

The Clerk to the Transport Select Committee  
Houses of Parliament  
Westminster

30 September 2009

**Submission to the Parliamentary Transport Select Committee's inquiry into Priorities for investment in the railways.**

The Railway Engineers Forum (REF) is a multi-disciplinary body drawn from the professional Institutions with strong railway interests. The members are drawn from the Institution of Civil Engineers (ICE), the Institution of Mechanical Engineers (IMechE), the Institution of Engineering & Technology (IET), the Institution of Railway Operators, (IRO) the Institution of Railway Signal Engineers (IRSE), the Permanent Way Institution (PWI) and the Railway Civil Engineers Association (RCEA), The Chartered Institute of Logistics and Transport (CILT).

The REF provides informed professional comment on railway issues both in response to government and transport industry proposals and to matters of more general concern. It is currently chaired by the Permanent Way Institution.

This response has been coordinated by REF and the views put forward have been agreed by all participating Institutions.

The REF would be pleased to offer technical assistance to suggested follow up studies as well as provide oral evidence on the subject of Priorities for investment in the railways.

Yours sincerely

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Transport Select Committee

Priorities for investment in railways

The Railway Engineers Forum welcomes the opportunity to contribute to the consultation on rail spending priorities focussing mainly towards engineering issues.

1. *In the medium and long term, what should be the main objectives for investment in the railways, in order to improve both freight and passenger services?* The main objectives for investment are for schemes that lead to cost beneficial higher utilisation of existing assets, leverage of synergy between transport modes to promote integrated public transport and schemes that allow for flexible energy sources. These objectives and associated schemes need to be a mix of short term enhancements and long term projects. The longer term projects would include a programme for those of strategic importance where there is an undisputed need, where the programme changes little; the pace of delivery being dictated by funding capacity. European examples include Banverket's strategic projects in Sweden, the high speed and urban programmes in Spain and the TGV programme for France.
2. *How should these objectives be determined?* These objectives should be chosen taking into account economic, societal, environmental and practical engineering factors. No one factor should have disproportionate influence. Schemes need to be prioritised to suit the overall economic conditions and the availability of finance. Those that can be completed in a moderate timescale (e.g. up to 2 years), such as in fill electrification or medium distance track doubling, may be more attractive in the current economic climate as they are seen as affordable and give a faster return on capital. Key to this will be to have the engineering aspects of schemes developed in anticipation of financial authorisation. Serious challenge should be given to factors that have driven up or will tend to drive up the costs of rail investment. An example includes slavish adherence to existing Health and Safety constraints which do not necessarily feature in comparable European rail systems.
3. *What is the impact of rail enhancements on the economy?* The past 10 years have seen significant ridership growth in rail passenger numbers both on main line and light rail. Freight transit by rail has also increased. This has been achieved by a mix of using spare capacity and by investment in rolling stock and infrastructure. The rail culture is seen to be improving. Investing in rail essentially means investing in the associated technology, engineering and system provision. The UK has slipped backwards over the past three decades in terms of its rail engineering capability and some skill sets have been reduced almost to the point of oblivion. Re-establishing a UK based rail engineering capability and supply base will help to alleviate the present worsening unemployment situation as well as allowing the UK to compete better in rail market opportunities both at home and abroad. The Railway Engineers Forum is an active participant in the proposal to establish a National Rail Skills Academy. This will encourage infrastructure owners, rail operators and their supply chains to invest further in the next generation of technicians

and engineers. This will benefit the UK rail system as well as having a positive impact on exports.

4. *How should long-term development of major new infrastructure, such as high speed lines, be balanced against short and medium term investment to improve capacity and passenger experiences?* There should be a mix of short and medium term projects as well as longer term. New construction can be more affordable, especially if we did more. In pure construction cost and operational disruption terms the construction of new infrastructure is likely to be better than upgrading existing heavily used corridors. A comparison between the impact of the West Coast Main Line upgrade and High Speed One underscore this point well. In the former extensive whole weekend closures and multi-week blockades were necessary. For High Speed One only modest track access was required to make the connections to the classic network. Likewise Thameslink Key Output One is far more disruptive to a large number of passengers than the East London Line, where there is only the suspension of services on a lightly used route. The Crossrail central London works are likely to have no more impact on passengers than the upgrading of the Victoria line. Significant amounts of the works will be undertaken in a segregated area, with little effect on existing rail services during the bulk of the construction phase.

Other European countries appear to be able to build new infrastructure at less cost and timescales in urban and inter-urban corridors than in the UK. This situation needs a strong challenge. The new planning legislation is welcomed as a means of shortening the overall time. The different costs of providing underground rail routes in Barcelona and Madrid are in stark contrast to comparable London projects. Line 9 in Barcelona is 41km long, of which 34km is in tunnel, with projected costs of Euro 2800 million. In Madrid the second 8.5km cross city line opened between Chamartin and Atocha in 2008 with two intermediate stations at Euro 550 million. A third 7.3km tunnel under Madrid to connect high speed routes is under construction with a projected cost of Euro 286 million.

5. *Is enough consideration given to the integration of rail with other transport modes, and with other demographic developments, such as new housing developments, when rail investment decisions are made?* The simple answer is no. There should be a capability in moving in hierarchy from bus to light rail, metro, tram train as traffic flows increase. By planning passive provision and scalable infrastructure by the use of modular add on components e.g. Signalling, electrification we would be able to respond more readily to demographic change. Better integration between different rail companies and between rail and road might need a change in the performance and penalty regime process. Trains that are late because of waiting for a connection from a bus or other train to the benefit of interchange passengers should not attract the same penalty as levied for other problems e.g. unavailability of crew, traction problems etc. The whole performance measure needs to be re-cast but without falling into the trap of condoning poor operating practice, inadequate staffing or poor maintenance. Consideration should be given to freight only route and terminals to reduce the extent of final road journeys.

6. *Is enough consideration being given to the views of passengers in making investment decisions on the railways?* No comment.
7. *What should be the key priorities for the next High Level Output Statement?* Keeping the present railway maintained to the required standard is paramount. Therefore investment in maintenance related infrastructure such as remote monitoring, training and specialist equipment should be a priority to maintain service levels whilst reducing OPEX. Capacity improvements at pinch points must continue (e.g. Swindon Kemble). Also in fill electrification in addition to the schemes for Great Western and Liverpool – Manchester schemes, with the associated reduction of diesel trains running on electrified routes. Much closer liaison and integration between Network Rail and the Train Operating Companies to get the right traction decisions for the services that are on offer or are aspired to. Selective infrastructure improvements such as freight loops can increase the overall capacity for freight and passenger trains.
8. *Is the current investment programme sufficient for the needs of the UK economy and for passengers themselves?* Current levels of investment are much higher than have been enjoyed for many years. However from an engineering perspective, is the money being spent wisely? The infrastructure owners have structured project development processes but freezing a design to reduce scope change appears elusive. This is inefficient in terms of cost and time. The delivery of the engineering most railway projects involves many layers in the infrastructure owners as well as supply chain of design, bidding, contract letting, manufacture, installation, testing, approval and commissioning. Getting better value means getting more for your money by a more efficient process from the writing of a remit to the delivery of a commissioned project.
9. *In the light of the current economic crisis is it still important that projects designed to increase capacity continue in the present timescale?* Most significant projects have durations that exceed the length of an economic cycle, let alone an economic downturn, when the planning and construction time is added together. The busiest parts of the rail network are still overloaded even with the current modest reduction in volumes of passengers. In the short term the projects under design and construction should benefit from a more competitive market for resources.
10. *Use of Technology: There are two areas where technology may assist in obtaining greater benefit for the travelling public with the limited funds available.*
  - 10.1 *Low cost operation on rural routes to obtain better value*– Attempts to do this in the past have not really succeeded perhaps because the development of new technology (e.g. Radio Electronic Token Block) is not matched by a set of simplified safety and operating rules. Low cost operation should not equate to lower speeds since longer journey times will dissuade passengers from making a modal change and will mean lower revenue, thus off setting the lower operational costs.

Many engineering opportunities exist:

- lighter less crashworthy trains (tram trains may fit in here). Noting also that Tyne and Wear metro trains have operated on the same routes as freight trains for several years.
- far greater use and dependence on radio for train position location, driver initiated route setting
- simplified but not necessarily rationalised infrastructure, e.g. point operating mechanisms, weight of rail

The big challenge remains at level crossings since cheaper systems with less physical barrier between road user and railway sooner or later leads to a major accident and the associated public outcry. A level crossing closure programme to gradually eliminate the little used ones, which is always difficult because of legal ramifications, together with low cost modular bridges for both pedestrians and road traffic should be pursued.

10.2 Information Systems – Enticing more people to use trains by making the whole experience better is within our grasp. This is the information age and the gradual but steady convergence of mobile radio and the internet should mean that any transport information is available to anyone who has a blackberry or I-phone device. It is accepted that not everyone will have or use such a device but the ratio of those that do and those that don't will increase very quickly. The percentage of people who do not have a mobile phone in the developed world is now less than 20% and this has happened in a 15 year period.

Therefore having got the hardware, the challenge is to develop information pages that are easy to understand and use in real time. Systems should be capable of responding as well during traffic perturbations as when trains are running normally. A typical example would be a person on a journey that is delayed and the planned connection is missed. What onward connections are available by what means of transport and at what cost to complete the journey?

Information availability has to migrate from the general, i.e. the timetable, the display boards, the announcements, etc, to the personal where a journey plan and cost is made available to an individual. Airlines already do this to some extent but the rail / bus sector has barely started. As an investment scenario, information system development is carried out by many organisations and the emphasis must be on getting the development costs paid for by such firms with pay back being by advertising, call revenue, train journey promotions etc