



Route 25 Highlands

Today's route

The principal elements of the Highlands Route are described below. The relevant Strategic Route Section is shown in brackets:

- the line between Perth and Inverness (25.03);
- the line between Aberdeen and Inverness (25.04);
- the North Highland Line from Inverness to Wick and Thurso and the branch from Dingwall to Kyle of Lochalsh (25.01); and
- the West Highland Line from Craigendoran (on Route 26) to Fort William and the branches from Crianlarich to Oban and Fort William to Mallaig (25.02).

Route context

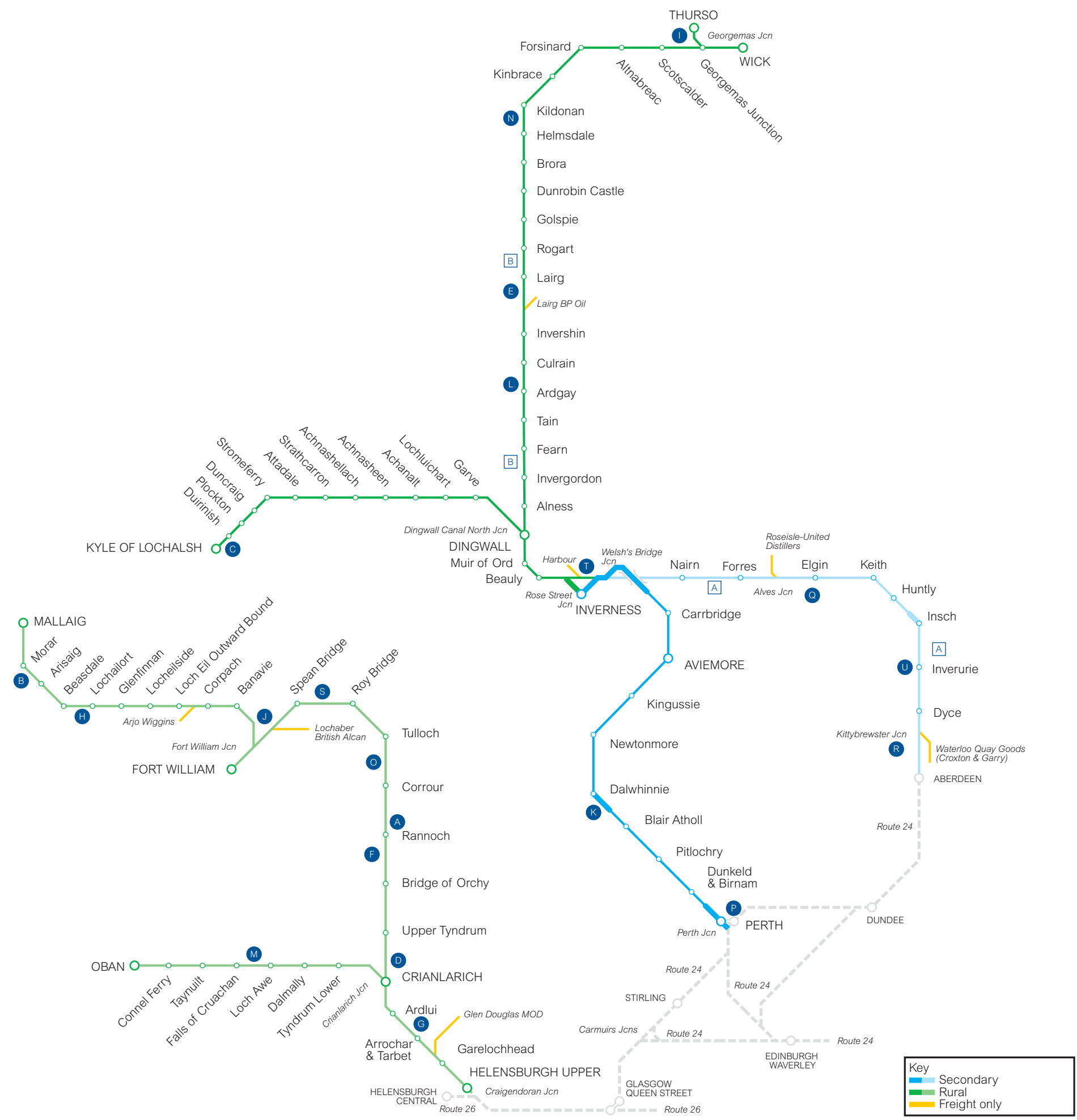
The Highlands Route serves a large number of rural communities across the North of Scotland, providing access to the social and commercial facilities of the major towns of Inverness, Wick, Thurso, Oban and Fort William. These towns also serve as significant transport interchanges with buses and, in some cases, shipping services to the Scottish island communities. Tourism plays a major role in the Highland economy, and these scenic rail lines are well patronised in the summer months by domestic and foreign tourists.

The route also serves a number of freight terminals.

Transport Scotland commissioned its Scotland Planning Assessment (SPA), as one of the inputs to the development of their strategy for rail in Scotland, and we are currently progressing the Route Utilisation Strategy (RUS) for Scotland. Both of these pieces of work have informed the development of this Route Plan.

In addition Highland and Islands Enterprise are sponsoring a 'Room for Growth' study of the Highland rail network. This is considering the current capabilities of the route and future options for its development.

Route 25 Highlands



Key	
—	Secondary
—	Rural
—	Freight only

Passenger and freight demand

The major population centres on the route have experienced modest population growth in recent years, with the exception of Inverness where significant growth has occurred. This has been assisted by the re-location of several public bodies, principally Scottish National Heritage and Forest Enterprise Scotland. However this growth has been achieved in many cases at the expense of the hinterlands where there has been a steady structural trend of de-population from the rural areas in the Highlands.

An enhanced service on the lines radiating from Inverness (referred to as 'Invernet') was introduced from December 2005. This is aimed at providing peak hour services on corridors where they are not currently provided and closing some of the significant timetable gaps at other times.

The recently completed SPA reported on current daily passenger numbers on a number of geographically aggregated sectors. The daily trip data for the sectors on this route are detailed in Figure 1.

For further information, see the published Scotland Planning Assessment at <http://www.transportscotland.gov.uk>

There are wide seasonal variances in traffic volumes on the West and North Highland lines. This is addressed by strengthening of train formations in the peak summer months.

A combination of cost pressures, the EU Working Time Directive and environmental concerns have caused a number of the supermarket groups operating in Scotland to consider the use of rail in their supply chain logistics. Safeway, now part of the Morrison's Group, were the first group to use rail with the introduction of a service from Mossend to Inverness and Georgemas (for Thurso). The service will in future be used by Tesco between

Mossend and Inverness. Similar pressures have also led to the introduction of express parcels services, including one from Walsall to Inverness.

Current services

First ScotRail operates the majority of passenger services on this route, including an overnight sleeper service from London Euston to Fort William and Inverness which forms part of the Caledonian Sleeper network. GNER operates a daily service between Inverness and London Kings Cross via the ECML. A summer only steam tourist service is operated by The West Coast Railway Company between Fort William and Mallaig.

Freight services are principally operated by EWS, with Freightliner Heavy Haul Ltd providing a service for cement products from Dunbar to Inverness via Perth.

The section of the route from Inverness to Perth continues to see healthy levels of freight, and the freight industry has plans to increase rail borne freight between Inverness and the central belt of Scotland.

With the exception of sections on the Aberdeen to Inverness line, current peak utilisation is within the practical capacity available on all parts of the route.

Figure 2 shows the service frequencies between principal stations.

Current traffic

The Highland Route carries mixed traffic between Perth, Inverness and Georgemas and between Craigendoran and Fort William. The remainder of the route carries mainly passenger services with occasional charters and freight services. As the route is predominantly single track certain sections have relatively high utilisation imposing constraints on the timetable.

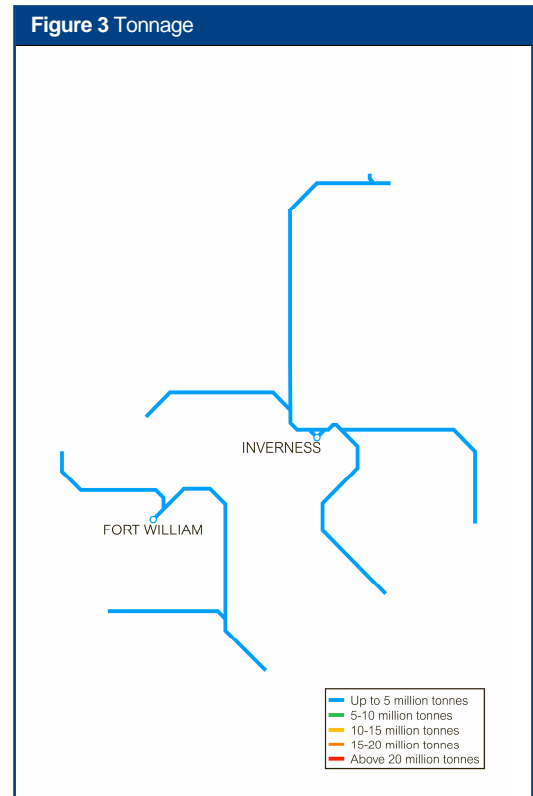
Figure 1 Current passenger numbers

Sector	Daily Trips
North East Scotland	10,350
West Highland Lines	630
Far North Lines	290

Figure 2 Current train service level (trains per day)

Perth to Inverness	9
Aberdeen to Inverness	10
Inverness to Wick & Thurso	3
Inverness to Kyle of Lochalsh	4 Summer/3 Winter
Glasgow to Oban	3 (4 Summer Saturdays)
Glasgow to Fort William	3 (4 including the sleeper)
Fort William to Mallaig	4

Figure 3 shows the tonnage levels on the route.



Traffic volumes are summarised in Figure 4.

Figure 4 Current use

	Passenger	Freight	Total
Train km per year (millions)	4	1	5
Train tonne km per year (millions)	633	204	837

Current infrastructure capability

The following maps set out the capability of the current network.

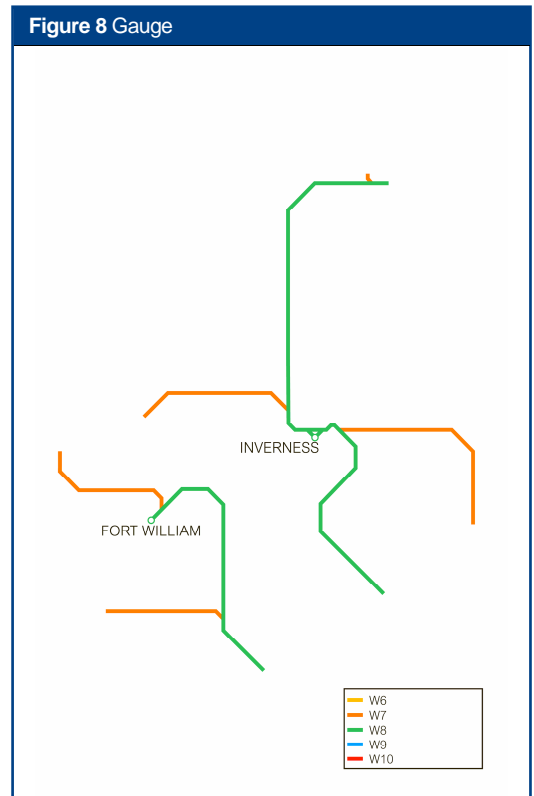
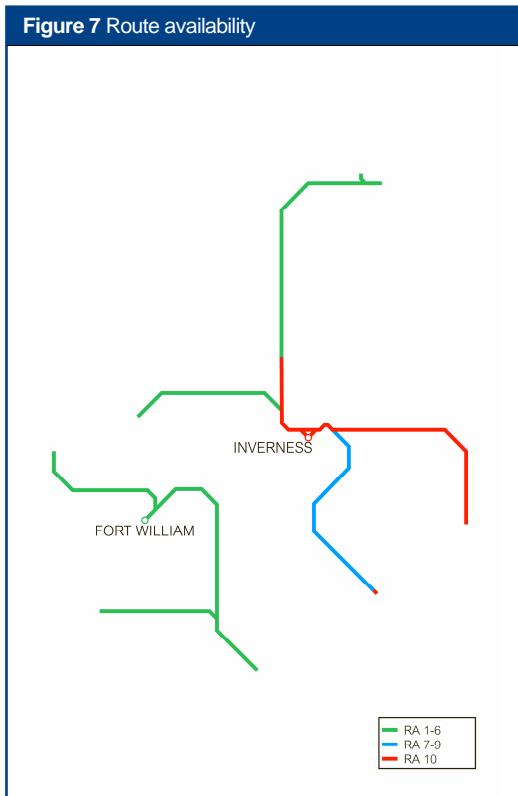
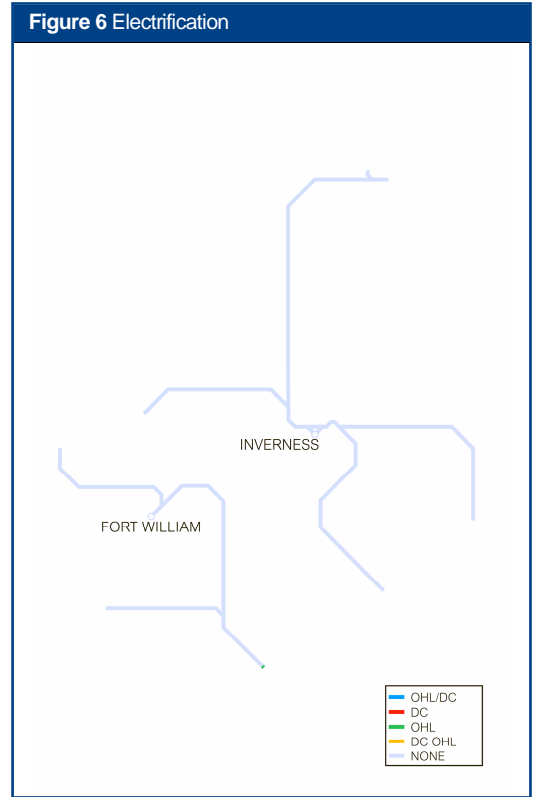
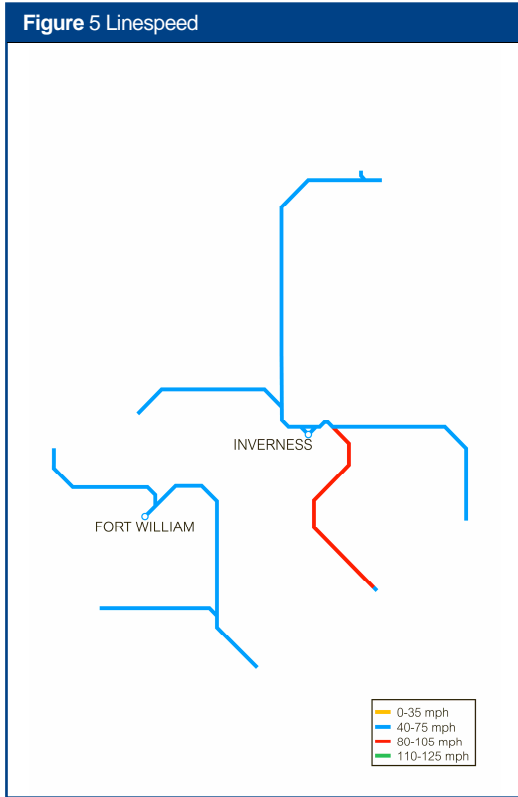


Figure 9 Current train service level (peak trains per hour)

Route section	Number of trains
Inverness – Dingwall*	4
Inverness – Kingussie*	3
Craigendoran – Crianlarich*	2
Inverness – Elgin*	2

* Trains in both directions over single line

Current capacity

The baselining work carried out as part of our current Scotland Route Utilisation Strategy work has confirmed that there are several significant capacity constraints on the existing network. The most significant of these constraints for services on this route are:

- the single line sections on the Aberdeen to Inverness line, the most significant of which is the 18 mile section between Keith and Elgin (25.04);
- the single line sections on the Perth to Inverness line, the most significant of which are the 13 mile sections between Dunkeld and Pitlochry and Dalwhinnie and Kingussie (25.03) and;
- the finite capacity of the Radio Electric Token Block (RETB) equipment on the Far North lines (25.01) which limits the number of additional trains that can be handled on this part of the network.

Figure 9 shows the current peak hour train service levels on the route.

Current performance

Figure 10 shows the current PPM for the main TOCs running along the route.

The route consists mostly of long single line sections with passing loops. On such routes any perturbations can have a significant impact.

Despite that, performance on the route remains generally satisfactory. Between Inverness and Wick a number of issues came together to dramatically worsen punctuality during 2004, and we worked with First ScotRail to resolve these through a review and subsequent revision of the planning rules that was introduced in 2005.

The Network Rail and First ScotRail controls are co-located within the same office in Glasgow to ensure prompt and effective response to any incidents in order to mitigate subsequent delays.

A number of specific initiatives are being progressed on this route to effect performance improvements. Examples of these are:

- life extension works to the West and North Highland RETB systems (25.02/25.01);
- renewal and rationalisation of signal cables between Perth and Dunkeld (25.03);
- renewal of signalling cables at Blair Atholl (25.03);
- targeted track renewals at remote locations;
- enhanced vegetation management regimes;
- installation of cable route protection at vehicle access points;
- introduction of new operating instructions for managing animals on the line; and
- review of the timetable planning rules between Inverness and Wick (25.01).

Figure 10 Current PPM MAA (2005/06)

TOC	MAA	As at period
First ScotRail	84.5%	10
GNER	81.5%	10

Future requirements

Strategic direction

Scottish Ministers are developing a rail strategy for Scotland and this will feed into the Scottish High Level Output Statement (HLOS) which will determine the future direction of the route. The levels of growth forecast by the SPA would not suggest significant capacity issues on this route.

Highland Council is promoting the construction of a deep water port facility in the Inner Moray Firth area. This would provide a UK link into the proposed 'northern maritime corridor' with feeder shipping services from the proposed international container port at Scapa on Orkney. If implemented, it would result in a significant increase in rail freight traffic on the Perth to Inverness and Inverness to Invergordon lines.

Future demand

The recently completed SPA reported on projected daily passenger numbers on a number of geographically aggregated sectors during the morning peak period over the next 20 years. The trip data for the sectors on this route are detailed in Figure 11.

For further information, see the published Scotland Planning Assessment at <http://www.transportscotland.gov.uk>

A separate 'Room for Growth' study on potential future demand on these routes is currently being carried out by Highland and Island Enterprise supported by Hitrans (the Regional Transport Partnership) and the Highland Rail Partnership. This may result in a revision to these forecasts.

Future freight demand on the route will be affected by any initiatives arising from the Inner Moray Firth proposals referred to above. Other significant factors are the increased use of rail on trunk flows within the logistics chain, national recycling strategy and the construction of the associated waste transfer stations and the availability of grants towards the creation of new freight terminals. We are currently carrying out a national Freight Utilisation Strategy that will provide a robust forecast for future freight growth on the route.

Figure 11 Projected passenger numbers

	2003/04	Morning peak trips		Change relative to 2003	
		2016	2026	2016	2026
North East Scotland	3,040	3,070	3,300	+ 1%	+ 8%
West Highland Lines	93	96	102	+ 3%	+ 10%
Far North Lines	46	46	48	0	+ 4%

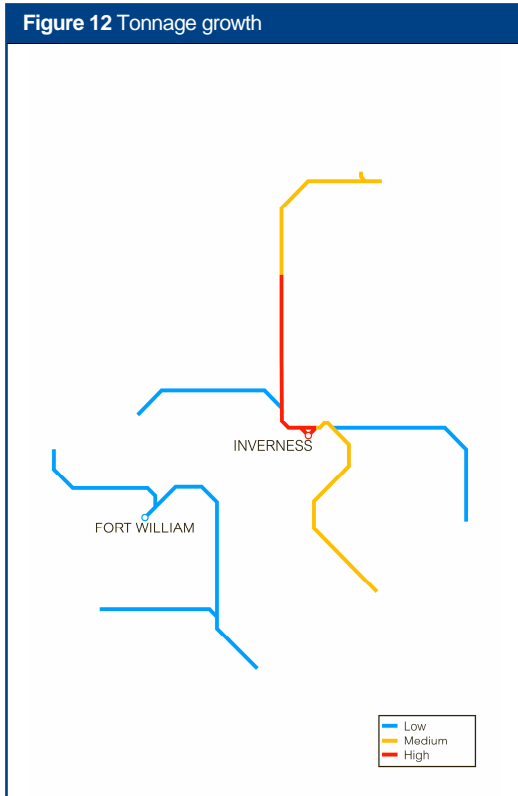


Figure 12 indicates the forecast percentage change in tonnage to 2015.

Future capability

The Mossend to Elgin gauge enhancement project is currently being developed. This work is being funded by Transport Scotland. This would allow rail to achieve a higher market share of traffic conveyed in the latest size of maritime containers, principally distillery products from the North East of Scotland.

Fragile routes

Network Rail engineers have identified a set of 'Fragile routes' across the country where the addition of any further loco hauled traffic would have a significant impact on the residual life of track and/or structures.

The rail freight industry has recently provided to Network Rail a set of 10 year traffic forecasts, and we are presently assessing their implications. The key route section within this route that has been identified as a fragile route and has clearly defined additional tonnage/train numbers projected by the industry is Helensburgh – Fort William.

Future capacity

Traffic levels on the route can generally be accommodated without recourse to the provision of additional infrastructure. The significant exception to this is the Aberdeen to Inverness line (25.04) where the aspiration to provide a regular hourly passenger service can only be accommodated by the provision of additional passing loops.

The Scotland Route Utilisation Strategy and the Room for Growth Study are considering how current pinch points could be eased and performance enhanced through timetable restructuring.

Future performance

Figure 13 shows the forecast reduction in Network Rail delay minutes compared with 2005/06.

Figure 14 shows the forecast PPM for the main TOCs running along the route.

Figure 13 Forecast reduction in delay minutes

	2006/07	2007/08	2008/09
% reduction in delay minutes	5%	13%	19%

Figure 14 Forecast PPM MAA

TOC	2006/07	2007/08	2008/09
First ScotRail	87.3%	88.7%	90.0%
GNER	83.6%	85.5%	87.7%

Engineering access

A number of extended blockades are planned on this route over the next few years. These will allow major earthworks and track renewal works to be undertaken in the most efficient manner.

As has been the practice in recent years, these blockades will take place during the early spring and autumn periods when traffic levels are significantly lower. Details of these are being discussed with the affected train operators.

Opportunities and challenges

The future passenger growth and capacity requirements on this route can largely be met without significant infrastructure investment. The main exception to this is the Aberdeen to Inverness line (25.04) where the stakeholder aspiration to operate a regular hourly clock face service cannot be achieved without the provision of additional passing loops.

The Far North Line (25.01) is also reaching the situation where further traffic growth will be limited by the capacity of the existing RETB signalling system.

Delivering future requirements

Summary

The Aberdeen to Inverness (25.04) enhancements referred to above are being developed as a separate enhancement proposal. We will ensure that any works we need to carry out on the line in the short term are compatible with the emerging future specification.

The Far North (25.01) RETB signalling system is currently being life extended to allow it to continue to function satisfactorily for approximately another 7 to 10 years until its ultimate renewal is required. This is currently most likely to be with the ERTMS system that will be trialled on the Cambrian Lines.

We will continue to ensure that our planned renewals on the route take account of forecast traffic growth aspirations wherever possible.

Expenditure

Figure 15 shows the planned level of expenditure on renewals on this route over the next five years. The precise timing and scope of these renewals

remains subject to review to enable us to meet our overall obligations as efficiently as possible consistent with the reasonable requirements of operators and other stakeholders.

Figure 15 Forecast expenditure			
£m (05/06 prices)	2006/07	2007/08	2008/09
Renewals			
Track			
Plain line	6	5	5
Track Total	6	5	5
Civils			
Underbridges	2	4	2
Overbridges	–	–	1
Bridgeguard 3	0	0	–
Earthworks	3	4	3
Tunnels	0	–	–
Culverts	–	1	–
Coastal & estuary defence	0	1	1
Retaining walls	0	0	–
Civils Total	5	10	6
Signalling			
Minor works/other	2	3	4
Signalling Total	2	3	4
Telecoms			
CIS systems	0	0	0
Other	1	1	1
Telecoms Total	2	1	1
Plant and machinery			
Fixed plant	0	0	0
Point heating	0	0	0
Plant and machinery Total	0	0	0
Operational property			
Stations	0	4	3
Light maintenance depots	0	–	2
Lineside buildings	0	0	0
Operational property Total	1	4	5
Total Renewals	16	24	21

Enhancements (funded by)			
Network Rail (RAB)			
Other	0	–	–
Network Rail (RAB) Total	0	–	–
Total Enhancements			
	0	–	–

The planned volume of renewals is detailed in Figure 16.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of overplanning in our work banks. As a

consequence the sum of our route plans exceeds our plan for the network as a whole. It is likely that a small proportion of the activities in these areas will slip to subsequent years.

Maintenance

Figure 17 shows the planned level of expenditure on maintenance on this route over the next five years.

Figure 16 Forecast volumes

	2006/07	2007/08	2008/09
Track			
Rail (km)	14	13	13
Sleepers (km)	13	13	13
Ballast (km)	10	9	9
Civils			
Underbridges (square metres)	1,635	1,637	1,181
Overbridges (square metres)	19	2	810
Embankments (square metres)	26,069	19,405	22,218
Tunnels (square metres)	60	–	–
Culverts (square metres)	–	95	–
Coastal & estuary defence (linear metres)	2	400	250
Retaining walls (square metres)	–	–	–
Telecoms			
CIS systems (stations)	–	1	2
Plant and machinery			
Point heating (point end)	45	–	10

Figure 17 Forecast expenditure

£m (05/06 prices)	2006/07	2007/08	2008/09
Maintenance	19	17	16

Infrastructure investment

Figure 18 highlights committed schemes that are planned for completion in the financial year shown.

Figure 18 Planned infrastructure investment						
Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP stage	Completion year
A	Rannoch Viaduct (25.02)	Bridge works	Steelwork repairs	Civils	6	2006/07
B	Borrodale, Nr Arisaig (25.02)	Tunnel Repairs	Rock bolting and tunnel lining repairs	Civils	4	2008/09
C	Duirinish/Kyle Brora/Heimsdale (25.01)	Coastal Defence Improvements	Renewals	Civils	2	2007/08
D	Glen Falloch, Nr Crianlarich (25.02)	Underbridge Repairs	Painting/weatherproofing	Civils	1	2007/08
E	Oykel Viaduct, Nr Lairg (25.01)	Bridge Painting	Painting/weatherproofing	Civils	1	2006/07
F	River Gaur, Nr Rannoch (25.02)	Bridge Painting	Painting/weatherproofing	Civils	1	2007/08
G	Rudha Glas, Nr Arrochar (25.02)	Bridge Repairs	Steelwork strengthening	Civils	1	2007/08
H	Lochalort, Nr Ft William (25.02)	Rockfall Protection Works	Netting and loose rock scaling	Civils	1	2007/08
I	River Thurso (25.01)	Bridge Repairs	Steelwork strengthening and painting	Civils	1	2007/08

Figure 18 Planned infrastructure investment

Project	Scope	Enhancement or output change	Main asset type(s)	Third party funding	GRIP stage	Completion year
• Annat East/West, Gartly Oyne, Brodie (25.02)	Level Crossing Renewals	Renewals	Signals		1	2008/09
• Blair Atholl/Dalwhinnie (25.03)	Track Circuit Renewals	Improved reliability	Signals		1	2008/09
• Inverness/Far North (25.01)	Signalling Systems Life Extension	Improved performance	Signals & Telecoms		1	2008/09
• Pass of Brander (25.02)	Signalling Renewals	Improved performance	Signals		1	2008/09
• Far North (25.01)	RETB Life Extension	10 year life extension to system	Telecoms		4	2006/07
• West Highlands (25.02)	RETB Life Extension	Life extension to system	Telecoms		3	2006/07
• Perth (25.03)	Signalling & Telecoms Renewals	Renewals	Signals & Telecoms		1	2008/09
• Mossend/Elgin Corridor (25.04)	Gauge Enhancement Programme	Facilitate additional freight traffic	All	Transport Scotland	4	2007/08

Figure 19 highlights uncommitted schemes under development

Figure 19 Infrastructure investment under consideration					
Project	Scope	Enhancement or output change	Main asset type(s)	Status	
R Aberdeen Crossrail (25.04)	Additional passenger services in N.E. Scotland	Increased service frequency	Track & Signals	Feasibility stage.	
S West Highland Speed Signage (25.02)	Rationalisation of speed restrictions on West Highland Line	Safety and Performance improvements	Signals	Potential NRDF	
T Inverness Freight Terminal (25.03)	New track and signalling layout connecting new terminal to rail network	New freight facility	Track & Signals	Third Party Funded	
U Inverurie Transport Interchange (25.04)	New station transport interchange	Station environment enhancement and additional car park facilities	Property	Third Party Funded	

Non infrastructure developments

The following significant timetable scheme for the route is under development

Figure 20 Timetable development			
Description	Key issues	Actions or options being developed	Benefits
Resilient Timetables	Rules of the Plan update	Headways and Running Times being reviewed	Performance improvements
			2007

Appendix

Figure 21 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference, RA is Route Availability.												
SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway	No of Tracks
25.01	Far North plus Kyle Line	WCK (KYL)	Rural	Transport Scotland	No	W8 (W7)	10(5)	75(60)	none	RETB	15"	1
25.02	West Highland Line	WHL (MLG)	Rural	Transport Scotland	No	W8 (W7)	5	70(55)	none	RETB	15"	1
25.03	Perth – Inverness	HGL	Secondary	Transport Scotland	No	W8	8	80	none	TB(AB)	15"	2(1)
25.04	Aberdeen – Inverness	ANI	Secondary	Transport Scotland	No	W7	10	75	none	TB(AB)	20"	2(1)

Capacity and operational constraints

- Aberdeen – Inverness: single-line close to capacity
- Inverness – Wick/Kyle: RETB signalling approaching capacity