

THE LENGTH AND PHASING OF A THIRD RUNWAY AT HEATHROW

SUBMISSION TO THE HOUSE OF COMMONS TRANSPORT COMMITTEE

Introduction

Following the work of the Airports Commission, the Government announced in the autumn of 2016 that its preferred scheme for an additional runway in the south-east was a new north-west runway at Heathrow. This decision was placed subsequently in the context of a National Policy Statement, (currently in revised draft). The Airports NPS stipulates a runway length of at least 3,500m.; a runway of this length in the chosen location has to cross the M25.

The runway is costly to construct and the last few hundred metres especially so for two reasons. It is proposed to place the M25 in a tunnel beneath the runway, which the Airports Commission thought would cost about £0.58bn. Highways England considers that there is significant potential for cost overruns and place an upper estimate on these costs in excess of £1.0bn (at 2014 prices)¹.

In addition to the challenge of crossing the motorway, the current proposals also require the re-location of the Lakeside Energy from Waste Plant, which lies immediately to the west of the M25 at the point where the proposed runway crosses it. As the Airports Commission remarked, the planning and construction of a new waste plant “...would be a substantial exercise in its own right...”².

The chosen length of the runway, therefore, bears further examination. This submission considers, first, whether such a long runway is necessary and, if it is considered so, whether its construction could be phased, thus achieving a number of significant advantages.

Runway Length

It is to be noted that previous proposals for an additional Heathrow runway have been of shorter, more modest lengths³. Prior to the decision of the 2010 Coalition Government not to proceed with expansion at Heathrow, the government had endorsed BAA’s proposals for a runway with an operational length of 2,200m providing Heathrow with an eventual capacity of 702,000 annual movements. The current proposed length stems from two options submitted by BAA to the Airports Commission in July 2013 for what was referred to as a full-length runway, both options were of 3,500m lengths. This additional length raised capacity to 740,000 annual movements, a 5.5 per cent increase compared with the former shorter runway proposal.

¹https://www.gov.uk/government/uploads/system/uploads/attachment_data/file/562063/airports-commission-surface-access-works-strategic-road-network-proposals-validation-of-costs-and-delivery-assumptions.pdf

² Final Report, para 11.35

³<http://webarchive.nationalarchives.gov.uk/20100203185530/http://www.dft.gov.uk/consultations/archive/2008/heathrowconsultation/consultationdocument/hcchapter3>

In operational terms, the extra length enables all existing *four-engine* wide-bodied jets to take-off from the new runway carrying a *full payload*.⁴ A shorter runway would still allow Heathrow to operate more long-haul flights by large jets from existing runways; capacity currently used on the existing runways by short-haul flights would be displaced to the new runway making way for more long-haul flights. The fundamental question is whether an addition of less than 6 percent capacity (which would not be called upon for some years after opening – the NPS indicates an extra 113,000 additional flights by 2040), justifies the very high marginal cost of the extra length of runway. This cost is not only a monetary cost to be borne by taxpayers, airlines, and ultimately passengers, but also an additional social cost as a result of the inevitable delay to motorists using the M25 during the construction phase.

Runway Construction Phasing

If the benefits of an extra 6 percent capacity justifies the very high marginal costs (financial and social) of its provision (an outcome yet to be demonstrated), is the marginal 6 per cent extra capacity needed as soon as the runway opens? Are we likely to see a demand for *more than* 220,000 extra slots (the added capacity of a short runway) at high levels of user charge (amongst the highest in the world), during, say, the two or three years after opening? It seems most unlikely.

I have previously proposed that the full-length runway could be built in two separate phases⁵. What I have suggested is that, initially, the proposed runway is constructed up to the M25, a length of approximately 2,500m. At the western end of this initial runway, a safety zone of several hundred metres is created for the workforce to continue constructing the extension over the M25. This would still allow, using the remainder of the first phase of construction, an operational runway of over 2000m, which is about the same operational length as existing runway at London Luton. It is to be noted that extending a runway whilst it is still in daily use, is not exceptional; Birmingham International recently extended its main runway by 400m.

The phasing of the works would have a number of major benefits. **First**, the simplification of the immediate construction task would allow substantial additional runway capacity to become available more quickly than building a one-off full-length runway, bringing forward a stream of connectivity benefits for the UK. **Second**, it would defer significant costs and would also allow an earlier cash-flow from the use of the extra capacity, thus helping the airport to achieve its aim of broadly maintaining current charges to the airlines. **Finally**, it would allow more time for planning and executing the difficult task of bridging the M25, (a task which on the present timetable Highways England consider extremely challenging) thereby reducing risks of disruption to a critical part of the UK strategic road network.

As I concluded in 2015, little, if any, attention has been given to possible trade-offs between runway length, costs and benefits, including the speed at which new capacity can be made available. Although a full-sized runway provides most operational flexibility, resilience and longer term capacity this advantage comes at a considerable price and, largely overlooked, most likely delays the time when *any* extra capacity becomes available. Given the pressing need for more capacity, prospective delay is a serious disadvantage of the current approach and one which the draft airport NPS fails to address.

⁴ Required runway take-off (and landing) lengths are affected by a number of factors including temperatures, surface conditions and particularly the loaded weight of the aircraft. Generally, airfield performance of modern jets has improved compared with most, older types and long-haul twin jets like the Boeing 787 (Dreamliner) can operate from runways significantly shorter than 3.500m.

⁵ *Business Travel News* 14 September 2015.

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