

Rail infrastructure upgrades for the Great South West

A discussion paper by Lord Berkeley and Michael Byng, 20th July 2020

Introduction

Rail issues in the South West have been a serious concern for many years; much of Devon and Cornwall were cut off on several occasions in the last decade by river and sea floods, sometimes for several months. We know of at least one major international business considering investing in the SW who were starting a visit when forced into a coach at Taunton due to flooding; they refused to continue and returned to London saying that the SW was clearly too inaccessible for their business.

The Peninsular Rail Task Force published a document 'Closing the Gap' in November 2016, listing a number of enhancements to the rail network to make it more resilient and more effective and, since then, Network Rail has started work on the Dawlish area, and new passenger services to London have been introduced alongside a half-hourly service between Penzance and Plymouth and Falmouth-Truro.

These are of course welcome, but there has been no significant work on the issue of resilience, identified by the PRTF as requiring the improvement or reinstatement of the second routes East of Plymouth; Plymouth-Okehampton-Exeter reopening and Exeter-Salisbury redoubling.

The other change that has occurred is the Government's commitment to zero carbon by 2050. The improved rail services in Cornwall have shown very significant increases in patronage, particularly on shorter commuter journeys, and this must surely be the focus of future enhancements alongside resilience.

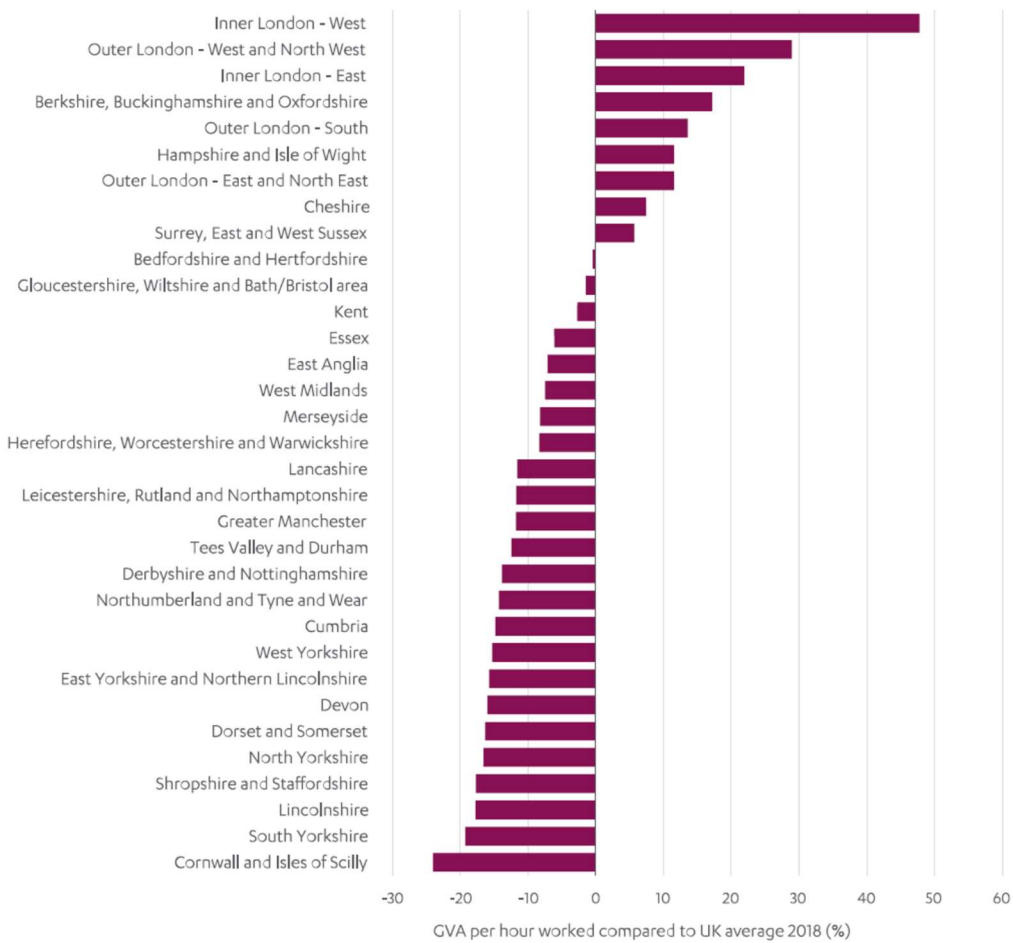
More recently, the drop in rail passenger numbers is clearly of concern if they continue to transfer to their cars, as the Government is at present encouraging, but hopefully the passenger numbers will recover, although some franchised operators are suggesting that this might take five years. Many people will continue to work from home, but there is still much work to be done to encourage people off the road onto rail – and for this to be successful, there needs to be a suitable rail service for them to use.

Our work on HS2 and its alternatives has shown that many regional authorities see improvements in commuter services used daily are more important to people than improvements to longer intercity journeys – but they would prefer both!

The Great South West Economy

The GSW Project <https://greatsouthwest.co.uk/> has produced some powerful arguments for it to be treated as a region similar in status to Midlands Connect or Northern Powerhouse, and has received much encouragement from ministers to progress this idea. The economy of the region is very different to these two regions further North, but regional productivity, particularly in Cornwall, is drastically worse than the South East and significantly worse than the Midlands Connect and Northern Powerhouse areas, as illustrated by the 'Rail Needs Assessment for the Midlands and the North, Interim Report' of the National Infrastructure Commission, July 2020, <https://www.nic.org.uk/news/rail-needs-assessment-interim-report/>.

Figure 2.1: Regional productivity variation in England²²



The GSW states that its economy is worth £64.4 billion - almost double the size of Greater Manchester or West Midlands. It has enormous potential but does need improved connectivity, both to and from the region and within it. This paper offers a package of measures that could contribute to meeting this need by rail.

Rail enhancement costs

Cost escalations on HS2 and other major schemes have been much discussed, with recent memories of the Great Western Electrification cost overruns causing questions to be asked about the ability of the rail sector to keep to its cost estimates. The same comments also apply to major road schemes.

The present proposal offers solutions:

- all parties should use one standard method of measurement, the RMM Suite now used by Network Rail,
- break down large projects into smaller elements that can be delivered more quickly and at less risk,
- agree at the start one sponsor and one output specification, and
- use design and construct contractors who can respond to output specifications without a project having to go through multiple stages of checks and approvals.

The schemes in this paper are small or medium-sized regional ones which local authorities alongside Network Rail where appropriate are well used to managing. More details below.

A package of rail infrastructure projects for the Great South West

With little action in the last four years since the PTRF Report, with the Government's stated policy to invest in infrastructure and the goal of the Great South West partnership calling on Government to support it to improve transport connectivity and strategic routes, a small team of rail experts, including local resident Lord Berkeley, and Chartered Quantity Surveyor and Construction Cost Consultant Michael Byng have spent lockdown to produce an outline report of rail enhancements that can deliver improved rail services and increase passenger traffic not only to boost the economy of the region but to make a major contribution towards a lower carbon future.



Some of these projects have already been submitted to the DfT's 'Restoring Your Railway' or "Reversing Beeching" programmes but these proposed improvements are designed to be delivered by a fast track programme for which contractors, many of them hopefully local to the region, can deliver 'design and build' packages, or perhaps design, obtain permissions and build and even operate lines. Revenues are always difficult to predict with new works, but are provided where possible, together with capital cost estimates for the improvement works, which have been prepared using the "Rail Method of Measurement", mandated for use by Network Rail, and the cost database which RMM delivers. Cost certainty is greatly improved by using these tools.

One of the purposes of the exercise is to demonstrate to customers, railway stakeholders including Network Rail and the Department for Transport, that rail projects can be built to time and budget,

and a large amount of consultancy costs avoided, provided that the customers, funders, operators and users as well as local authorities and LEPs can agree on the service specifications to be provided. Of course many stakeholders will be consulted on demand, scope or services, and changes can be made but the detailed cost work which underpins those given here will provide a sound basis for delivering a project with confidence,

Treasury Green Book 2018 Edition

These rail upgrades proposed in the South West, consider the requirements of "The Five Case Model" for each scheme, as defined on page 10 in paragraph 3.5 of "The Green Book"

- **Strategic Dimension:** the schemes proposed address the rail transport needs of parts of Somerset and Dorset, and of Devon and Cornwall, by offering solutions to the needs for better connectivity between the North and South of Devon and Cornwall and North West Somerset and the rest of the country; in doing so they comply with the wider Government policies and objectives for public mobility and inclusivity.
- **Economic Dimension:** each of the schemes proposed offers net value to society by providing transport opportunities that are absent from the region and cannot be delivered by continuing with "Business as usual". Forecasts of passenger numbers are being considered and will be published after the report has been received and presented.
- **Commercial Dimension:** each scheme has been considered and presented to provide commercial opportunities to the SMEs in the region, both contracting and consulting companies, which are able to manage the risks.
- **Financial Dimension:** the impact on the public sector budget is minimal when compared with other iconic transport projects elsewhere in Great Britain, as well as providing the Government the opportunity to rectify per-capita transport spending deficits over the past 20 years.
- **Management Dimension:** each scheme comes with a bespoke strategy for delivery, in Phases where appropriate, developing and building of the skills of SMEs within the region to produce a co-ordinated improvement to public transport available to the users.

The estimated project costs for each scheme are priced at the rates ruling at 1st Quarter 2020 and make allowance for risk, as required by "The Green Book"; risks have been assessed in accordance with Group Element 4.01, Risk, which covers the risk register and plans for risk management as set out on page 11 in paragraph 3.17 of "The Green Book".

These schemes can be delivered by SMEs within the region, on a "Design & Build" basis, thus minimising the risks to the taxpayer; the reports for each scheme, available separately, address the need for additional analysis to UK level schemes as described on page 77 in paragraph A3.4 of "The Green Book".

Next steps

We will be consulting widely about these projects, with LEPs, local authorities, user groups, train operators and Network Rail and other rail infrastructure owners as well as with the Department for Transport and other government departments, members of parliament and their interest groups to seek their comments and support.

The list of projects within the Great South West region, with outline description and cost estimates, is set out below. All cost estimates have been prepared using the principles of the Rail Method of

Measurement and are priced at 1st Quarter 2020 prices, which are linked to the Office for National Statistic Construction Output Indices for All Construction.

The schemes described

1. **Salisbury to Exeter - Reinstatement of second track;** three Phases - estimate total cost - £382,321,000.00
 - a. Pinhoe to Axminster West Junction; Phase 1; estimated project cost - £132,662,000.00
 - b. Axminster East Junction to Yeovil Junction; Phase 2; estimated total cost - £111,505,000.00
 - c. Templecombe to Wilton South Junction; Phase 3; estimated total cost - £138,154,000.00
 - d. Total Cost; All Phases; estimated total cost; £382,321,000.00

Scope of Works proposed:

Additional Running Line; ELR: BAE2; Provision of additional running line to increase route capacity, line speeds and to provide an alternative main line to London.

The principal quantities for all Phases, are new track 107.23 ETKM, upgrading existing track 119.58 107.23 ETKM and work to 6 Nr. stations; length route section 71 miles 30 chains.

Existing mainline railway which was reduced to a single track in 1967 as part of the "Beeching" cuts to rail infrastructure.

Renewal work includes laying additional line of railway through Honiton, Crewkerne and Buckhorn Weston (Gillingham) Tunnels.

Work to be carried in accordance with "Rules of the Route" for the West of England main line.

Enhancement of capacity, line speed and train frequency of single-track former main railway line by the laying of a second track between Pinhoe Station (ELR: BAE2) 168 miles 24 chains and Axminster West Junction (BAE2) 146 miles 9 chains, Axminster East Junction (ELR;BAE2) 143 miles 23 chains and Yeovil Junction (ELR: BAE2) 122 miles 57 chains and Templecombe (ELR:BAE2) 112 miles 09 chains and Wilton South Junction (ELR:BAE2) and Wilton South Junction 86 miles 25 chains; all enhancements are complete with new railway control systems, operational telecommunications installations and the provision of a second platform to accommodate 6 (six) car trains at Cranbrook, Whimple, Feniton, Crewkerne, Templecombe and Tisbury Stations.

Permissions required – mostly within Network Rail's permitted development rights.

Benefits of the route

- Benefits – more frequent services possible and with less delays at passing places.

- Much better diversion route for GWR main line services between Exeter and Castle Cary.

2. * Exeter to Plymouth via Okehampton; three Phases - upgrading of railway in two phases, reinstatement of dismantled railway in third Phase; estimated project cost; £426,500,000

- a. Phase 1 - Exeter to Okehampton; capacity upgrade of the existing railway providing a double track railway from Exeter to Okehampton, whilst delivering the basis of an enhanced train service to Barnstaple - "The Tarka Line" - estimated cost of the Phase - £154,400,000
- b. Phase 2 – Plymouth to Bere Alston; capacity upgrade of the existing railway providing a double track railway from Plymouth to Bere Alston and the reinstatement of the dismantled railway between Bere Alston and Tavistock; estimated cost of the Phase - £123,600,000
- c. Phase 3 – Tavistock to Okehampton; reinstatement of the dismantled railway between Tavistock and Okehampton including protecting the National Cycle Route No. 27 between Okehampton and Lydford; estimated cost of the Phase - £148,500,000.
- d. Total Cost; All Phases double track; estimated total cost; £ £426,500,000

Full details of the scope of works, project development programme and elemental costs are available in reports for each Phase of the scheme.

Scope of Works proposed:

Work to be carried between Cowley Bridge Junction and Coleford Junction and between St, Budeaux Junction Bere Alston in accordance with "Rules of the Route" for the North Devon Line and the Devon and Cornwall Line.

Enhancement of capacity, line speed and train frequency of single former main line by laying of a second track. A phase approach is preferred since there is existing track, generally operational, Exeter to Okehampton and Plymouth to Bere Alston, followed by the sections or closed line that will need reinstatement. Although sections of single track can be retained, there are benefits of creating a double track railway all the way to provide flexibility for future operations of passenger trains with different stopping trains, non-stop diversions if Dawlish is closed, as well as freight, as the gradients here are much less severe than on the southern routes, allowing heavier trains to be operated.

In detail, between Coleford Junction (ELR; DAC) 183 miles 69 chains and Okehampton Station (ELR: DAC) 197 miles 51 chains and between St Budeaux Junction (ELR: DAC) 250 miles 00 chains and Bere Alston (ELR: DAC) 220 miles 05 chains with the reinstatement of the dismantled double track railway from Bere Alston to Tavistock 213 miles 60 chains complete with new railway control systems, operational telecommunications installations and the provision of a second platform to accommodate 6 (six) car trains at St Budeaux (Victoria Road), Bere Ferrers and Bere Alston, with new stations, each with two platforms to accommodate 6-car trains at Tavistock, Okehampton East and Sampford Courtenay; reinstatement of dismantled single track railway between Okehampton Station (ELR: DAC) 197 miles 51 chains)

and Tavistock (ELR: DAC) 231 miles 60 chains, complete with new railway control systems, operational and telecommunications installations; work includes preserving and upgrading the existing "Granite Way" cycle track/footpath between Okehampton and Lydford, National Cycle Network Route No. 27.

Permissions required – land purchase on closed sections.

Planning permissions for stations etc where no permitted development rights exist.

Benefits of the route

- Provision of public railway services currently unavailable in the North Devon and North East Cornwall areas; providing commuter services between Okehampton and Exeter and between Tavistock and Plymouth, both Phases serving new housing developments in these areas.
- Provision of regular public rail services between North Devon and Exeter and Plymouth, reducing road congestion
- Alternative route between Exeter and Plymouth providing sustainable alternative for all traffic, passenger and rail freight between Exeter and Plymouth

3. * Coleford Junction to Barnstaple (passenger upgrade); upgrading of existing signal track railway; estimated project cost £17,250,000.00

Scope of Works proposed

Work to be carried out between Coleford Junction (ELR:NDN) 183 miles 69 chains and Barnstaple (ELR:NDN) 211 miles 25 chains in accordance with the "Rules of the Route" for the North Devon Line.

Enhancement of capacity, line speed and train frequency of single former main line by renewing existing single track to increase line speeds, creating passing loops between Coleford Junction and Barnstaple; reinstatement of a second platform to accommodate 6-car trains at Barnstaple and a new North Devon "Park and Ride" stations at Copplestone and Umberleigh; Option to create a direct route from North Devon to Plymouth via new chord at Coleford Junction; Reduce regular journey times between Barnstaple and Exeter (St David's) Station to 44 minutes.

Full details of the scope of works, project development programme and elemental costs are available in reports for each Phase of the scheme.

Benefits to the route

- Improvement to public transport between North Devon, Barnstaple and Exeter and Plymouth
- Reduction of car traffic from North Devon roads and Exeter
- Provision of the possibility of through rail services between North Devon and London and elsewhere via Exeter.

4. *Bodmin to Padstow; estimated project cost £31,800,000.00

This scheme, alongside the link to Fowey below, would enable regular scheduled services between Padstow, Wadebridge, Bodmin and Bodmin Parkway alongside heritage steam services on this heritage line. It has already been largely designed, and can be built without detriment to the Camel Trail cycle network. It has the potential to attract both local commuters and holiday traffic off the congested roads in the area and bring much needed economic benefit. It can of course be developed in several phases.

- a. Bodmin Parkway to Bodmin General (passenger upgrade)
- b. Bodmin General to Boscarne Junction (passenger upgrade)
- c. Boscarne Junction to Wadebridge (passenger reinstatement)
- d. Wadebridge to Padstow (passenger reinstatement); N.B. this section is **NOT** included in the scheme already submitted to DfT under "ideas" fund.

5. Bodmin General to Fowey; estimated project cost £5,250,000.00

This would require alterations to the track at Bodmin Parkway station to allow access from the Lostwithiel direction to the bay platform for reversal. The Fowey branch is still operational as a freight line, and the infrastructure is generally in good condition. An extension through the Imerys china clay loading facility would be required to reach the town of Fowey, involving the reinstatement of an old line. Agreement with the port operator, Imerys, would be required. The Fowey branch is one of the most scenic lines in the country, running alongside the Fowey river, and services to Fowey would enable local commuting by rail as well as a high level of tourist traffic.

- a. Bodmin General to Lostwithiel (passenger upgrade)
- b. Lostwithiel to Fowey (passenger reinstatement)
- c. Fowey New Station

6. Cross Cornwall Rail Link; estimated project cost £181,500,000.00

This proposed link, part reinstatement part upgrade, would enable regular passenger services between Newquay, St Austell, and on to Truro and perhaps Falmouth, at a journey time broadly equivalent to road and much faster than the existing route via Newquay to Par. China Clay freight services operate between Parkandillack and Burngullow Junction, as well as on the Newquay to Par branch alongside the passenger service. The cost includes provision of track alterations at St Austell to allow for reversing trains.

The new services would be particularly beneficial for students and others living in the Newquay area, where major housing developments are planned or completed, to the University at Falmouth or to Truro for the many facilities there.

- a. Newquay to St Dennis (passenger upgrade)
- b. St Dennis Junction to Parkandillack (railway reinstatement)
- c. Parkandillack to Burngullow Junction (passenger upgrade)
- d. Burngullow Junction to St Austell (passenger enhancement to allow trains to reverse).

7. West Somerset Railway – provision of community rail services; estimated project cost £11,800,000.00

This popular heritage line is in need of major track and structures upgrade if it is to continue to operate. Expert track engineers will need to finalise the exact needs, but they can provide this service as part of the heritage sector support. The works themselves, however, should include upgrading the line to higher line speeds and enabling scheduled passenger services from the large town of Minehead and intermediate stations to Taunton and possible beyond on the GW Network. It has the potential of removing the need for many journeys on the currently congested and slow road network.

- a. Taunton Station (NR) – alterations to Platform 2
- b. Taunton to Norton Fitzwarren (NR) – enhance bi-directional loop
- c. Norton Fitzwarren to Minehead (WSR) – track renewals and capacity enhancement

**Part or all already submitted to DfT under 'Ideas' fund*

Summary of scheme costs:

1. Salisbury Exeter double tracking	£382,321,000
2. Exeter Plymouth via Okehampton	£426,500,000
3. Coleford Barnstable	£17,250,000
4. Bodmin Parkway – Padstow	£31,800,000
5. Bodmin – Fowey	£5,250,000
6. Cross Cornwall from Newquay	£181,500,000
7. West Somerset Railway upgrade	£11,800,000
Total cost of programme	£1,056,421,000

Conclusion

The schemes together will transform travel in the SW and will encourage both commuters, shoppers and holiday makers out of their cars, in compliance with Government policies towards zero carbon by 2050. It will also ensure much improved resilience by providing two alternative routes from Plymouth to Exeter and eastwards.

The total cost of these projects is under £1.2bn spread over a number of years, into smaller phased contracts for the Great South West. This is roughly 1% of the cost of £128bn for HS2, which benefits mainly those who already have good fast rail links to and from London - of which the GSW can only dream - but who are said to want even faster journeys.

Building these important infrastructure links could go a long way towards rebalancing the economy, which is more out of balance between parts of the GSW to the SE than many parts of the Midlands and North served by HS2 and the SE.

Further information:

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