



System Operator



Reading to Gatwick Airport Capacity Enhancement Plan 16 August 2007

Background

1. First Great Western (FGW) has a franchise commitment to run a 2tph service between Reading and Gatwick Airport. At present, a generally 2tph service operates between Reading and Redhill, but only 1tph continues to Gatwick Airport.
2. It is not currently feasible to extend the second train in each hour beyond Redhill to Gatwick Airport. The reasoning for this is that it has not been possible to identify robust paths on the Brighton Main Line to enable such a service to operate reliably.
3. In response to this inability to accommodate FGW's franchise commitments Network Rail declared the Reading – Gatwick route to be congested infrastructure in October 2006. This is based on the process described in Regulation 23 of *The Railways Infrastructure (Access and Management) Regulations 2005*.
4. In April 2007 a Capacity Analysis of this route was produced by Network Rail, as required under Regulation 24. This outlined the reasons behind the Reading – Gatwick route being declared as congested infrastructure.
5. This document responds to Regulation 25 which requires that a Capacity Enhancement Plan be produced.

Justification for the service proposition

6. The DfT reviewed the current level of service between Reading and the Sussex Route during the Great Western refranchising process because of perceived opportunities to enhance the offer to the customer.
7. They tested a number of options for the route. Increasing the Guildford to Redhill off-peak service frequency to 1tph produced a marginal positive economic effect but with a marginally negative financial effect. No additional resources were required for the option as the increased frequency would operate in the off-peak period utilising marginal rolling stock time. Therefore the cost of the option was modest, and it was estimated that two thirds of this cost could be covered by additional revenue. Extending the Gatwick services to Brighton produced a substantial positive economic benefit for



only a marginal negative effect on the financial benefits. The DfT concluded that whilst looking attractive the scheme would, however, be almost certainly impossible to path over the route between Gatwick and Brighton, particularly over the two-track sections. It was proposed that this option might be reconsidered as the timetable re-cast of the London to Brighton route becomes more highly defined.

8. In search of higher value from the option, a logical next step was to link the 1tph Reading – Shalford stopping paths with those operating between Guildford and Redhill. If extended from Redhill to Gatwick Airport then a second train per hour would be created between Reading and Gatwick Airport
9. Compared against the base timetable, this option appeared significantly worthwhile in economic terms and was broadly neutral in financial terms over the appraisal period. The option therefore appeared significantly worthwhile in economic terms (BCR 2.4) and appeared to require very little subsidy (-£34k financial PV) over the appraisal period and was therefore recommended for progression through the Great Western franchise letting process in 200X.

Potential options for closing the capacity gap

10. The Capacity Analysis identified two potential ways of addressing the gap and accommodating the extended service. Firstly, it may be possible that amendments to existing timetables could allow a 2tph Reading – Gatwick service to operate using the existing infrastructure. Secondly, it may be possible to add additional capacity through new infrastructure such that the extended services could operate.
11. When the capacity constraints identified in the Capacity Analysis exercise are examined in more detail they generate a natural hierarchy that should be worked through step by step to enable an assessment of how far down the hierarchy it will be necessary to go before the gap is closed and the service frequency becomes deliverable.

Step 1 - Timetable

12. The Capacity Analysis identified various issues on the North Downs route (Reading to Redhill) and it may be possible to resolve some of these through timetable modifications. However the additional paths required are on the



System Operator



Brighton Main Line and hence it is likely to be on the Redhill – Gatwick (slow lines) section where any significant changes will need to be made.

13. Implementation of the Brighton Main Line RUS in December 2008 will involve a major timetable change on the route. The aim of the RUS is to provide additional peak commuting capacity into London, an aim which would not be met by the extension of North Downs line services. However a new timetable could potentially allow these services to run, since it could conceivably use track capacity more efficiently than at present over this section.
14. From December 2008, during peak times Gatwick Express services will be extended to Brighton, running on the fast lines at Gatwick Airport. This will free up capacity on the slow lines which could potentially be used to extend a small number of Reading – Gatwick services. However this factor will be countered by the RUS aim to increase capacity on the Redhill route to London, since the intended additional services from the Reigate and Tonbridge lines will add to constraints at Redhill (where reversals are required for the North Downs route).
15. Since the RUS will only make major changes to the morning and evening peak periods, during off-peak times there will still be 4tph Gatwick Express services terminating on the slow lines at Gatwick Airport. Whilst the timetable rewrite could result in these services moving around the clock face compared to today, they will in all probability continue to act as a significant constraint preventing the termination of 2tph North Downs route services at Gatwick.
16. A further major timetable change is required for the BML in December 2009. This is required to facilitate opening of the East London Line extension, due to the very high levels of interaction between suburban and main line services. However the overall quantum of trains on the route will be broadly in line with the December 2008 timetable.
17. The detailed development work on the December 2009 BML/suburban timetable has recently commenced, undertaken by Network Rail on behalf of the Department for Transport. This work is required to inform the Franchise Specification for the replacement South Central Franchise, commencing in September 2009. As part of this work provision for 2tph terminating at Gatwick Airport from the North Downs route will be tested.
18. Based on the above, for both the 2008 and 2009 BML timetables any service extension opportunities for the North Downs line would only be achieved as by-products rather than as specified deliverables. In the event that this is



unsuccessful and the service cannot be accommodated then additional infrastructure will be required.

Step 2 – Gatwick station area

19. The additional services required are on the Brighton Main Line, with the principal constraints being platform capacity at Gatwick Airport and Redhill. This potentially offers opportunities in connection with infrastructure enhancement initiatives at these locations.
20. Network Rail is currently carrying out detailed development work on remodelling the track and station layouts at Gatwick. A key infrastructure requirement of this scheme is to provide significantly improved fast line terminating capacity, to permit flexibility regarding capacity allocation between Gatwick terminating and Sussex Coast services. Provision of such capacity would, as a secondary effect, free up a significant amount of capacity on the slow lines, since fast terminating services would remain on the fast lines. It is therefore expected that a 2tph service from the North Downs line could be accommodated at Gatwick if such a scheme is implemented, subject to a path being available north of Gatwick on the slow lines and for reversals at Redhill.
21. The 2tph North Downs line service is a key deliverable of the above Gatwick Airport remodelling scheme. However, the scheme is currently uncommitted as it is not yet fully funded. The project's latest cost estimate is £80m, with an expected completion year of 2011. The element that provides the capacity to run the additional service outlined above is not separately identifiable in terms of cost and programme due to the integrated nature of the proposal and the high priority for the enhancements on the fast line side of the station.

Step 3 – Redhill station area

22. Network Rail is also carrying out initial design work into remodelling the track and station layout at Redhill. This scheme is planned for implementation after the Gatwick scheme and no specific deliverables have been established to date. However the main options being considered would provide additional platform capacity which would address the timetable constraint caused by North Downs line services having to reverse and would ease the overall capacity constraint identified in the Capacity Analysis.



23. It is currently unclear whether Gatwick remodelling alone, or both Gatwick and Redhill would be required to enable the 2tph Reading to Gatwick service to operate. Additionally it should be noted that neither of these schemes would directly provide for the necessary additional paths on the slow lines between these points but the Capacity Analysis suggests that this is not an identified constraint.
24. The cost of the overall project proposal is estimated to be in the region of £25m, and it is expected to be delivered with major renewals work in the area in 2012/13. Again the package of works proposed is not exclusively aimed at addressing the capacity constraint related to this congested infrastructure declaration and therefore the project timing is not directly influenced by the proposed service, but the project could feasibly be delivered earlier if required if funding and resource were made available. This would seriously affect the economic efficiency of the scheme though, as it is currently planned to undertake the works in conjunction with track and signalling renewals work that is required anyway but to timescales consistent with the existing proposal of 2012/13.

Step 4 – Reading station area

25. Network Rail is also currently developing plans for a major enhancement scheme at Reading. Whilst the service enhancement proposal does not require an increase to the quantum of services here, the current platforms 4A/4B and the single lead approach are major timetabling constraints across a wide area. The Reading enhancement scheme is removing the single lead junction on the approach to platforms 4a/4b and is also providing a dive under to access platforms on the north side of the station. This combination of work will ease the platforming constraints at this end of the route, thereby addressing what may be the final link in the chain that will facilitate the operation of the proposed service.
26. The overall project at Reading is expected to cost in the region of £500m, a significant proportion of which is committed in the HLOS announcement (appendix to the Government White Paper – Delivering a Sustainable Railway, July 2007). The project is to be delivered in multiple stages that will cover the period from 2006/7 to 2015/16, although the doubled approach is scheduled to be operational from 2011. The element that provides the capacity to run the additional service outlined above is not separately identifiable in terms of cost due to the integrated nature of the proposal but only forms a small part of the overall enhancement to the Reading area.



Summary

27. The following key steps should be taken as part of this Capacity Enhancement Plan:

- As an integral part of the development work on the December 2009 timetable, Network Rail will test whether it would be possible to provide an all day 2tph Reading to Gatwick Airport service from this time. In the event that it is found to be possible in December 2009 a further assessment will then be made to identify whether it would be possible to implement this service earlier, in the December 2008 timetable change.
- In the event that it remains impractical to extend the service in December 2009, Network Rail will ensure that adequate increased capacity is provided for this service in any enhancement scheme at Gatwick Airport.
- If this increased capacity is found to be required at Gatwick to allow this service to operate then a detailed appraisal will also be undertaken of existing capacity on the slow lines north of Gatwick and at Redhill, seeking to allow additional services to reverse there. This will identify whether it is necessary or possible to amend other services, including those into London, to accommodate 2tph Reading - Gatwick.
- In the event that it continues to remain impractical to extend the service after any enhancement scheme at Gatwick, Network Rail will ensure that provision is made to provide a 2tph Reading to Gatwick service as a result of the proposed enhancement scheme at Redhill.
- If it is proven that the projects that relieve the capacity constraint at the Redhill/Gatwick end of the route still do not release the necessary capacity for the service to operate due to the capacity constraints elsewhere, Network Rail will test the impact of the Reading station enhancement scheme to ensure that the enhancement will relieve the remaining constraint across the whole of the North Downs route. In particular, it will be tested whether amended timings at Redhill and Gatwick (due to the increased flexibility at Reading) would allow the 2tph service through to Gatwick to operate.