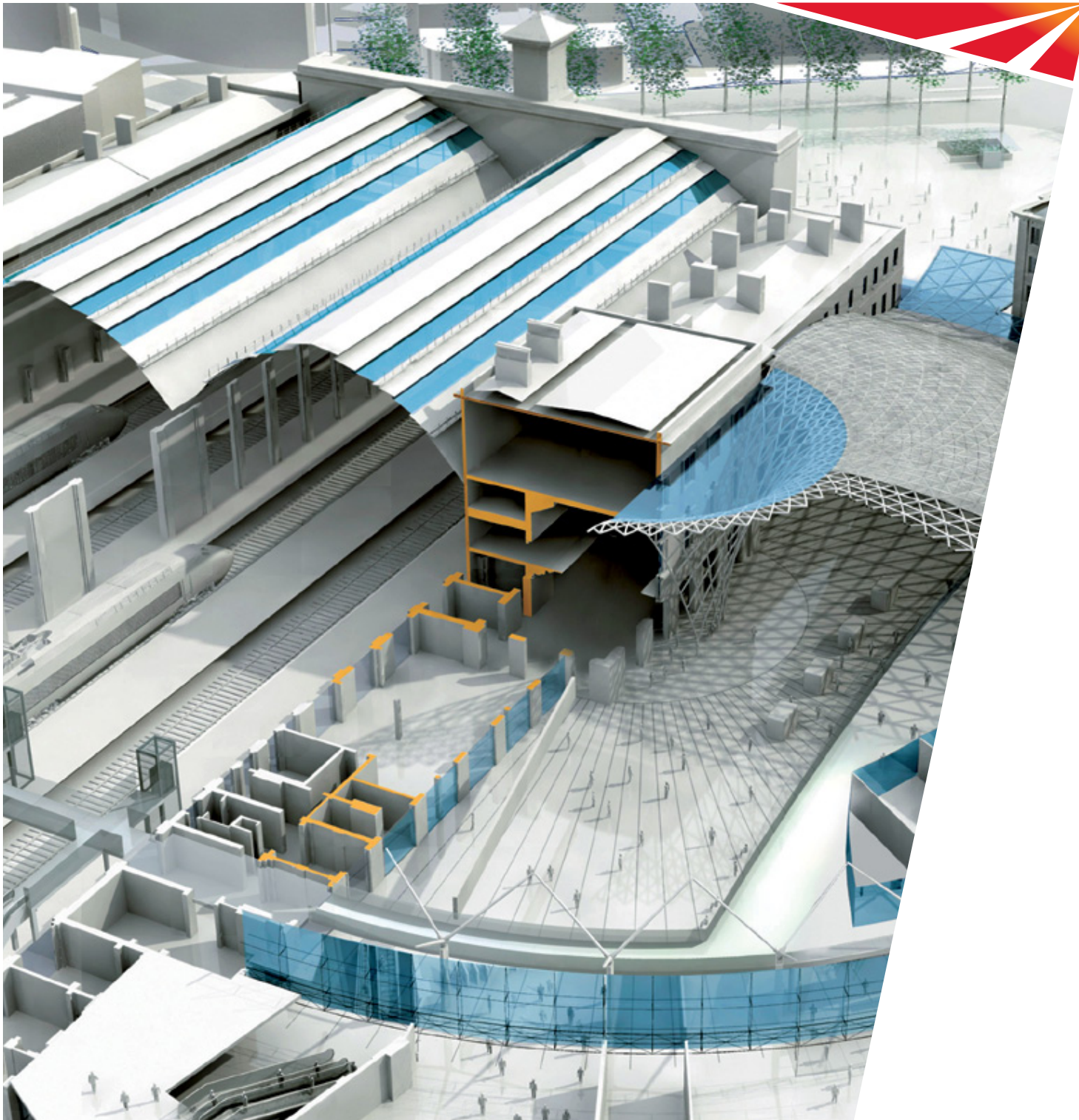


*Moving ahead
Planning tomorrow's railways*

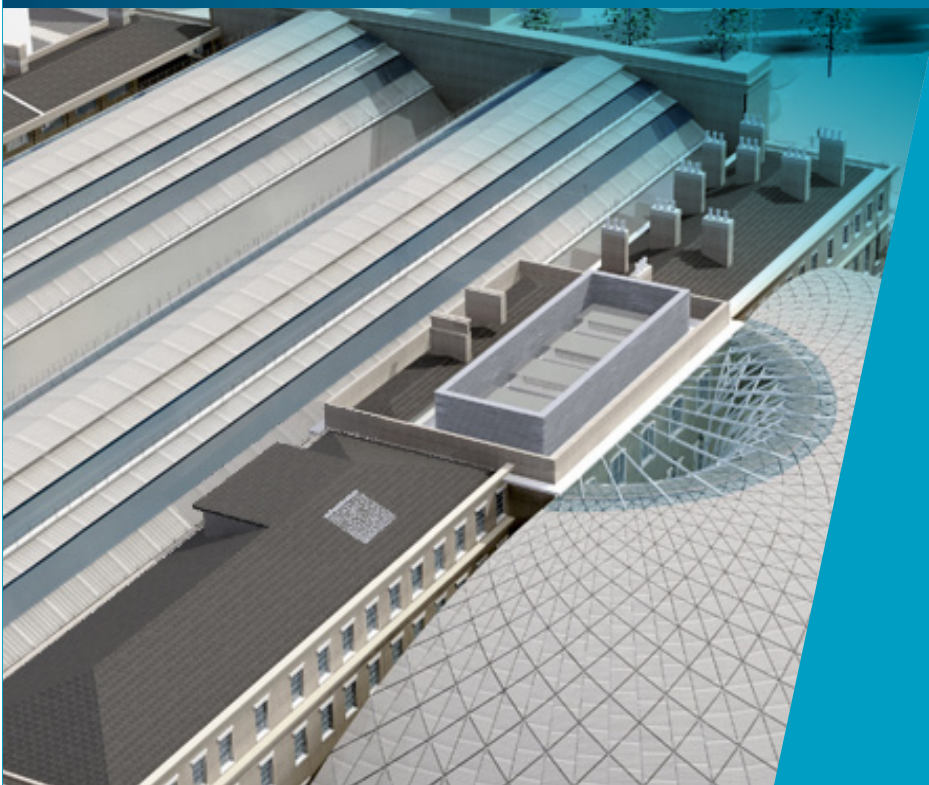
NetworkRail



*Our railways play a vital role
in building Britain's future*

Planning tomorrow's railways

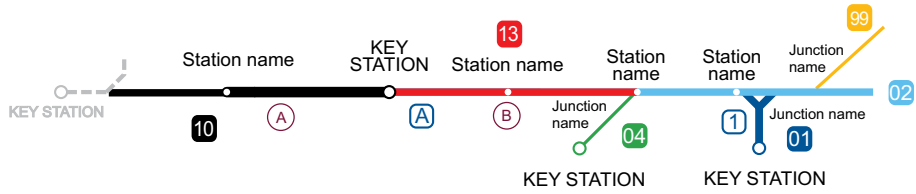
Our £500 million investment in King's Cross station will transform the experience of passengers using the station. We are delivering hundreds of projects across the network to build a bigger, better railway for passengers, freight and the whole of Britain.



Route Plan Q
Scotland West



Key to route diagrams



A Capacity and operational constraints
Location: capacity or operational constraint

1 Issues on the route
Location: issue on the route

A Key planned projects
Location: planned project on the route

01 Strategic route sections
Listed in the appendix of the route plan

Other symbols

	Key station location
KEY STATION	Key station on this route
	Key station on another route
KEY STATION	Key station on another route
	Other station location
Station name	Other station on this route
	Junction / other landmark
Junction name	Junction / other landmark

Track descriptions

	Primary
	London and South East commuter
	Secondary
	Rural
	Freight only

The line shading indicates strategic route sections which are numbered on the map

	The width of the line denotes the number of tracks
	Multiple track
	Double track
	Single track

Other lines are shown as follows:

	Line on other route
	Non Network Rail infrastructure
	Non operational line

Section 1: Today's railway

Route context

The Scotland West Route predominantly comprises the local Glasgow suburban rail network, the largest local passenger network in the UK outside London. These services operate in a mature market where quality of service and reliability are key to retaining and growing modal share. Reliable performance delivery is therefore of paramount importance to our customers and their passengers. The suburban network links with the lines onward to Carlisle via Dumfries and to Stranraer.

Long distance passenger traffic from the West Coast Main line via Carlisle and the East Coast Main Line via Edinburgh joins the route at Carstairs.

The Scotland West Route also serves a large number of rural communities on the West Highland Line, providing access to the social and commercial facilities of the towns of Oban, Fort William and Mallaig. These towns 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 West 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, the most significant of which are Mossend and Coatbridge. The Kilmarnock to Gretna Junction section carries significant volumes of coal traffic from Ayrshire opencast sites and the deep-water terminal at Hunterston.

The Route Utilisation Strategy (RUS) for Scotland was published in 2007 and it is now being updated based on subsequent changes. This will be published in draft form in 2010 as the Second Generation RUS and will include the most up to date information available.

Today's route

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

- West Coast Main Line between Glasgow Central High Level and Carstairs (Q.01)
- Midcalder Jn to Holytown Jn (Q.02)
- Glasgow Central to Ayr / Largs / Wemyss Bay / Gourock lines (Q.03)
- Glasgow North Electric Routes (Q.04)
- Stranraer to Ayr line (Q.05)
- Paisley Canal branch (Q.06)

- Muirhouse Jn to East Kilbride / Kilmarnock lines (Q.07)
- Scottish Border to Barassie Jn (Q.08)
- Eglinton Street Jn to Neilston / Newton including Cathcart Circle (Q.09)
- Newton to Gartsherrie South Jn / Rutherglen Jn (Q.10)
- Lanark Branch (Q.11)
- Anniesland to Greenhill Lower Jn (Q.12)
- Gretna to Border (Q.13)
- West Highland Line (Q.14)
- Other Freight Lines (Q.99)

Current passenger and freight demand

In recent years, Scotland's economy has evolved from a traditional manufacturing base towards a service led economy. Glasgow's population has been in decline since the 1960s although it has now stabilised. Key beneficiaries of this population outflow have been the outer suburban areas with significantly increased demand on commuter services into Glasgow.

In the West Highlands the major population centres on the route have experienced modest population growth in recent years. 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. There are wide seasonal variances in patronage volumes on the West Highland lines.

Figure 1 details Current passenger numbers and loadings have been updated as part of the second generation Scottish RUS. The information in the RUS is the most up to date data available to give current daily passenger numbers using principal stations. Figure 2 details the current peak-hour load factors on individual service groups, averaged over the morning peak, again updated based on the most recently available data.

31 per cent of all commuting trips into Glasgow in the morning peak are made by rail. This is only just below the modal share achieved by rail in London where the problems of road congestion are much more acute. Some overcrowding is experienced on the Ayrshire corridor and East Kilbride Line, even though the majority of peak services are now six-car formations. This is exacerbated by the growth of traffic at Prestwick Airport where rail has the highest modal share of passengers (30 percent) of any UK airport.

Freight traffic on the route is dominated by coal traffic from Ayrshire to Longannet and Cockerzie power stations. This traffic, the first of which is

routed via Glasgow, Stirling and Alloa crosses a number of capacity-constrained sections on the network.

There is also a significant flow of imported coal from Ayrshire to English power stations which is routed via the G&SW line.

In addition to these coal flows, significant volumes of intermodal traffic from Mossend and Coatbridge terminals are also carried, employing both diesel and electric traction.

Figure 1 Current passenger numbers

Station	Daily Trips
Glasgow Central	69,312
Glasgow Queen Street	51,285
Partick	5,356
Paisley Gilmour Street	10,015
Charing Cross	4,873
Argyle Street	2,168
Ayr	4,274
Motherwell	3,625
East Kilbride	2,544
Mount Florida	2,356
Anderston	1,550
High Street	1,033
Milngavie	2,474

Figure 2 Peak loading

Service	Load Factor
East Kilbride	**
Electrics – South West	116 %
Barrhead/Kilmarnock	**
Electrics – South East	46%
Electrics – North West	58%
Paisley Canal	47%
Cumbernauld	60%
Maryhill	33%

** Updated information not available due to introduction of new service in Dec '09

Current services

Figure 3 shows the current level of services on key sections of the network.

The Scotland West network carries mixed traffic, with a significant range of speed, acceleration and stopping patterns of trains. On many corridors, this involves a complex mix of freight, urban, and inter-urban services with speeds up to 100 mph. There is little traffic segregation on the main corridors. As the route is predominantly two track with significant sections of single track, this leads to high levels of utilisation, imposing constraints on the timetable.

First ScotRail operates local passenger services in the Glasgow suburban area using a mix of electric and diesel trains. They also operate the South Western services as well as overnight sleeper services from Glasgow and Fort William to London Euston. Anglo Scottish daytime services from Glasgow Central are provided by Virgin Trains to Birmingham and London, and First Keolis TransPennine Express to Manchester. In addition, East Coast Trains operates to London Kings Cross via Carstairs and Edinburgh and CrossCountry run services to Birmingham and the South of England via Edinburgh.

DB Schenker, Freightliner Ltd, Freightliner Heavy Haul Ltd, Direct Rail Service (DRS) First GBRf , and Colas provide freight services over the route.

Figure 3 Current train service level (trains per day)

Route Section	No. of trains per day
Glasgow Queen Street LL to Helensburgh	38
Glasgow Queen Street LL to Airdrie	65
Glasgow Queen Street HL to Cumbernauld	36
Glasgow Queen Street HL to Anniesland	35
Glasgow Central LL to Larkhall	36
Glasgow Central LL to Lanark	30
Glasgow Central HL to Neilston	40
Glasgow Central HL to Newton	38
Glasgow Central HL to Paisley Canal	36
Glasgow Central HL to Kilmarnock	34
Glasgow Central HL to East Kilbride	38
Glasgow Central HL to Edinburgh via Shotts	29
Glasgow Central HL to Whifflet	35
Glasgow Central HL to Wemyss Bay	19
Glasgow Central HL to Gourock	50
Glasgow Central HL to Ayr	43
Glasgow Central HL to Largs	19
Ayr to Girvan*	24
Girvan – Stranraer	7
Arrochar and Tarbet – Glasgow*	8
Glasgow – Oban/ Fort William/ Mallaig* (Excluding Sleeper)	3
Kilmarnock - Dumfries	10

* Trains in both directions over single line

Figure 4 Tonnage

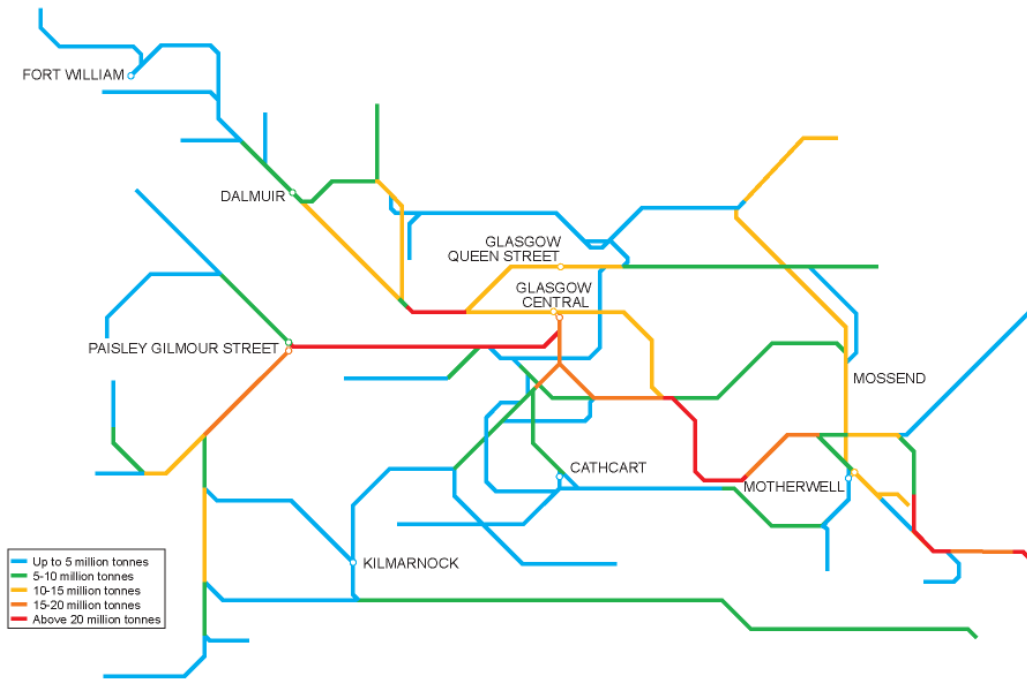


Figure 4 shows the total annual tonnage levels on the route.

Traffic volumes are summarised in Figure 5.

Figure 5 Current use

	Passenger	Freight	Total
Train km per year (millions)	20	3	23
Train tonne km per year (millions)	3,178	2,630	5,808

Current infrastructure capability

The following maps provide an indication of the predominant capability on each section of the route. As part of the Infrastructure Capability Programme a number of Network Changes to Route Availability and Gauge, which may affect some of the detail of these maps, have been issued for consultation. Details of the Network Changes being consulted can be found on the [Network Rail](#) website

and details of Network Changes established can be found on the [Network Rail](#) website.

Current capability is shown in the Network Rail Sectional Appendix.

Figure 6 Linespeed

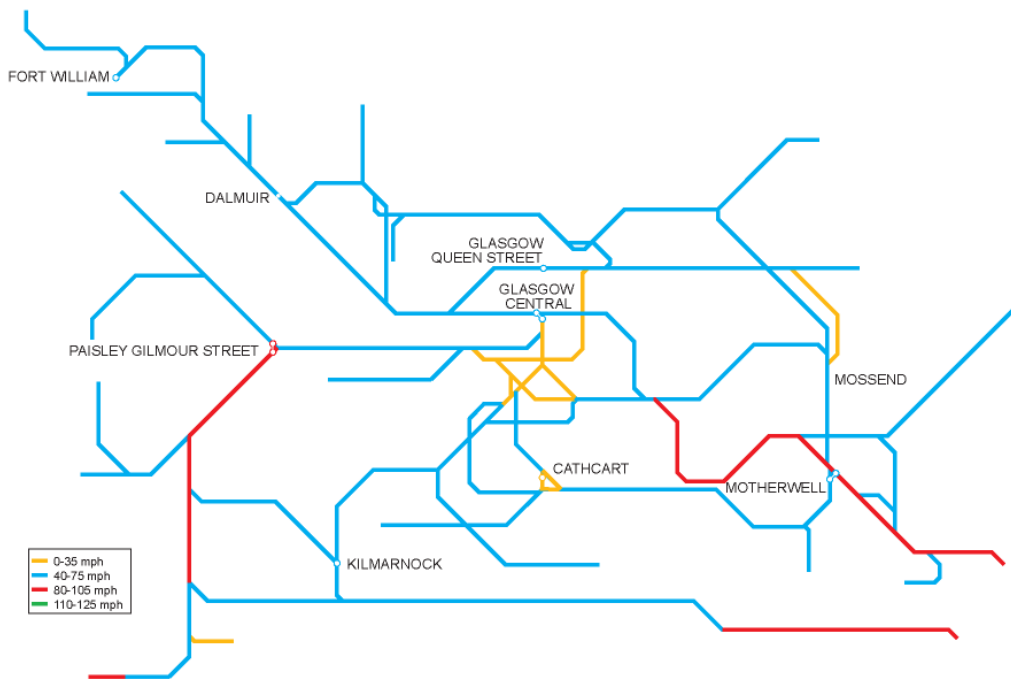


Figure 7 Electrification

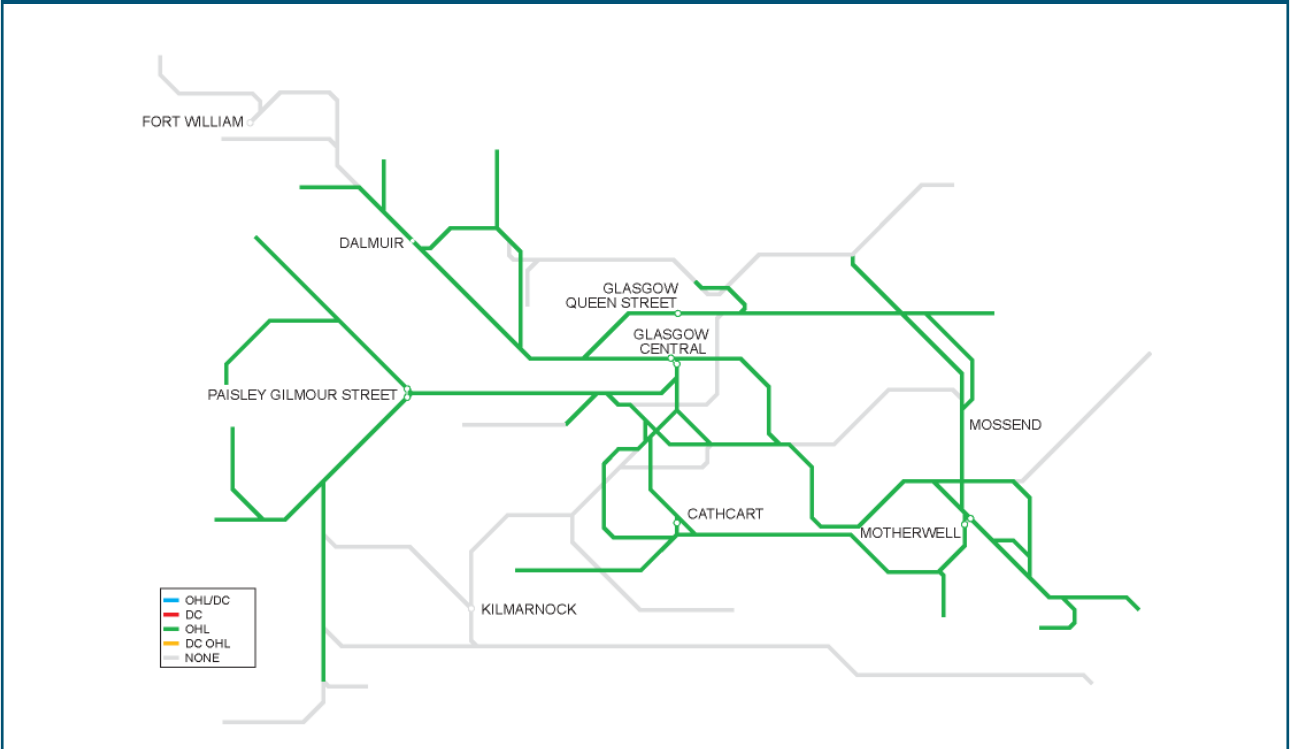


Figure 8 Route availability

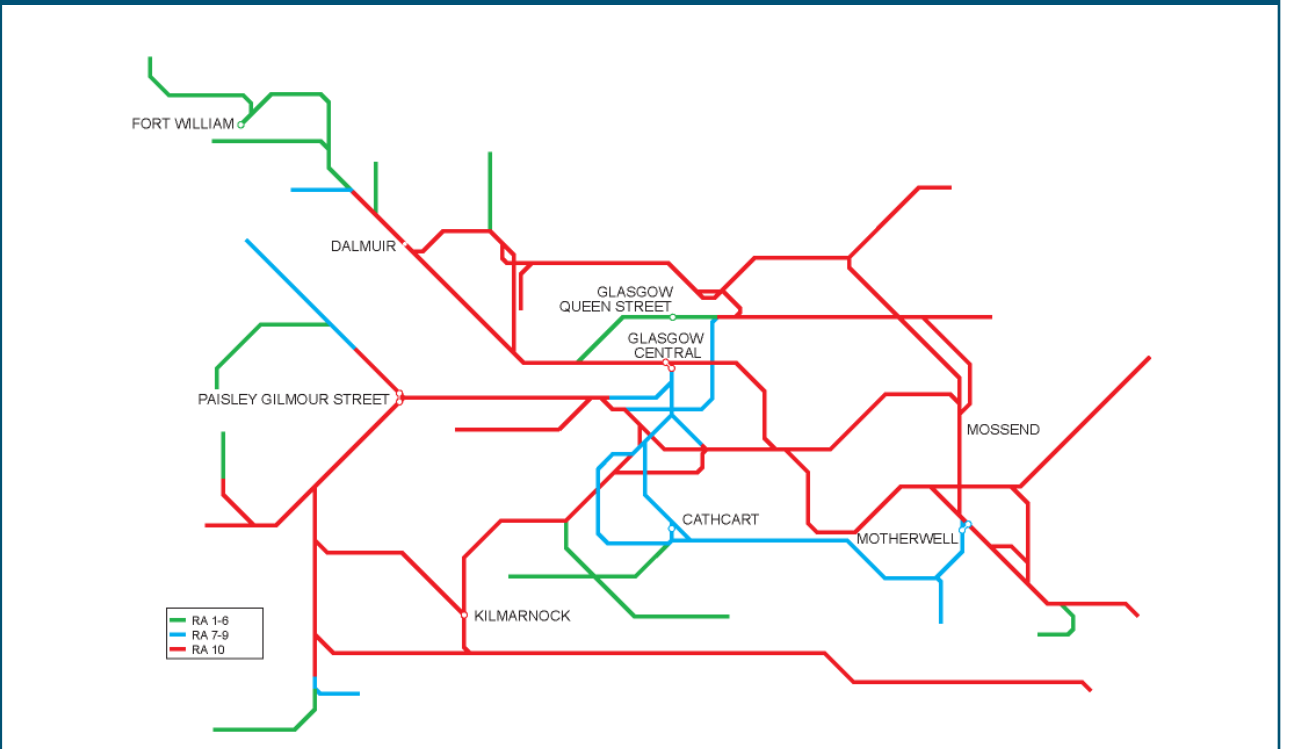
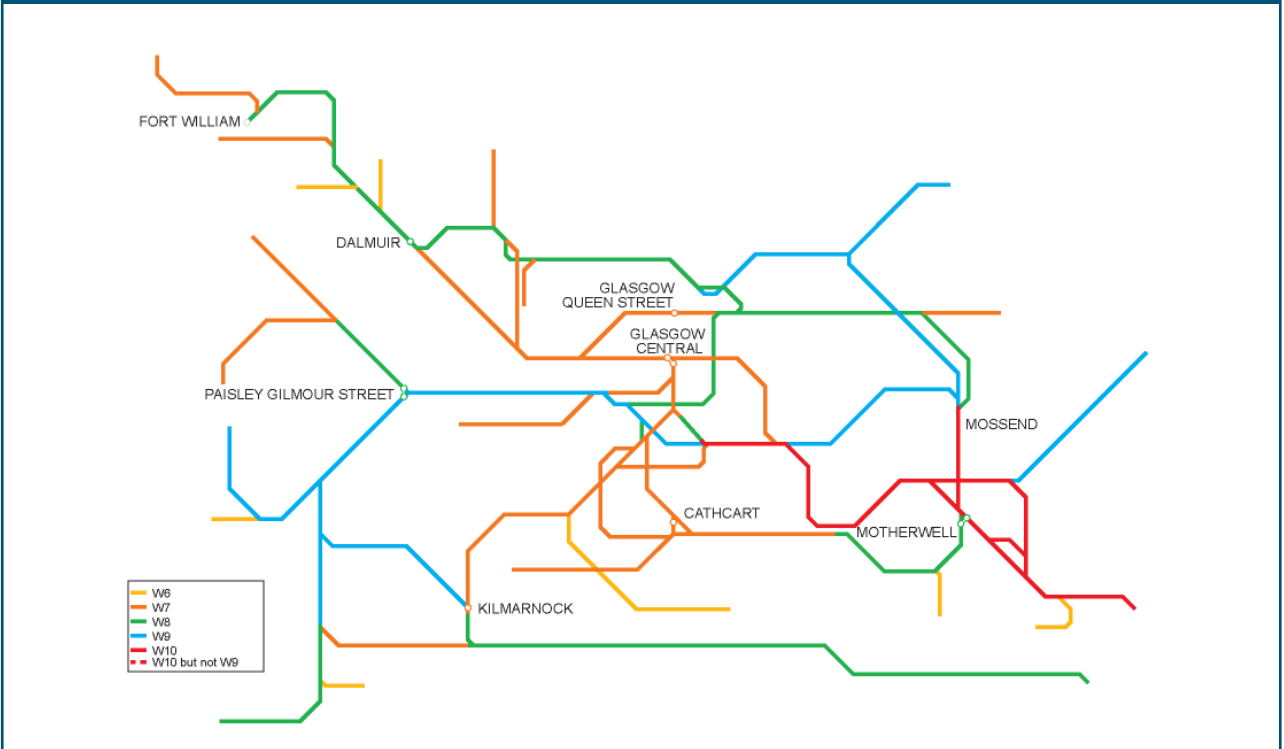


Figure 9 Gauge



Current capacity

The baselining work carried out as part of our Scotland RUS work has confirmed that there are a number of significant capacity constraints on the existing network. The most significant of these constraints for passenger services on this route are:

- the congested approaches to Glasgow Central High Level station, particularly the Muirhouse – Bridge Street section
- the congested section between Finnieston and Hyndland
- the congested section between Paisley Gilmour St and Glasgow Central High Level
- restrictive platform lengths at a number of stations, most significantly Glasgow Central High Level
- 13 single line sections across the route
- key single lead junctions at Westerton, Bellgrove, Newton and Busby Junctions
- lack of Stabling Capacity at Motherwell and Ayr Townhead
- restricted capacity on West Highland Route due to long single line sections.

In addition to the above, key constraints for freight services are:

- the single line section between Mauchline and Newton on Ayr
- a lack of stabling capacity at Mossend
- insufficient long loops in central Scotland
- restrictive loading gauge and route availability particularly on the Shotts line
- lack of passing loops of adequate size to accommodate current maximum train lengths. This is particularly acute between Mossend and Aberdeen and on the West Highland Route.

Passenger capacity has been enhanced by the introduction of additional services on the Glasgow/Kilmarnock and Edinburgh/Glasgow via Shotts routes in Dec 2009.

Current performance

Figure 10 shows the forecast 2009/10 PPM for the main Train Operating Companies (TOCs) running along the route.

Performance across Scotland has improved significantly over the last five years with a circa 35 percent reduction in delay minutes leading to an improvement in First ScotRail's PPM from 83.1 percent to a moving annual average of over 90 percent today. To achieve this, the focus has been on attention to detail particularly the reliability of strategic points and signalling equipment at key nodes.

Traditionally the Autumn period has resulted in a significant dip in performance however during 2009 Scotland enjoyed the best performance in several years and most routes returned a good result. However the coldest winter in Scotland since records began contributed to a worsenment in performance during 09/10. Therefore, despite some improvements in other aspects of performance the overall performance will be lower than the same period in 2008.

In the central belt, the route is characterised by a large number of flat junctions and single line branches. For example, a train between Milngavie and Lanark (via Hamilton), a distance of 37 miles, traverses eleven flat junctions with three single line sections including one at each end of the journey. Thus, any delay can have serious knock-on effects across the network. To minimise this, enhanced maintenance regimes for strategic points and signalling equipment at these key nodes have been implemented.

In rural areas such as the West Highland Line the route consists mostly of long single line sections with passing loops. On such routes any perturbations can have a significant impact. Despite this the performance on this section of the route remains satisfactory.

Figure 10 2008/09 PPM

TOC	Forecast MAA	As at period
CrossCountry	90.4%	11
First Keolis Transpennine Express	91.9%	11
First ScotRail	90.5%	11
East Coast Trains	87.7%	11
Virgin Trains	84.4%	11

Long distance high speed and slower local stopping passenger services jointly operate over a number of sections of this route. This mix of traffic can lead to performance problems during times of perturbation. We continually review the contingency plans for individual service groups in partnership with our train operating customers to make certain that overall delay is minimised in the event of any incident and allow normal services to be resumed as soon as possible. We are also undertaking reviews of the timetable on individual parts of the network to identify where adjustments would result in an improvement in service reliability.

We have upgraded the line between Glasgow and Kilmarnock to facilitate a new half hourly service between Glasgow and Kilmarnock which commenced in December 2009. This work included lengthening the loop between Lugton and Stewarton, upgrading the signalling, various bridge works and lengthening platforms between Barrhead and Kilmarnock to permit the use of six-car formations.

The introduction of this new service acted as a catalyst to retime all services through Muirhouse further improving the robustness and reliability of the other services using this junction including those to Stranraer, Dumfries, Carlisle, Cathcart Circle, Newton, Neilston and East Kilbride. The speed on the East Kilbride line has also been increased which will further improve reliability and performance.

Development in the utilisation of all routes between Glasgow and Edinburgh, through the reduction in journey time and increased frequency are key aspirations of Scottish Ministers' to meet passenger expectations. The first stage of this has been delivered with the introduction a new hourly semi fast service between Glasgow and Edinburgh via Shotts as part of the Edinburgh to Glasgow Improvements Programme.

Partick station has recently been re-constructed to improve the interchange between trains, subway, buses and taxis. The design also includes additional passenger circulating areas to relieve the congestion that was previously an issue.

The freight companies continue to strive to reduce delays associated with coal trains from the Ayrshire coal loading points following some hard work to reduce their terminal delays.

There is a co-located control within Buchanan House in Glasgow to enable prompt and effective response to any incidents in order to mitigate subsequent delays. The control centre delivers effective real time management of planned and un-

planned disruptive events, minimising impact on passengers. We will continue to work with all train operators in Scotland, to provide rapid decision making during perturbed working to enable a return to normal working as quickly as possible.

A multi-million pound signalling centre (West of Scotland Signalling Centre) and maintenance depot was completed and commissioned in December 2008 at Cowlares, North Glasgow, providing modern facilities to meet the changing needs of a modern railway. The new signalling centre serves the west of Scotland and has renewed a 45 year old system and relocated staff to custom-built 21st century facilities. The new maintenance depot replaced a range of smaller facilities around Glasgow.

A number of initiatives are being progressed on this route to deliver performance improvements.

Examples of these are:

- enhanced possession availability in the Glasgow Central area to improve maintenance access opportunities
- renewal of hydraulic point motor hoses on the North Electric lines
- flood mitigation works at a number of locations
- anti-vandal measures at feeder stations and track section cabins
- enhanced vegetation management regimes
- improved maintenance plans with specialised teams to target repeat failures
- improved operations planning to remove conflicts in the timetable
- ground position signals being replaced with LED signals
- life extension works to the West Highland RETB systems
- understanding and mitigating the impact of more frequent severe weather
- reducing the level of unexplained delay through 'S' class messaging which will allow signal aspects to be displayed to allow root causes of delay to be identified
- targeted track renewals at remote locations
- enhanced bridge strike contingency plans
- introduction of new operating instructions to reduce the impact of animals on the line.

Section 2: Tomorrow's railway: requirements

Future demand in CP4

Rail passenger demand has increased significantly in the last few years, especially in Glasgow, following the growth in commuting from the suburban areas and the increased road on radial routes around the city.

The Scotland RUS (published 2007) forecast an annual growth rate across Scotland averaging three percent per annum in passenger miles. The delivery plan for CP4 has been developed based on the Scottish government's strategy and the work done for the Scotland RUS. For the second generation Scotland RUS we have developed two scenarios to allow both high and low growth to be considered.

Increased passenger demand will also occur on services on this route from the following major rail enhancement schemes between 2010 and 2013:

- Airdrie to Bathgate
- Glasgow to Paisley corridor improvements
- Cumbernauld electrification.

We are currently discussing the level of additional demand that each of these will generate with the individual scheme promoters.

In addition to the demand generated by specific major projects, the RUS forecasts that over the medium to long term the services that operate over the route will enjoy passenger growth as the economy expands. This will also be enhanced as a result of the significant regeneration works planned for the inner areas of Glasgow including works for the Commonwealth Games in 2014, combined with the associated forecast employment growth.

Significant population growth is predicted in the small and medium sized towns in the adjoining areas. These changes are supported by Local Structure Plan policies which seek to deliver planned expansion in many of these areas. A key component of these policies is the provision of high quality rail links into Glasgow, including longer trains on the Ayrshire services.

Stabling capacity for the new longer trains on the Ayrshire services and subsequent cascade of traction to other parts of the route will require increased and improved facilities. Key locations such as Ayr Townhead, Shields and Yoker Depots are currently being upgraded.

The RUS reported on projected daily passenger numbers on a number of geographically aggregated

sectors during the morning peak period over the next 20 years. For further information, see the published Scotland RUS at www.networkrail.co.uk.

Future freight demand on the route is forecast to grow particularly in the intermodal market.

Other factors that will affect future freight demand on the route are the increased use of rail on trunk flows within the logistics chain, the national recycling strategy, the construction of the associated waste transfer stations and the availability of grants towards the creation of new freight terminals. The Freight RUS was published by Network Rail in March 2007 and established by the Office of Rail Regulation in May 2007. A key input to the strategy was a set of ten year demand forecasts that were developed and agreed by the industry through the RUS Stakeholder Management Group.

To continue to meet the changing needs and demands of the modern railway, the current Paisley Signalling Centre area of control will transfer into the purpose built West of Scotland Signalling Centre (WSSC) at Cowlairston in 2012. The next phase of signalling work on the route will be the renewal and transfer to WSSC of the Cathcart area signalling together with some minor enhancements to the Glasgow south suburban signalling programmed for 2013.

Future demand beyond CP4

Sustainability is at the heart of the improvements we are delivering between now and 2014, and it is integral to the Government's long-term rail strategy. Sustainability demands a broader look at priorities for the railway alongside other modes, to find the best balance between the needs of the economy, society and the environment. Our ambitions are for a railway that:

- contributes to the economic success of the nation by enabling more people and freight to travel in a way that minimises the environmental impact
- is flexible enough to adapt and respond to social changes, protecting the network and improving its ability to operate for longer in the day and more consistently over the working week
- is easy and accessible to use.

Transport Scotland published the Strategic Transport Projects Review (STPR) in December 2008 considering options for improvement to the Transport infrastructure in Scotland beyond 2012. The proposals include 11 major packages of work targeted at improvements in rail infrastructure. Of these, two fall within Route Q they are:

- West of Scotland Strategic Rail Enhancements
- Rail enhancements between Inverclyde, Ayrshire and Glasgow

Network Rail and Transport Scotland will continue to work together to develop these options to increase capacity and improve capability of the network.

Section 3: Tomorrow's railway: strategy

Figure 11 summarises the key milestones during CP4 and CP5 in delivering the proposed strategy for the route.

Further explanation of the key service changes and infrastructure enhancements are set out in the following sections.

Figure 11 Summary of proposed strategy milestones			
Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
Dec 2009	G&SW enhancements	signalling improvements Annan/Mauchline	Performance and capacity improvements (Note reprioritised due to a reduction in current and anticipated traffic volumes)
Dec 2009 ² (Complete)	South Electrics recast	Nil	Improved reliability of Glasgow South electric services
Dec 2009 (Complete)	G&SW/Stranraer Recast	Nil but facilitated by the recently completed G&SW enhancements	Stranraer services separated from Glasgow/Carlisle/Newcastle services to better match passenger demand and improve reliability
Dec 2009 ² (Complete)	Glasgow/Kilmarnock	Construction of extended loop from Lugton to Stewarton and extension of platforms to six-car	Two trains per hour Glasgow to Kilmarnock service with some peak services six-car
Dec 2009 ² (Complete)	Edinburgh/Glasgow via Shotts	Nil	Hourly Semi Fast Glasgow Central/Edinburgh Waverley via Shotts
Dec 2010 ²	New Rolling Stock (Ayrshire)	Platform extensions Additional Stabling/Maintenance Capacity	Reduced journey times and longer trains to increase seating capacity
Dec 2010	Airdrie/Bathgate	Construction of new line	Four trains per hour Glasgow Queen Street Low Level to Edinburgh via Airdrie and Bathgate
Dec 2010	Revised West Highland timetable	None	Revised timetable proposed in Hitrans study (subject to rolling stock provision) (not currently being progressed)
May 2013 ²	Glasgow to Paisley Corridor Improvements	Following the Scottish Governments cancellation of the GARL Project, timetable options are being developed to optimise the use of the additional capacity benefits provided by the enhancement to the Paisley Corridor Infrastructure	To Be Decided
Dec 2013 ^{1,2,3}	Edinburgh/Glasgow via Carstairs	See Note 1	One train per hour Semi Fast Glasgow Central/Edinburgh Waverley via Carstairs
Dec 2013 ³	Cumbernauld Electrification	Construction of "Garngad" chord and electrification of Alexandra Parade to Cumbernauld line Additional City Centre Turnback Facility	Diversion of Glasgow to Cumbernauld service to Glasgow Queen Street Low Level and integration with North Electric services

¹ Provision of additional services via both Carstairs and Shotts will require significant infrastructure improvements on the common sections of route.

² Impacts on Glasgow Central capacity (See Section on Current Capacity)

³ These schemes are part of the Edinburgh to Glasgow Improvement Programme (E.G.I.P.)

Figure 11 Summary of proposed strategy milestones (continued)

Implementation date	Service enhancement	Infrastructure enhancement	Expected output change
Dec 2016 ²	Whifflet Electrification	Electrification and upgrading of Rutherglen to Whifflet	Diversion of Glasgow to Whifflet services to Glasgow Central Low Level and integration with existing Argyle Line services
Dec 2016	Carstairs Jn speed improvements	Carstairs Jn remodelling	Improved speed through Carstairs Jn from West to East and from East to South
Dec 2017 ²	Paisley Canal Electrification	Electrification of Corkehill to Paisley Canal	Integration of the Paisley Canal Branch into the wider Glasgow South electric network.
Dec 2018 ²	East Kilbride Electrification	Electrification of Muirhouse to East Kilbride	Integration of the East Kilbride Branch into the wider Glasgow South electric network.
Dec 2018 ²	Barrhead Electrification	Electrification of Muirhouse to Barrhead	Integration of the Barrhead Line into the wider Glasgow South electric network.

² Impacts on Glasgow Central capacity (See Section on Current Capacity)

Strategic direction

Improved use of the rail network is a central element of Scottish Ministers' plans for effective delivery of its rail objectives. The Scottish Government's National Transport Strategy published in 2007 looked at the next 20 years and beyond with three key issues; improving journey times and connections; reducing emissions and improving quality, accessibility and affordability.

From this strategy, on behalf of the rail industry, Network Rail published the Scotland and Freight Route Utilisation Strategies (RUS) in March 2007. These documents made a number of recommendations which are now being progressed. Scottish Ministers' published a High Level Output Specification (HLOS) in July 2007, which covered the 2009 until 2014 period the requirements of which were reflected in the CP4 Delivery Plan.

In December 2008 Transport Scotland published its Strategic Transport Projects Review (STPR) spanning the next 20 years, which insofar as rail is concerned, proposed a number of recommendations, which are Transport Scotland's priority schemes for capital investment expenditure. The STPR funded schemes for development are listed in Table 18.

Since the establishment of the Scotland RUS the economic situation nationally has changed significantly. Whilst the economy is expected to recover the Scotland RUS second generation presents a timely opportunity to re-examine the demand forecasts used in the established RUS.

The RUS will consider as baseline all schemes included in the CP4 Delivery Plan and any other

schemes specifically agreed with Transport Scotland as planned and funded.

The outputs and recommendations of this RUS will be used to assist Ministers with the development of the Scottish HLOS for Control Period 5, which covers the period 2014 - 2019 and subsequent control periods. In the longer term it will help to inform Transport Scotland's franchise specifications when Scottish services are re-franchised at various times during the period covered by the RUS.

In addition to the above publications this RUS will also take cognisance of the recommendations of other studies which include:

- Long distance services and scenarios*
- Stations*
- Rolling Stock and Depots*
- Electrification*
- The Inter City Express Project (IEP)
- High Speed 2
- Freight RUS

* Part of the Network RUS

The second generation RUS will cover a 30-year time horizon from 2009 and we presently expect to publish the draft conclusions by the end of 2010 with final conclusions and establishment by ORR in 2011.

We continue to work towards increasing the linespeed and improving capacity on the Glasgow and South Western line. Development is at an early stage and is expected to be delivered in CP5.

Transport Scotland acting on behalf of Scottish Ministers are committed to the following further

projects included within the HLOS which are being developed and delivered: re-instatement and electrification of the Airdrie – Bathgate line, and upgrading the line between Glasgow and Paisley together with improvements at Glasgow Central. Timetable options are being developed to optimise the use of the additional capacity benefits gained by the enhancement to the Paisley Corridor Infrastructure. Network Rail is currently constructing the Airdrie to Bathgate line and is on target for the introduction of services in December 2010.

As far as Paisley corridor improvements are concerned, Network Rail is currently developing and delivering the improvements to the existing network. This aligns closely with the renewal of the signalling in the Paisley area and considerable synergies are being achieved by integrating these two projects. Advanced works have now commenced including upgrades to the loop at Elderslie and the construction of additional platforms at Glasgow Central.

Following the recommendations included in the Scotland RUS and the Strategic Transport Projects Review we have been working with Transport Scotland and First ScotRail on plans for the provision of improved services between Glasgow Central and Edinburgh Waverley. Following the recent introduction of a new semi fast service via Shotts, improvements to the service via Carstairs are planned for introduction in 2013. This will provide two trains per hour with a journey time of around 65 minutes. Full implementation of this will require considerable infrastructure upgrade particularly between Rutherglen and Newton as well as additional rolling stock.

This will help to provide extra capacity between the two cities as well as improving the link between North Lanarkshire (particularly the development area of Ravenscraig) and Edinburgh and is part of the Edinburgh to Glasgow Improvement Programme (EGIP) described in more detail in Route P.

Much of the Glasgow suburban network is already electrified with further Electrification of the Strategic Rail Network currently being developed.

Similarly north of the Clyde, we plan to continue the development work on the option to electrify the Cumbernauld line which, together with the construction of a short piece of new railway known as the Garngad chord, would allow the Glasgow to Cumbernauld service to be diverted to Glasgow Queen Street Low Level, freeing up capacity at the High Level station. This is being progressed as part of the EGIP programme.

In CP4 a discretionary fund is available known as the Small Projects Fund (SPF) in Scotland. A key feature of this funding provision is the ability to provide minor enhancements at the same time as major renewals are undertaken. In CP4 we anticipate this will include redoubling of Busby Junction in 2013, improvements to the crossovers on the Inverclyde lines, signalling enhancements to the Shields to Paisley Corridor and additional signalling at Dumfries. Other enhancements will be identified as the renewal programme is developed in more detail.

The provision of a new turnback siding west of Charing Cross is now being progressed as part of the EGIP programme.

Project Development Fund

This fund is available in CP4 with the primary purpose being the initial development of projects as detailed within the Strategic Transport Projects Review (STPR) such as Further Electrification of the Strategic Rail Network including the remaining routes on the south side of Glasgow (Shotts, Whifflet, Paisley Canal, East Kilbride, Kilmarnock and Kilmarnock to Barassie). This proposal covers phase 2 of the STPR electrification programme.

The line between Rutherglen and Whifflet is targeted as a useful in-fill scheme. This will permit the better integration of the Glasgow to Whifflet service with the remaining Lanarkshire services (possibly including a major recast of existing services) and, by diverting the trains to Glasgow Central Low Level, will free up some capacity at Glasgow Central High Level.

Other projects in development within the route are G&SW line speed improvements and increased capacity at Glasgow Central.

For further information, see the published Scotland RUS at www.networkrail.co.uk.

Other industry partners can also suggest projects in cooperation with Scottish Government strategic priorities.

Level Crossings

The term level crossing (LC) describes an intersection at the same elevation of a road, footpath or bridleway and one or more rail tracks. The Office of Rail Regulation (ORR) classify LCs as either active or passive, depending on whether warning is given of a train's approach. There are over seven thousand crossings on Network Rail infrastructure and seventeen different classification types, ranging from full road width barriers to footpath. There are 138 level crossings of various types on this route. Our general policy is to close level crossings where practicable to enhance safety but a secondary benefit of this is that it may assist in our ability to increase line speeds thereby reducing journey times. We are researching a conversion of AOCL's with half barriers overlaid. Whilst this initiative is still in its infancy, we are confident that Scotland will be one of the trial sites. There are also plans to upgrade all our existing halogen lamps at our AOCL's to LED wigwags in a rolling programme commencing in 2010.

Ardrossan Harbour Level Crossing was chosen as one of the sites for the European Level Crossing awareness day. Following this day no instances of abuse were recorded for a period of three months. Ardrossan Harbour Level Crossing is scheduled to be upgraded from halogen light traffic lights to LED lights in 2010. In addition to this there are two automatic level crossings scheduled to be renewed on a like for like basis at Gales and Ardmore East. Work at both crossings is scheduled to take place in 2009/10.

A total of 74 candidate user worked crossings have been nominated by Scotland for the User Worked Crossing National Closure Programme 18 of these are on Route Q.

Network Rail is also involved in raising awareness of the dangers of level crossings particularly in rural areas. We will visit local farmers' markets and livestock auctions in the Highlands to educate drivers on the proper way to use railway level crossings. To target our level crossing abuse hotspots, Network Rail along with BTP are holding level crossing days of action which involve both education and enforcement. There have already been 3 such days and it is anticipated that more will be scheduled for the coming year. Network Rail also attended a 2 day Road Safety Event hosted by North Ayrshire Council ("Y" Drive) which was attended by 730 school pupils (16/17yrs). We have committed to attend next year's "Y" Drive Event and the sister seminar "West Drive" in West Lothian.

The type of level crossing will reflect the traffic on a particular route. Where there is a substantial increase in frequency or speed over a level crossing the risk assessment will have to be revisited and some crossings may require to be upgraded.

Listed below is a breakdown of the level crossings on Route Q detailing the types and where they appear on the route.

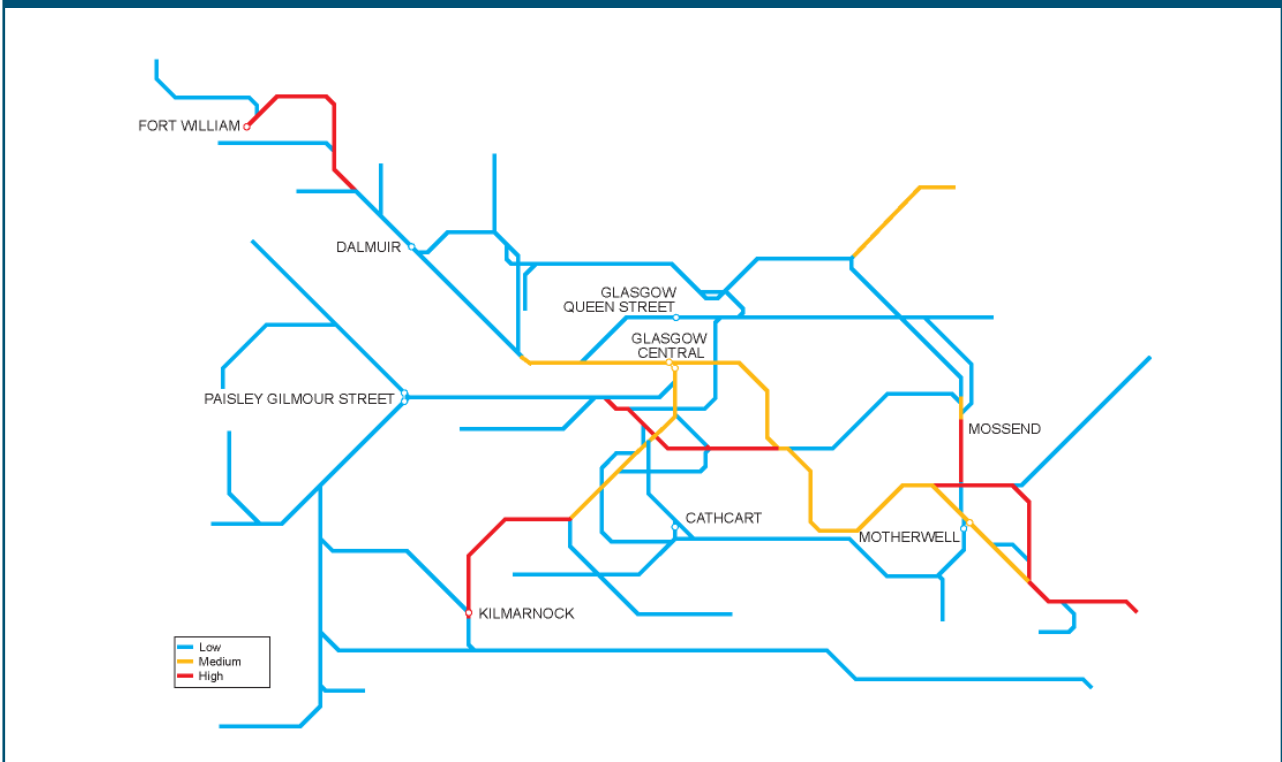
Figure 12 Level Crossings on Route

Description	Number
Automatic Half Barriers	5
Automatic Open Crossing, Locally Monitored	4
Manually Controlled Gates or Barriers	6
Manually Controlled Barriers Monitored by CCTV	9
Miniature Warning Lights or Stop Lights	2
Pedestrian only Crossing (Public)	23
TrainMan Operated Crossing	1
User Worked Crossing (Private)	89

Figure 13 Level Crossings by Strategic route sections

	SRS	Number
WCML: Glasgow Central – Carstairs	Q.01	2
Ayr Lines, Wemyss Bay and Gourock	Q.03	5
Glasgow North Electric routes	Q.04	8
Stranraer – Ayr	Q.05	18
Gretna Jn – Kilmarnock – Barassie Jn	Q.08	16
Newton – Gartsherrie South/Rutherglen Jn	Q.10	4
Lanark Branch	Q.11	1
Knightswood North Jn – Cowlairs Jn plus Cowlairs Jn – Carmuir Jns	Q.12	1
Craigendoran Jct. – Ft. William	Q.14	14
Crianlarich – Oban	Q14	25
Ft. William Jct. – Mallaig	Q14	34
Freight Lines	Q.99	11

Figure 14 Tonnage growth



Future train service proposals

Improved use of the rail network is a central element of the Scottish Government's plans for effective delivery of its rail objectives. The Scottish Government is committed to delivering a number of enhancement projects on this route, which will assist the rail network. Development in the utilisation of all routes between Glasgow and Edinburgh, through the reduction in journey time and increased frequency are key aspirations of Scottish Ministers' to meet passenger expectations. The next stage of this to be delivered will be the introduction of the new hourly semi-fast service via Carstairs (Dec 2013).

At Transport Scotland's request, we are developing possible timetable scenarios following the cancellation of the Glasgow Airport Branch Line.

In addition to the service enhancements included above, the Paisley Corridor improvements could facilitate additional train services between Glasgow Central and Paisley Gilmour Street. This will also provide additional capacity between Glasgow and Paisley, freeing up space on the Ayrshire and Inverclyde services for longer distance passengers.

The opening of the line between Airdrie and Bathgate will permit the extension of four North Electric trains per hour from Airdrie to Edinburgh providing a new connection from North Lanarkshire to West Lothian and Edinburgh.

Following the enhancements to the Glasgow and South Western route and between Barrhead and Kilmarnock a subsequent recast of the timetable was implemented in December 2009. This recast delivered an improved Glasgow/Dumfries/Carlisle service and a more robust Glasgow South Electrics and East Kilbride service as well as two trains per hour between Glasgow and Kilmarnock. In accordance with the Scotland RUS recommendations, services to/from Stranraer from December 2009 are focussed on a shuttle between Stranraer and Kilmarnock with through services to Glasgow largely provided by linkage with the enhanced Glasgow/Kilmarnock service.

Figure 14 indicates the forecast percentage change in tonnage to 2017.

Future capability

A number of initiatives are being progressed to enhance the capability of the route. The most significant of these are summarised below:

- speed improvements as part of planned S&C renewals
- signalling improvements associated with planned renewals.

Future capabilities of the network will be progressed in-line with Scottish Ministers aspirations to reduce journey time between key locations and the ability to operate larger containers on key freight routes. Freight operators also have aspirations to improve resource utilisation.

Future capacity

Traffic levels on the route have increased incrementally over recent years. As a consequence, the route is now operating at maximum capacity over a number of sections. The following measures are planned to address this:

- the Scotland RUS has proposed a number of options which address how constraints could be eased and performance enhanced through timetable restructuring
- a number of opportunities have been identified where infrastructure enhancement would yield significant improvement in the outputs that the network can deliver. Typically, the optimum time to undertake these works is as an add-on to a planned renewal. In such cases, the incremental enhancement cost is usually significantly lower than the cost of delivery as a stand-alone project.

Several further measures are envisaged as being necessary to accommodate the predicted growth. The most significant of these are considered to be:

- re-instating the double junctions at both Newton West and Bellgrove, this work is being developed as part of the Edinburgh to Glasgow Improvement Programme (EGIP)
- relieving the identified single line and single lead junction bottlenecks as major renewals fall due such as Busby Jn and Westerton Jn
- provision of additional capacity at Glasgow Central Station including low level. (Feasibility Study commissioned 2008.)

The Glasgow to Ayr and Largs lines will have platforms extended to seven-car length with a passive provision for eight-car using selective door opening technology. The Inverclyde route will also benefit from extended platforms to facilitate the introduction of the new rolling stock with selective door opening technology to facilitate seven car trains. Options for delivering these extensions were included in the Scotland RUS and are now being delivered.

Figure 15 Forecast PPM MAA – CP4 plan

	2010/11	2011/12	2012/13	2013/14
Cross Country	90.2%	90.6%	90.9%	91.3%
First Keolis Transpennine Express	92.2%	93.2%	93.8%	94.0%
First ScotRail	91.3%	91.7%	91.9%	92.0%
East Coast Trains	88.2%	89.5%	90.5%	91.1%
Virgin Trains	87.8%	90.3%	90.6%	90.9%

On the West Highland Line, the finite capacity of the Radio Electric Token Block (RETB) equipment and long single line sections limits the number of additional trains that could be handled on this part of the network but it is unlikely that this can be improved significantly before the system is replaced. It is anticipated that some minor improvements may be feasible following the completion of the life extension work in 2010. Traffic levels on this route section can generally be accommodated without recourse to the provision of additional infrastructure.

Future performance

Figure 15 sets out the planned PPM for each train operator. The PPM figure quoted represents the expected contribution of the TOC to the sector-level regulatory outputs in the CP4 delivery plan.

The steps we are taking to achieve these performance improvements are described in the Performance section of the Delivery Plan. Specific enhancements to improve performance on this route are included in the project list below.

We will be renewing a number of other junctions within CP4 such as at Hyndland East on a like for like basis as no viable alternative could be identified. Where appropriate we will take the opportunity to improve the layout when carrying out renewal works to enhance performance. At Busby Junction we are taking the opportunity to re-instate the double lead junction in conjunction with the signalling renewal around 2013.

Carstairs Jn, which is currently a constraint on the WCML, is due to for renewal early in CP5. The initial development work to provide enhanced speed over this junction has commenced. Synergies with other works affecting the surrounding routes are being considered to produce a clear strategy that can be presented to industry stakeholders.

On the busy G&SW line we have recently completed the redoubling of the line between Gretna and Annan and are considering other capacity enhancements such as additional signalling which would also deliver a more robust timetable.

First ScotRail

The performance of the First ScotRail franchise is expected to be 90.5 percent by the end of March 2010. Local delivery groups are in place to ensure that J-PIP commitments are delivered.

The key performance issues and opportunities for the TOC have been identified as:

- requirement to have a continued joint focus on the day to day performance risk, including a focus on the delivery of right time performance
- understanding and mitigating the impact of climate change
- minimising the disruption and capturing the benefit of planned renewal and enhancement work throughout the Scottish network
- reducing the level of unexplained delay through 'S' class messaging which will allow signal aspects to be displayed
- focusing on improving asset reliability with particular focus on preventing repeat failures
- joint work to ensure a successful implementation of the Glasgow to Paisley corridor renewals and enhancement main line schemes minimising impact on existing network
- improvements in TOC/FOC on TOC delays.

The Long Term Performance plan is being developed around these key points and performance by 2013/14 will reach 92.0 percent (the Scottish HLOS requirement). This includes an allowance for traffic growth. This figure was reached through working with the TOC and is in line with the operator aspirations.

Further work is required in Scotland to assess the potential impact of enhancement schemes and no account of these has been included within this plan to date.

The future performance section for the other operators in this route can be found in the following Route Plans.

Figure 16: Train Operators

Operator	Route
Virgin Trains	N
East Coast Trains	G
First Keolis Transpennine Express	G
CrossCountry	M

Network availability

Engineering access on the route can largely be accommodated overnight. On a number of Glasgow suburban routes, access to run earlier and later trains has recently been agreed and discussions are ongoing on the possibility of extending this. Such access needs to be balanced with the need to maintain the reliability of the railway. In addition, the mix of services on the line from Glasgow to Carstairs limits access except at weekends. A cyclical maintenance strategy has been agreed for the G&SW route with the night time freight services diverted via other routes every twelfth week.

There are aspirations for both passenger and freight to operate over longer periods of the day particularly on the suburban and inter-urban routes for passenger and 24 hour operation for freight has recently been introduced on some routes. Consideration is being given as to how this requirement can be balanced on further routes with the need for infrastructure maintenance.

A number of extended blockades are planned on this route over the next few years. These will permit switch and crossing, track and bridge renewal and enhancement work to be undertaken in the most efficient manner. There are some significant engineering blockades during 2010/11. These include Glasgow Central Platform, 12 & 13, and various locations on the Ayrshire and Inverclyde routes for platform extension works including Ayr Townhead and Shields Depots for the introduction of new rolling stock. In addition the Coltness Branch is currently closed for the renewal of the bridge carrying the main line over the branch and there will be significant disruption in 2010/11 between Glasgow and Paisley in connection with the construction of the Paisley Corridor improvements.

On the West Highland Line a number of extended blockades are planned 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.

Long term opportunities and challenges

Growth in passenger numbers is forecast on this route as a consequence of two factors. The first of these is Transport Scotland's programme of major enhancement projects, in particular the Airdrie to Bathgate and Paisley Corridor improvements which will facilitate improved service and journey times on the Ayrshire and Inverclyde routes where congestion during peak times constrains growth.. The second is the background growth on existing services that arises as a consequence of the growth in the Glasgow economy and the continued migration of population from the city to the adjoining hinterland.

The key challenge to the rail industry in the coming years will be to deliver the planned increased service levels and maintain performance. Particular issues for this route will include coping with growth on the routes with single line sections such as the East Kilbride line which is already approaching capacity and the number of closely spaced flat junctions. The approaches to Glasgow Central as well as the actual station platforms are also becoming increasingly congested and in the long term it is likely that increased capacity will be required between Muirhouse Jn and Glasgow Central and within Glasgow Central Station; a feasibility study was commissioned in 2008 to look at options to improve station capacity in central Glasgow beyond the current works.

In discussion with Transport Scotland, various long term options are being considered to enhance the infrastructure and improve services around Glasgow which they have included in the proposals included in the Strategic Transport Projects Review. This includes further electrification (for example to East Kilbride, Barrhead/Kilmarnock and/or Paisley Canal) and possible conversion of some lines to Light Rail.

The key challenge to the rail industry in the coming years will be to deliver the planned increased service levels, maintain performance and deliver a reduced journey time to meet passenger demands between the major conurbations. In addition, there are aspirations (currently unfunded) to increase key routes to W10 /W12 gauge.

The output from the 2nd Generation RUS work will inform the HLOS for CP5 going forward, including the further development of the Projects proposed by the STPR. The longer term STPR Schemes will be reviewed in turn for development and affordability.

CP3 Enhancements

Figure 17 CP3 enhancements

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2008	Glasgow Central Re-interlocking: Enhancement Content	Upgrading of signalling on existing Smithy Lye Through Siding to passenger standards (Complete 2009)	Improved Performance. Additional Capacity.	Network Rail Discretionary Fund	8
2009	R&C Line Freight Differentials	Easement of current differential speed restrictions for freight traffic. (Unable to achieve benefits – project cancelled)	Improved Performance. Additional Capacity.	Network Rail Discretionary Fund	4
2009	Eglington St Feeder Stn Renewal	Enhancement to core renewal to realise short term performance benefits and make appropriate provision for the Paisley Corridor Improvements GARL project (Complete 2009)	Performance Enhancement Completed	Network Rail Discretionary Fund	8
2009	G&SW / Ayrshire Coal Route Initiatives: Relocation of Signal PA335	Relocation of signal to permit standage of longer trains awaiting acceptance to Killoch and Mauchline (Complete 2009)	Improved Performance. Additional Capacity.	Network Rail Discretionary Fund	8
2009/10	G&SW / Ayrshire Coal Route Initiatives: Kilmarnock Rounding Facility	Creation of new rounding facility at Kilmarnock Long Lyes to avoid current unproductive mileage associated with running via Falkland for rounding moves (Complete 2009)	Performance/Capacity/Journey Time Reduction	Network Rail Discretionary Fund	8
2009/10	^(A) Ardrossan to Largs Additional Signal Section	Provision of additional Down direction signal to close up signalling headways (Complete 2010)	Improved Performance. Additional Capacity.	Network Rail Discretionary Fund	8
2009/10	^(B) G&SW / Ayrshire Coal Route Initiatives: Sanquhar PSR Removal	Grouting of old mine workings to allow removal of long standing PSR	Performance/ capacity/Journey Time Reductions	Network Rail Discretionary Fund	3
2016	^(C) G&SW Improvements (Now part of Larger Linespeed Project)	Provision of additional signalling between Annan and Mauchline (Due to reduction of freight traffic on route project to be revisited as part of the larger linespeed workstream)	Improved capacity	Network Rail	6-8

Infrastructure investment in CP4

Figure 18 Infrastructure investment in CP4 (and CP5)

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2010/11	Newton	Track Side Cabin	Renewal	NR	5
2009/10	Eglington St	Feeder Station	Renewal	NR	5
2009	Glasgow/Kilmarnock Upgrade	Extension of Lugton Loop to south of Stewarton, including 2 nd platforms at Dunlop and Stewarton and platform extensions to the existing platforms at Dunlop and Kilmaurs (Complete 2009)	Capacity Enhancement	Periodic Review 2008	8
2009/10	Ayrshire CIS	Customer Information System	Renewal	NR	7
2009	Ayrshire LLPA	Long Line Public Address	Renewal	NR	7
2009/10	^(D) Dalmarnock Tunnel	Tunnel strengthening	Bridgeguard 3	NR	5
2009/10	^(E) Garriongill Jn Intersection Bridge	Replace Structure	Replace Structure	NR	6
2009/10	Whifflet	Renew Whifflet North Junction(Complete 2009)	Renewal	NR	8
2009/10	^(F) Brownhill	Renew crossover, associated points and plain line	Renewal	NR	6
2010	^(G) Glasgow Central PA	Public Address	Renewal	NR	3
2010	^(G) Glasgow Central LLPA	Long Line Public Address	Renewal	NR	3

Figure 18 Infrastructure investment in CP4 (and CP5)

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2010	(H) Motherwell LLPA	Long Line Public Address	Renewal	NR	5
2010	Re-instatement of Airdrie/Bathgate Line	Re-instatement of disused line between Drumgelloch and Bathgate including electrification of line between Drumgelloch and Haymarket	Four trains per hour Glasgow Queen Street Low Level to Edinburgh via Airdrie and Bathgate	NR	6
2010	(I) Ayrshire Platform Extensions	Platform lengthening at selected stations to accommodate longer trains	Increase in seating capacity	Transport Scotland	5
2010	(J) Gourock Station	Station Redevelopment	Enhanced facility to improve accessibility and integration with other transport modes	Network Rail	5
2010	(K) Stranraer Station	Relocation of station to improve interchange	Improved station and interchange facilities	Third Party	3
2010	(L) Dalmuir Station	Provision of new station buildings	Enhanced station facilities	Third Party	0
2009 - 2011	(M) Kilwinning Interlocking	Kilwinning Interlocking Rewire	Renewal	NR	6
2011	(N) Queen St & Paisley LLPA	Long Line Public Address	Renewal	NR	3
2011	(O) Tunnel lighting	Anderston Tunnel	Renewal	NR	3
2009 - 2012	(P) Ayr Interlocking	Ayr Interlocking Rewire	Renewal	NR	1
2009 - 2012	(Q) Paisley Corridor Improvements)	Paisley Corridor Improvements (Enhancement funded via RAB) Following the Scottish Governments cancellation of the GARL Project, timetable options are being developed to optimise the use of the additional capacity benefits gained by the enhancement to the Paisley Corridor Infrastructure	Renewal/Enhancement	NR	4

Figure 18 Infrastructure investment in CP4 (and CP5)

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2012/13	Ⓓ Dalmarnock Station	Provision of new station buildings	Enhanced station facilities	Third Party	3
2012/13	Ⓖ Gourock and Colgrain Coastal Defence	Long term works to protect quay wall, station and Rock Armour	Coastal Defence Long Term Works	NR	3/5
2013	Ⓒ Gauge Improvements	Gauge clearance of the line from Midcalder Junction to Mossend	To accommodate the carriage of deep sea container traffic from East Coast Ports to Scotland (Mossend)	T.B.D.	3
2013/14	Ⓓ Finnieston Turnback ³	Provision of facility to permit turnback of trains from Queen Street Low Level direction before congested Finnieston to Hyndland section	Improved Performance. Additional Capacity.	Transport Scotland	3
2013	Ⓒ Garngad Chord & Cumbernauld Electrification ³	Construction of "Garngad" chord, electrification of Alexandra Parade to Cumbernauld line and upgrade of Bellgrove Junction/Station	Diversion of Glasgow to Cumbernauld service to Glasgow Queen Street Low Level and integration with North Electric services	Transport Scotland	3
2012 /13	Ⓓ Cathcart Signalling Centre	Cathcart SC Area	Complete Renewal	NR	3
2009 - 2013	Ⓓ Motherwell North (WCML)	Motherwell North (WCML) Relay Room Renewals	Renewal	NR	1
2010 - 2014	Ⓓ Motherwell Area Re-Signalling	Motherwell Phase 2 Re-Signalling works	Renewal	NR	0
2011 - 2014	Ⓓ Ayrshire Re-Signalling	Ayrshire Re-Signalling Phases 1,2 & 3	Renewal	NR	0
2011 - 2015	Ⓓ Yoker Recontrol	Migration of Yoker IECC to West of Scotland Signalling Centre	Renewal	NR	0

Figure 18 Infrastructure investment in CP4 (and CP5)

Implementation date	Project	Project description	Output change	Funding	GRIP stage
2016	(Y) Whifflet Electrification	Electrification and upgrading of Rutherglen to Whifflet (No Longer part of EGIP)	Diversion of Glasgow to Whifflet services to Glasgow Central Low Level and integration with existing Argyle Line services	Transport Scotland	3
2010/11	(Z) Tulloch Viaduct (Over River Spean) Re-Painting, Waterproofing and Steelwork Repairs	Waterproofing & Re-Painting	Re-painting and Waterproofing	NR	5
2009/10	(Z) Tulloch Viaduct (Over River Spean) Timber Deck Renewal	Timber Deck Renewal	Renewal	NR	5
2010/11	(AA) RETB Control Rack	Control Rack	Renewal	NR	4
2011/12	(AB) Finnart Viaduct Re-painting & Waterproofing	Waterproofing (in combination with deck renewal work)	Re-Painting and Waterproofing	NR	3
2010	(AC) Glasgow Central Platforms	Provision of additional platform capacity as part of Paisley Corridor Improvements	Improved Performance, Additional Capacity	Small Projects Fund	6

³ These schemes are part of the Edinburgh to Glasgow Improvement Programme (E.G.I.P.)

Small Projects Fund (SPF) candidate schemes in CP4

Figure 19 Candidate Small Project Fund Tier 1 schemes in CP4 (<£5m)

Implementation date	Project	Project description	Output change	Small Projects Fund	Grip Stage
2009	(AD) Greenock Central Turnback Facility	Provision of additional signalled routes to provide enhanced turnback facilities. Relocation of existing crossovers	Improved Performance.	Network Rail	0
2012	(AE) Shields/Paisley Bi-Directional Signalling	Additional bi-directional facilities in the Shields Jn area to provide enhanced maintenance access opportunities	Improved Performance. Additional Capacity.	Small Projects Fund	4
2011/12	(AF) Dumfries improved turnback	Improvements to provide a southbound turnback move from northbound platform	Improved Performance. Additional Capacity.	Small Projects Fund	4
2013	(AG) Mauchline/Ayr Resignalling	Replacement of existing Key Token signalling with Track Circuit Block signalling including replacing Annbank G/F with control from Mauchline SB	Additional Capacity	Small Projects Fund	1
2013	(AH) Glasgow South Suburban Resignalling (Enhancement element)	Doubling of Busby Jn and provision of new turnback facility at Whitecraigs	Additional capacity/Improved Performance	Network Rail	3

GRIP stages: 1 Output definition, 2 Pre-feasibility, 3 Option selection, 4 Single option selection, 5 Detailed design, 6 Construction, test and commission, 7 Scheme hand back, 8 Project close out

Maintenance and renewals activity

Figure 20 shows the estimated maintenance and renewal costs.

The precise timing and scope of renewals will remain 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.

It should be noted that in order to manage the deliverability of our Civils, Signalling & Electrification plans we have included an element of over planning 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.

Figure 20 Summary of estimated maintenance & renewals costs

£m (2010/11 prices)	2010/11	2011/12	2012/13	2013/14
Renewals				
Track	32	32	24	28
Signalling	18	27	25	16
Civils	15	18	20	5
Operational property	15	18	14	24
Electrification	2	2	2	2
Telecoms	6	5	4	6
Total renewals	88	102	90	81
Renewals volumes				
Track				
Rail (km)	30	30	28	28
Sleepers (km)	16	25	22	22
Ballast (km)	16	21	18	19
S&C (equivalent units)	21	21	20	20
Signalling				
Conventional (SEU)	0	0	164	0
ERTMS (SEU)	0	0	0	0
Level crossings (no)	1	0	0	0

Appendix

Figure 21 Strategic route sections												
Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference and RA is Route Availability												
SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks
Q.01	WCML: Glasgow Central – Carstairs	WCM	Primary	Transport Scotland	No	W10	10	100(60)	AC	CL	4 (3)	4 (2)
Q.02	Midcalder Jn – Holytown Jn	EGS	Secondary	Transport Scotland	No	W9	10	70	none	CL	8	2
Q.03	Ayr lines, Wemyss Bay and Gourock	AYR (GOU)	Secondary	Transport Scotland	No	W9 (W7)	10(7)	90(70)	AC	CL	4 (2)	2 (1)
Q.04	Glasgow North electric routes	NEM (YKR)	Secondary	Transport Scotland	No	W8 (W7)	10(7)	60(50)	AC	CL	4 (3)	2 (1)
Q.05	Stranraer – Ayr	STR	Rural	Transport Scotland	No	W8	5	65(20)	none	TB (ETB)	15	2 (1)
Q.06	Paisley Canal Branch	CNL	Secondary	Transport Scotland	No	W7	10	50	AC (partial)	CL	5	1
Q.07	Muirhouse Jn – East Kilbride/Kilmarnock	GBK (EKE)	Secondary	Transport Scotland	No	W7 (W6)	10(5)	70(40)	none	CL(TB)	15	2 (1)
Q.08	Gretna Jn – Kilmarnock – Barassie Jn	GSW (BAK)	Secondary	Transport Scotland	No	W9 (W8)	10	80(70)	none	AB (TB)	20	2 (1)
Q.09	Eglinton Street Jn – Neilston/Newton including Cathcart Circle	KHL (NNH)	Secondary	Transport Scotland	No	W7	7(5)	50(40)	AC	CL	4 (2)	2
Q.10	Newton – Gartsherrie South/Rutherglen Jn	RCB (SCM)	Secondary	Transport Scotland	No	W9	10(7)	75(70)	AC	CL	6 (4)	2
Q.11	Lanark Branch	LNK	Secondary	Transport Scotland	No	W6	5	60	AC	OTW	10	1

OSC footnotes

Figure 21 Strategic route sections

Predominant aspect recorded (secondary aspects recorded in brackets). ELR is Engineers Line Reference and RA is Route Availability

SRS	SRS Name	ELR	Classification	Funding	Community Rail	Freight Gauge	RA	Speed	Electrification	Signalling Type	Signalling Headway (mins)	No of Tracks
Q.12	Anniesland – Greenhill Lower	MRL (CBD)	Secondary	Transport Scotland	No	W9 (W8)	10	70(60)	none	CL	8 (5)	2
Q.13	Gretna - Border	GSW	Secondary	Transport Scotland	No	W10	10	80	none	AB (TB)	20	2 (1)
Q.14	West Highland Line	WHL (MLG)	Rural	Transport Scotland	No	W8 (W7)	5	70(55)	none	RETB	15 (30)	1
Q.99	Other Freight Lines	CND (LGS)	Freight	Transport Scotland	No	W9	9	20(5)	none	OTW	20	1

Please see note in the Current Infrastructure Capability section

Capacity and operational constraints

- | | |
|---|--|
| A | Finnieston – Hyndland: double track at capacity |
| C | Milngavie branch: single line section |
| D | Bellgrove – Finnieston: signalling headways and limited track capacity |
| E | Glasgow Central – Paisley Gilmour Street: double track at capacity |
| F | Paisley Gilmour Street – Kilwinning: signalling headways |
| G | Ardrossan – Largs: single line passenger section |
| H | Barassie – Kilmarnock: single line section |
| I | Busby – East Kilbride: single line with limited crossing facility |
| J | Glasgow Central High Level Station – Muirhouse Junction: limited track and platform capacity |
| K | Newton North Jn – Single lead Junction onto West Coast Main Line |
| L | West Highland Line – Single line and restricted loop lengths |

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