### All-Party Parliamentary Group for High Speed Rail

## Atkins Response to Rail Capacity Inquiry (13<sup>th</sup> March 2012)

#### Background to our response

- Atkins is one of the world's leading engineering and design consultancies, and the UK's largest engineering consultancy. We have provided extensive support to the rail industry and governments in examining capacity issues on the UK rail network and the economic case for providing additional capacity. Our work has included undertaking the original 2001 High Speed Line study for the former Strategic Rail Authority, numerous Route Utilisation Strategy studies for Network Rail, supporting the Eddington Review of transport and the economy, as well as planning and developing capacity enhancement schemes across the UK.
- 2. Over the last three years we have provided extensive support to both High Speed Two Limited (HS2 Ltd) and the Department for Transport (DfT) in examining the case for the High Speed Two (HS2) scheme as well as the case for alternative interventions. However, this evidence is provided independently and does not reflect the views of either HS2 Ltd or DfT, and does not draw directly on our work for those organisations.

#### How do you view the current capacity situation on British railways?

- 3. It is well known that the current UK rail network operates close to capacity in several areas, as highlighted in the numerous Route Utilisation Studies undertaken by Network Rail. The lack of capacity can be expressed in many different ways, including the capacity on trains to carry passengers comfortably, the capacity of the network to cater for additional freight and passenger services to meet customer needs, and the capacity of the network to recover from disruption from external causes such as major weather events.
- 4. We emphasise that major investment has been made to improve capacity on UK rail network over last twenty years. This includes most noticeably the upgrade to the West Coast Main Line (WCML) route, completed during 2008, and is continuing today with major capacity enhancements around Reading and the Thameslink Programme and Crossrail projects in London.
- 5. These capacity enhancements have been required because of the fundamental nature of most of the UK railways, as a "mixed-use" network. This means that local commuter, inter-regional, long-distance high speed and freight services share the same tracks, stations and junctions, with varying degrees of separation at different points.
- 6. This "mixed use" approach is cost-effective where there is relatively modest demand for freight and passenger services; however the huge growth in use of rail services over the last twenty years has increasingly led to difficulty in accommodating all the demand in a cost efficient way. As network capacity has been reached, increasingly compromises are having to be made, with longdistance high speed services also required to handle commuter flows because of the lack of network capacity to provide both at the same time. This lack of commuter capacity is particularly acute on many routes into London, Birmingham, Manchester and Leeds.
- 7. Similar problems exist in catering for the increased demand for long distance travel, where services have increased considerably to use available demand throughout the day, but increasingly reach capacity during weekday evening peak periods, where commuter and long-distance peaks converge, and weekends, where essential maintenance works reduce overall network capacity. Freight services are also squeezed, with freight trains effectively barred from using routes into London during peak periods, reducing their effectiveness and flexibility and hence usefulness to industry.

- 8. Beyond the noticeable capacity problems on the existing rail network and services, the rail network is similarly constrained in offering an alternative to travelling by car for many flows. Journeys such as Sheffield to Leeds or Stevenage to Hatfield are made difficult by the lack of available network capacity, forcing longer journey times and unattractive service frequencies during peak commuting times. Indeed, the introduction of London Overground services connecting north and south London have been hugely popular because of their improved connectivity, but are already constrained by the capacity available on that route.
- 9. For longer-distance journeys, the lack of available network capacity means that journey times are increased during peak hours because of track capacity and the need to cater for multiple flows. As an example, a London to Nottingham journey by train takes around 20 minutes longer between 1630 and 1900 on weekday evenings because of the need to carry commuter flows on the same services.

#### What capacity do you believe that Britain's railways will require in the future?

- 10. Passenger numbers have continued to grow year-on-year, despite the economic downturn and continued fare rises. There are a mixture of reasons why rail demand has continued to increase over the last twenty years, including gradual shift to employment locations suited for rail, increasing costs and travel times for travelling by car, and a genuine improvement in quality of rail services through new rolling stock and improved frequencies.
- 11. Most research on travel demand growth suggests that rail demand will continue to grow for the foreseeable future. The exact level of growth is difficult to predict, as it depends on a mixture of factors which are both "exogenous" (external) and "endogenous" (generated by the rail services themselves). Industry research tends to suggest that rail demand could increase by 50% over the next ten years alone just down to economic and population growth factors alone. Further increases in fuel prices would add more to this growth a 50% increase in fuel prices could add another 10% to 15% to overall rail demand alone, and potentially more.
- 12. These growth figures suggest that planning for a doubling in rail demand over the next ten to twenty years is not unrealistic, with certain routes and markets growing more quickly, and more mature markets (such as London commuting) growing more slowly, provided that sufficient capacity is provided to ensure that travelling by rail is a realistic alternative to travelling by car or by plane.
- 13. We emphasise that the purpose of the rail network and services is not just about carrying passengers for the sake of it. The UK rail network supports economic growth by carrying commuters to their workplaces, improves competitiveness of centres by improving longer-distance links to other centres, and provides access to leisure opportunities across the UK for all. An indirect consequence of the current capacity squeeze on the rail network is that pricing has increasingly become the means to manage peaks in demand, leading to wide range in available ticket prices to encourage people to travel at less busy times where more spare capacity is available.
- 14. The right mixture of capacity is needed going forward. This goes beyond train lengthening, as this alone is not able to address poor performance, or where current rail services provide poor connectivity to regional centres due to lack of network capacity. Increases in capacity provision need to reflect the transport needs of all communities, not just the largest existing flows. At the same time, any capacity increase needs to be tied into improving affordability and efficiency of the rail network as a whole, through more efficient use of rolling stock and track capacity and meeting passenger needs more effectively.
- 15. The constraints are not just about track capacity: constraints also exist in terms of station capacity and ability of local access to cope with increase in rail demand. Some stations will need to be expanded to cope with increases in demand safely and comfortably.
- 16. Levels and markets of demand are more difficult to predict into the future, heavily influenced by global trade growth and the evolving shape of the UK economy. Bigger increases in UK manufacturing will require better access to inter-modal services, including importing components

and raw materials. There is a strong interaction with emerging local planning policies, and a need to ensure capacity exists in the right places, and ensuring easy access to freight terminals.

#### What is the best way of providing capacity and future-proofing Britain's rail network?

- 17. Whilst we note above that significant rail network capacity upgrades are underway, we need to ensure those upgrades are continued, but are carefully planned to ensure best long-term value for money. Importantly, the benefits need to be spread across the UK so that all parts of the country can benefit from the improved capacity. Atkins has worked with Network Rail and DfT to identify how proposed schemes can be improved to deliver benefits more quickly and cost-effectively in a number of areas.
- 18. However, Atkins strongly believes that high speed rail is the best long-term way to improve capacity of rail network, providing step-change in capability of rail network. The density and mix of service provision on the three main north-south routes means that there is scarce capacity to improve service levels. Between 18 and 22 north-south services over 100miles operate every hour throughout the day in each direction across the three main lines, with another 16 to 26 longer-distance commuting services of over 50 miles operating each hour, sharing the same tracks. The mix of services with different stopping patterns and junction conflicts means that only marginal gains can be made for either service group. Opportunities remain through train lengthening, but costs and disruption are huge and they generally provide little improvement in relatively poor connectivity.
- 19. HS2 offers the opportunity to provide major capacity relief along all three north-south lines, effectively allowing 12tph-18tph (depending on phasing) of additional long-distance capacity to be provided. This, in turn, provides the opportunity for improvements in freight and medium distance services, including the capability to operate freight throughout peak periods and linking centres in a much more flexible way. In the long-term, this is the most cost effective way to provide capacity across all passenger and freight flow types. Removing the conflict between different service types on the existing lines has the potential to increase capacity far beyond simply the additional services provided on a new high speed line.
- 20. The benefits are tanglible. Since the removal of Eurostar services from Waterloo International and onto High Speed One, Southeastern and First Capital Connect have been able to improved service levels on suburban services into Victoria and Blackfriars considerably, providing a much better mix of stopping patterns to meet local commuting demand in South and South East London. Much greater opportunities are available on the main north-south routes through a national high speed rail network.
- 21. The solution to the UK rail network capacity problems is not just high speed rail. Atkins has worked closely with DfT to look at other upgrades of the long-distance rail network. Our work has shown that there is a good case to upgrade the existing mainline routes. We do not believe that such upgrades should be alternatives to high speed rail, but offer earlier benefits and magnify the benefits of high speed rail when introduced.
- 22. In particular, we note that upgrades of the Midland Main Line (MML) and East Coast Main Line (ECML) routes, including electrification and linespeed enhancements could offer benefits well in advance of HS2 being completed through to Leeds, and offer even greater combined benefits if an early link between HS2 and the MML is provided in advance of the main link to Leeds.

# What will the effects of providing the extra capacity be, beyond addressing journey supply? What would be risked by failing to provide that capacity?

23. Much research has been undertaken over the years looking at the economic benefits of improved rail capacity. The greatest benefit is improving the accessibility of employment centres to give firms access to a wider pool of labour, and providing greater opportunities for people to access

jobs over a wider area. Expanding the capacity of the rail network achieves this in two ways: by making rail a more comfortable option for travel, and providing the flexibility to enable commuter services to be scheduled around individual commuting markets – rather than dictated by the need to maximise use of scarce capacity on the network.

- 24. In turn, providing additional capacity on the rail network offers pressure relief on roads and airports. We note that the additional flexibility on the strategic network could allow more places to be linked directly by rail services, offering a much more attractive option than driving in many situations. Releasing capacity on the main north-south routes could allow direct services from Cambridge to Leeds or Northampton to Manchester. The additional capacity also enables greater flexibility in stopping patterns, which could enable more longer-distance services to stop at places such as Potters Bar, St Albans and Watford, offering an attractive alternative to longer-distance motorway driving.
- 25. Finally, providing additional capacity gives much better network resilience. The benefits of the additional network resilience go beyond improving day-to-day punctuality and reliability. During bad weather such as snow, much greater levels of service are able to operate, and flexibility exists to meet short-term demand peaks caused by external events whether they are ash-cloud disruption or major sporting events or peaks in manufacturing output. Finally, the overall availability of the rail network can be improved, enabling dependable weekend and late night services for passengers, and confidence for industry that freight and goods can be transported throughout the year.