and Inverness could easily be reduced to 1hr40. Ideally the whole line would be double track, but in our proposal, in addition to electrification, would deliver major improvements quickly and lay the groundwork for full dualling.

**The Aberdeen-Inverness line** is a long single-track line that is slow by Inter-City standard, with a maximum speed of 75mph and many miles of the route stuck at 60mph. Electrification, dynamic loops, the removal of level crossings and lengthening stations would bring the journey time down to under 1hr45. This compares to the existing fastest service at 2hr9.

**The East Coast Main Line** provides passenger services to England as well as local routes out of Edinburgh to East Lothian, and an increasingly important freight service to east coast ports in England. Whilst parts of the track are relatively fast (up to 125mph), south of Dunbar the route is slower, capacity is limited, and there are insufficient loops to accommodate freight without slowing passenger services. These problems could be addressed through a programme of urgent upgrades, including the provision of long overtaking loops for freight, a section of four-track railway to allow more services to East Lothian, and grade separation at Portobello Junction to reduce congestion.





## REGIONAL SERVICES

Most regional services are now running on a half-hour frequency, so to grow capacity the focus needs to be on lengthening trains to 8 or 9 carriages.

The Glasgow network is intensively used and heavily congested. It suffers from too many single-track branches and junctions and has poor links from Edinburgh to everywhere south-west of Glasgow. Redoubling single-track lines should be a priority, including the Milngavie and Balloch branches, Helensburgh-Craigendoran (including Craigendoran Junction), Paisley Canal (eastern section), Larkhall, Lanark, the Wishaw connecting line, Cowlairs chord, Sighthill West and Cowlairs South Junctions. Using the existing Hunterston freight line to restore double track between Ardrossan South Beach and Hunterston would allow more frequent services to Largs and faster services to ferries connecting to Arran. In addition, upgrading junctions, grade separation and lengthening platforms are critical to reducing travel times and increasing capacity throughout the network.

A new overground terminal station should be developed at Argyle Street station, with a shared terminal building and the new station on a high level above the car park at the rear of the St Enoch centre. It would link into the revived, upgraded and electrified City Union line (which connects the main line from Paisley etc. to the commuter routes running east from Queen Street Low Level and High Street stations).





## Local environmental impacts

The Rail for All programme focuses on upgrading existing lines because this is the most efficient and environmentally positive way of enhancing the network, but it also contains some proposals for entirely new infrastructure and re-opening old lines that may have an impact on the local environment. We would expect all infrastructure projects to be developed in a way that minimises impact, and where there are objections we would hope to see them resolved in collaboration with local communities as was done with the Borders Railway.

The Edinburgh network is limited by dated infrastructure, including single-track sections and a lack of overtaking loops. The opening of the new Borders Railway in 2015 has been an enormous success, but it was built down to a price and to a low capacity so it is already very limited. In addition to the ECML upgrades, more double-track provision along the Borders line would be very beneficial.

Fife services are the most intensively used diesel services left in Scotland and the lines should be electrified as soon as possible. A Forth Tunnel would be a game-changer, vastly reducing travel times, improving punctuality, and releasing enormous capacity over the Forth Bridge that could be used for extra services to, for example, Dunfermline, West Fife and Alloa.

The Glasgow and South Western (GSW) secondary main line from Glasgow to Carlisle via Kilmarnock and Dumfries is slow and has limited capacity. Upgrades to the line to allow 100mph running speeds, as well as opening new stations at Mauchline, Cumnock and Thornhill, would transform this line.



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## RURAL ROUTES AND ROLLING STOCK REPLACEMENT

The biggest improvements on rural routes could be delivered by replacing ageing diesel rolling stock. These will need to be replaced during the 2020s if we are to build a zero-carbon rail network, but electrification is not practical so battery-powered trains equipped with pantographs to use overhead wires where available (eg in and around Glasgow) will be needed. In addition, upgrades to rural lines could include:

- Significant improvements to the south end of the Inverness-Thurso ('Far North') line, and enhanced infrastructure provision for freight trains
- Upgrades to the West Highland Line to raise the overall speed to 75mph
- Upgrades to the antiquated Girvan to Stranraer line, which still uses traditional physical tokens for signalling, suffers from low speeds, and is unable to carry heavier freight trains.

Rural routes largely have older rolling stock and many are approaching their end of life. It's critical that these are replaced with zero-carbon stock, but as rural lines are unlikely to be electrified over significant lengths, independent power sources will be needed. Given "green hydrogen" from renewable sources is a limited resource that is needed in parts of the economy where there are no other alternatives, battery trains that are able to charge when overhead wires are available may be the best option. Design features should prioritise speed, comfort, space, accessibility and the provision of space for cycles.



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Photo: Eastpath, CC BY-SA 3.0

## TRAMTRAINS FOR COMMUTERS AND URBAN CONNECTIVITY

TramTrains are an innovative concept, taking a conventional tram designed to run on streets but technically modified to be able to operate safely on Network Rail's tracks. The concept was launched in Germany, with Karlsruhe in 2002 and Kassel in 2006. There has been a UK trial extension of the Sheffield Supertram which is now fully operational serving Rotherham. Thus they can be considered a mature technology and several UK cities are considering use of TramTrains.

The benefit that they bring is being able to use existing and often underutilised Network Rail tracks in the suburbs and possibly from country hinterlands, but to then penetrate city centres or reach other major employment, housing or retail locations centres which are not close to existing railways. They may require rail electrification, but may be able to operate on battery power on city streets, thereby removing the need for overhead wires on some sections.

TramTrains could be deployed in Glasgow, Edinburgh, Aberdeen and Dundee to improve public transport provision relatively quickly:

- In Glasgow, St Enoch/Argyle Street could be a city centre terminal for TramTrains, replacing existing local passenger trains and freeing up capacity for longer distance services. TramTrains could also be used on a reopened 'Strathbungo Link' connecting Argyle Street with the East Kilbride and Barrhead/Kilmarnock lines.
- In Edinburgh TramTrains could run from Musselburgh to Haymarket and then on to Edinburgh Park and the Airport, using a reopened Edinburgh South Suburban line which bypasses the city centre to the south. They could also run from Haymarket to Heriot-Watt using the railway via Slateford, Kingsknowe, Wester Hailes and Currie (providing interchange between TramTrain and ScotRail services).
- In Dundee the TramTrain core route could replace the existing local train service between Dundee and Arbroath allowing additional stops, and a potential city centre loop could follow, using the Dundee-Perth railway, calling at the Airport and a new Dundee West station before climbing up to Ninewells Hospital and Technology Park.
- In Aberdeen TramTrains could follow two corridors to provide a convenient cross-city transit line from Ellon to Banchory.



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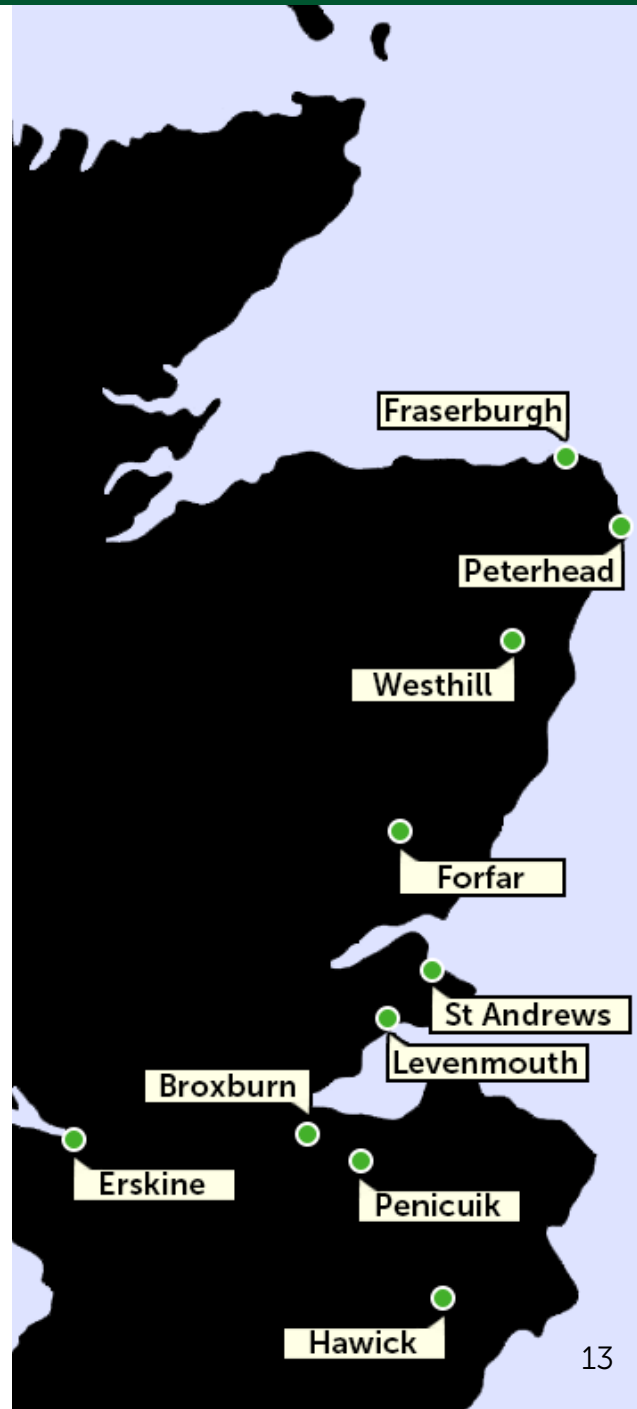
## NEW PASSENGER STATIONS

A key principle of Rail for All is to make the network accessible to all. We are therefore aiming, as far as realistically possible, for every town with a population of over 5,000 to be connected to the rail network. This means that stations need to be developed in the following towns, in descending population order:

- Levenmouth
- Peterhead
- St Andrews (possible heavy rail or TramTrain)
- Erskine (possible TramTrain)
- Penicuik (possible TramTrain)
- Broxburn (possible TramTrain)
- Forfar (possible TramTrain, from Dundee)
- Hawick
- Fraserburgh
- Westhill, north west of Aberdeen (possible TramTrain)

In addition, new stations should be explored in Haddington, Banchory (possible TramTrain), Strathaven, and Newburgh, Fife.

For smaller population centres and as an interim measure for those without access to the network yet, coach services should be established to connect to rail services, with through-ticketing and harmonised timetabling.



# 7



## REOPENING PASSENGER SERVICES ON FREIGHT LINES

One of the most cost-effective and quickest ways of expanding the passenger rail network is to introduce passenger services on existing freight lines. Priorities would be:

(Alloa-Clackmannan-Kinross-Longannet)-Culross-Valleyfield- Cairneyhill-Dunfermline (re-opening Alloa-Longannet only is currently under appraisal)

TramTrain services on the Edinburgh South Suburban Line through Gorgie, Craiglockhart, Morningside, Newington, Craigmillar etc.

### Reopening the Dunfermline to Alloa line

The initial phase of this line from Alloa to Longannet was rebuilt as part of the Stirling – Alloa – Kinross project, opened in 2008. However, passenger services stopped at Alloa, with the line to the east used exclusively for coal freight to the Longannet power station.

The closure of Longannet in 2016 has left this line un-used, except for occasional steam train tourist trips along the Forth coast. Network Rail have begun feasibility work to electrify the line from Alloa to Longannet, for a proposed electric train factory at the site, and are exploring options for a passenger link serving Clackmannan, Kinross and Longannet, but there is yet to be a firm commitment from the Scottish Government, and no plans to develop the line east of Longannet.

Reopening the full line from Alloa to Dunfermline would reconnect the West Fife villages to the rail network for the first time in over 50 years, and provide a link from Fife to the West of Scotland rail network whilst avoiding the congested Forth Rail Bridge. The success of the reopened Alloa station, whose passenger numbers were more than double the anticipated usage in the first year, demonstrates the popularity of rail options for the region. The existing rail infrastructure would make this a quick and cost-effective project to deliver, transforming rail travel in West Fife and Clackmannanshire.

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## SHIFTING FREIGHT ON TO RAIL

Rail is the most efficient and sustainable means of shifting freight. It is particularly competitive for longer journeys such as from Central Scotland to deep sea ports and the major national distribution centres in England, but it's also a good option for hauling bulky goods over short distances. However, rail is cheaper as a result of the climate, air quality, congestion and safety costs not being factored in. Switching freight from road to rail cuts CO2 emissions by up to 76%.

Rail freight is currently limited by capacity constraints on the network, and vital projects to address these constraints such as upgrades to the Highland Main Line have been deprioritised by the Scottish Government in favour of significantly more expensive dualling of the A9. Short crossing loops between Perth and Inverness limit trains to just 20 containers in length, yet the locomotives can haul no fewer than 28. Increased road capacity has in itself had a detrimental impact on rail freight, making road more attractive for the movement of bulk spirit, 1.5m tonnes of which is moved annually from the North of Scotland to the Central Belt (about 50,000 lorry trips each year on the A9).

In addition to an infrastructure upgrade programme, Scottish Government grants for start-up support for new rail freight operations would help catalyse growth.



Photo: Bill Robertson



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## ZERO-CARBON RAIL

The Scottish Parliament has passed legislative targets of a 75% reduction in emissions relative to 1990 by 2030 and net-zero by 2045. The Scottish Greens note that whilst ambitious in terms of the changes that need to be delivered to meet them, they are still relatively slow relative to our overarching goal of doing our fair share to keep climate change to within relatively safe levels. In Scotland whilst emissions from power generation have been reduced radically and there is still considerable scope to expand renewable energy, emissions from transport are on an upwards trajectory largely due to our dependence on cars and other motor vehicles. Rail for All aims to bring about a significant shift from road to rail for this reason, and to deliver wider benefits. However, rail itself must be decarbonised as quickly as possible to be consistent with our climate goals.

The Scottish Government has committed to decarbonising the rail network by 2035, and, to avoid placing excess strain on power supply they envisage a significant role for hydrogen, centred around the “growing hydrogen economy that is developing in the

North East” that is linked to the North Sea gas industry. We do not consider hydrogen made from fossil fuels to be zero-carbon, and given the relative inefficiency of making hydrogen from renewables as well as the need for hydrogen to decarbonise energy-intensive industries, we consider it clear that hydrogen would be a poor choice for Scotland’s rail networks.

The Scottish Greens are therefore calling for a clear policy of electrifying the network and linking this to a further increase in renewable energy generation. Where overhead wires are not economic, battery trains should be deployed and the Scottish Government should immediately target this emerging technology with support.

Finally, the core decarbonisation plan needs to be brought forward to 2030, sending a clear signal in time to inform procurement and design decisions that are being made now as aging diesel rolling stock is replaced, avoiding investment in assets that will quickly become stranded as a result of our climate targets.





## RAIL FOR ALL COSTS

The Rail for All programme represents a significant increase in infrastructure investment in Scotland, but at £22bn over 20 years it is affordable and deliverable. For comparison, the CrossRail project in London is priced at £19bn and the cost is rising, while High Speed 2 in England is currently expected to cost up to £89bn. £22bn is approximately double current Scottish government plans for this time period, and much of it could be funded by redirecting capital expenditure on expanding the road network.

The timescales are driven by the time taken

to develop new proposals, and they are dependent on streamlining processes. Short-term investments are simple in engineering terms, are based on existing plans and effectively represent a ramping up of current delivery capacity. Medium-term investments complete these works and are still largely based on the existing network, but they also include new interventions – a TramTrain network, and the start of a Forth Tunnel. The longer-term investments complete the programme and include a replacement Tay Bridge.

Upgrade	Short-Term (2020-2027)	Medium-Term (2027-2034)	Long-Term (2034-2040)	Total
New stations	500			500
New routes	500	2000	500	3000
Route upgrades	500	2500	1000	4000
Cross-border route upgrades <sup>1</sup>	500	1000	2000	3500
Electrification	1000	1500		2500
TramTrain		1000	500	1500
Forth Tunnel		2000	3000	5000
Tay Bridge			1000	1000
Freight upgrades	200	320	120	640
<b>Total</b>	<b>3200</b>	<b>10320</b>	<b>8120</b>	<b>21640</b>

All costs in Emillions

1: These are upgrades to the East and West Coast Main Lines and would be part of a Britain-wide high speed network, so the costs would likely be shared with the UK government

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Photo: Walter Baxter, CC BY-SA 2.0

## A GREEN RECOVERY FROM COVID

Building the zero-transport rail network Scotland needs is important in its own right, but it could also play a central role in rebuilding Scotland's economy after the Covid pandemic. Investment in rail is well documented to have a wider positive economic impact by improving connectivity and productivity. The construction of Crossrail in London, for example, is estimated to have created 55,000 jobs directly and indirectly, and is projected to result in a £42bn benefit to the economy at a cost of £17.8bn over approximately 15 years. and is similar in size of additional investment to the Rail for All programme. Scottish Government economic models suggest that for every £1bn invested in rail transport, a total output of £1.6bn can be generated through direct, indirect and induced impact and a further 14,000 full-time equivalent jobs can be created throughout the Scottish economy.

Regional rail links in particular can play a critical role in supporting local economic development, as demonstrated by the Borders Railway, which, since opening in 2015 has exceeded passenger predictions, carrying millions of passengers in both directions and playing a key role in attracting investment into the Borders and supporting tourism growth. The economic benefits of investing in these lines may well exceed national averages, with one study suggesting that the re-opening of a regional line in the North of England yields a Benefit-to-Cost Ratio of 2.35, suggesting that for every £1 spent on such the schemes delivers £2.35 of benefits.

