

PROPOSAL

A package of short, medium and long term measures, commencing with the introduction of mixed mode for resilience at Heathrow, construction of a second runway at Gatwick, and construction of a 3-runway 24-hour hub airport with a capacity of 100m passengers, on the western end of the Hoo Peninsula in Kent. The construction of the airport would be entirely privately funded (by overseas investors). While the scheme foresees the closure of Heathrow once the London Gateway Airport opens, it does not propose to be the UK's only hub, citing examples of cities internationally that are served by more than one hub.

Various surface transport upgrades would be required, funded by government and delivering wider benefits. Supporting infrastructure would need to be constructed including airport service complexes, at which various services and cargo terminals will be located away from the main airport.

Woodlands would be planted to house displaced wildlife and new leisure facilities would be developed around the airport to deliver benefits to the local community.



ASSESSMENT SUMMARY

This is a complex proposal for a Hoo Peninsula airport located at Cliffe. As with other Thames Estuary proposals, it proposes closing Heathrow and replacing it with a new airport East of London. This scheme could offer a substantial reduction to noise affected populations with the closure of Heathrow. However, its location at the western end of the peninsula could mean greater noise impacts in East London than Isle of Grain proposal. The overall impact would still be a net reduction in the population affected by noise. In common with all estuary schemes, it removes protected habitats which would require replacement and a demonstration that there was no realistic alternative, as well as over-riding public interest. Its capital cost is broadly in line with on-shore Thames Estuary schemes, though all are substantially higher than development at existing airports or new sites with better existing surface access.

The early phases of proposed development would only replace the lost capacity at Heathrow, with the fuller build-out required to add capacity to the system. Providing only three runways, it offers the lowest capacity of all estuary options.

Although the scheme adds to capacity, its cost, location and environmental impact are challenging.

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SUBMITTED BY:	IAAG	Reference No.:	47

OVERVIEW

Approach	Development of a 3-runway airport with a capacity of up to 100mppa. Timescale not defined, but notes 10 to 11 year delivery period, which may imply completion in 2027 after public policy adoption in 2016.					Opening Year	2027		
Capacity				Runways	Airport	Net			
				ATM	3	1			
				pax	780,000	300,000			
					140	50			
Cost (£bn)	Privately financed, potentially with a golden share held by Government. Cost relates only to the airport and associated development, excluding costs for the wider business and leisure development, etc.		Airport	Access	Other	Sub Total	Including Risk/OB		
			21.6	9.2	0.8	31.6	66.4		
Surface Transport	New east-west road and rail tunnel needed to connect the airport to Kent and Essex, with connections to the A13 and A2. New rail shuttle link to Gravesend and Ebbsfleet, with major extension to Crossrail required. Key issues include HS1 having sufficient capacity to deliver proposed services, London termini having capacity to receive such services and the scale of highway enhancements needed to adequately meet demand.				1 hr isochrone	11			
					2 hr isochrone	22			
					London centre	30 mins			
Economic									
Borough	Dartford	Gravesham	Medway UA	Maidstone	Swale				
Unemployment (%)	7.0	9.1	9.5	6.7	7.5				
Ave. Salary (£/yr)	29,510	28,106	27,378	28,236	28,085				
Borough	Havering	Thurrock UA	Basildon	Castle Point					
Unemployment (%)	9.6	7.7	8.1	7.9					
Ave. Salary (£/yr)	30,378	28,033	28,553	26,718					
County	Medway UA	Kent exc UAs	Thurrock UA	Essex exc UAs	Outer London E&NE				
GVA (£/capita)	13,631	15,883	14,956	16,707	13,428				
Environment	Located further west on the Hoo Peninsula resulting in increased noise impacts compared to other Isle of Grain proposals. Around 50% of the site is located within the boundaries of a SPA/Ramsar, a European/international level designation, and likely to need significant compensatory habitat provision.				57 LA_{eq}	Airport	Net		
					55 L_{DEN}	7,000	(233,000)		
						68,000			
	SAC¹	SPA¹	Ramsar	CA¹	AONB¹	SSSI¹	Listed Buildings	SAM¹	Houses Lost
		1	1			1	21	1	910

¹ SAC: Special Areas of Conservation; SPA: Special Protection Areas; CA: Conservation Area; SSSI: Site of Special Scientific Interest; SAM: Scheduled Ancient Monument.

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ECONOMY

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Impact on Industry

A new airport at the west end of the Hoo peninsular with three independent runways and a direct Thames crossing to southwest Essex, would provide a net increase of one runway assuming Heathrow is closed. This is estimated to provide sufficient capacity to meet hub airport demand until at least 2040. This creates benefits by allowing new short haul and long haul services at the hub and reducing operational costs due to operation of a more efficient airport, and the provision of capacity for resilience to minimise delays. This may be offset in part by increased landing charges to recover capital costs of construction, and being less well located for the airlines’ prime passenger market. It will free up land at Heathrow helping address demand for land for housing.

Airports The capacity of the airport could attract some network traffic away from Gatwick. It may also restrict growth at Southend, London City and Manston airports, but otherwise there is relatively little impact on other regional airports. By enhancing connectivity with the regions, it may see an increase in services to airports in the north of England, Scotland and Northern Ireland.

Airlines As with any other major airport on an estuarial site, airlines using Heathrow and others seeking to use a hub airport would benefit from the increase in capacity allowing new direct routes, higher frequencies, reduced delays, because of sufficient capacity for resilience. Greater competition and reduced airline ‘slot’ values will have a countervailing effect on some airlines. Interline traffic would have more potential to increase, enhancing the viability of more direct routes, particularly by airlines based at the new hub. LCC and charter airlines would likely face more choice of airports, as some network traffic may transfer out of Gatwick because of the greater interlining opportunities.

Passengers As with any other large hub airport on an estuarial site, passengers would benefit from increased capacity at the new site via delay reductions, a greater choice of destinations/enhanced frequencies, more competition (reducing fares) and faster terminal throughput times, but to a lesser extent than for 4 runway airports. But travel times and costs would increase on average for typical customers, but less so than for typical estuarial sites, as it is located further west than typical sites, and has a direct connection to Essex (though such a cross-river connection could also be provided for other estuarial airport proposals if attractive). There would be reduced travel times for passengers travelling to/from Kent, Essex and East London, compared to Heathrow.

Local & Regional Economic Impacts

The airport would be located in Medway district, close to the Borough of Gravesham, an area of relatively high unemployment and low economic activity for the South East of England. It is also close by Thurrock, due to the cross river connection, and not far from Havering, the latter being an area of high unemployment and low economic activity. The new site providing an expanded airport with sufficient capacity to meet expected short to medium term demand would facilitate growth in passenger and freight demand. This would encourage new and existing industries in aviation, airport and aviation support services and travel, tourism, logistics and other related sectors. Most of these businesses will have relocated from the vicinity of Heathrow. The immediate effect would be to increase commercial property development in the vicinity of the new site, but there would also be significant potential to redevelop the Heathrow site for both commercial purposes and residential development. The agglomeration effects of the existing Heathrow/Thames Valley/M4 corridor could be diluted significantly, as such businesses may prefer to locate closer to the new airport on either side of the Thames estuary. Reduced noise impacts are likely to have a modestly positive effect on land prices to the east of the Heathrow site, offset by some smaller negative impacts closer to the new airport. There would be significant dislocation of employment, with many employees needing to relocate, although there are lower relative housing prices in nearby towns. Commuters in the Thames estuary may experience increased congestion and travel costs, despite the improved transport connections.

National Economic Impacts

The main impacts come from the provision of new capacity, enabling more flights and connectivity, and the increase in business and leisure trips, and trade in goods and services (and the indirect effects on inward investment. Increased choices of flights and airlines, reducing travel time and fares should generate significant consumer/welfare benefits. The benefits would be offset to some extent by higher access costs from London (although lower costs for Kent, Essex and East London).

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SURFACE ACCESS

<p>Time/Distance to Central London 30 minutes 30 miles</p> <p>Journey times to other population centre Birmingham 90 mins Manchester 110 mins (via HS2)</p>	<p>1 hr isochrone population 11</p> <p>2 hr isochrone population 22</p>	<p>Key required upgrade schemes</p> <ul style="list-style-type: none"> ▪ East-West road/rail tunnel connecting the airport with Kent and Essex ▪ East-west road from the Kent tunnel exit to the strategic road network ▪ Rail shuttle from the airport to Gravesend and Ebbsfleet HS1 stations ▪ Extension to Crossrail
<p>Rail Infrastructure Capacity Analysis</p> <p>No quantitative analysis was provided. The sponsor notes that the entire country can be connected through the rail terminals accessible via HS1 at Ebbsfleet and on to London Gateway Airport (LGA) beyond Gravesend without massive investment. A shuttle service from Ebbsfleet/Gravesend will be approximately 10km and would be frequent service for all categories of airport traffic, passengers and staff. Proposals suggest that with reasonable, incremental rail links, <u>Waterloo, Victoria, Clapham Junction, Cannon Street, St Pancras/King’s Cross call all be placed within 30-45 minutes journey time</u> to the new airport without changing mode of transport. Extension of Crossrail looping through the Hoo Peninsula and returning via Tilbury, Dartford and central and east London would provide local connectivity. However, it is not clear that a 10 km shuttle service between Hoo airport and HS1 at Gravesend could adequately cater for the passenger numbers. Furthermore, it is uncertain that there is sufficient capacity on HS1 to cater for the airport-related trips. The proposed extension of Crossrail is a long re-routing from its current proposals.</p>		
<p>Highways Capacity Analysis</p> <p>Proposals to link Essex and Kent by road tunnel will enhance access from areas north of the Thames, the Midlands and the North of England. The proposal would provide enhanced access south of the Thames, together with a lower Thames crossing, south of east Tilbury. Substantial local and sub-regional highway capacity enhancements anticipated to be required.</p>		
<p>Accessibility to Population & Business centres</p> <p>Existing road and rail networks are already delivering good standards of access to areas adjacent to the Hoo peninsula, i.e. Ebbsfleet, Tilbury, Gravesend, Chatham, Gillingham. These are expected to improve further in the short to medium term. The sponsor recognises that rail and road layouts would need to be further extended and modified.</p>		
<p>Accessibility to Transport Interchanges</p> <p>HS1 is within close proximity to the Hoo peninsula with a station at Ebbsfleet (and a proposed station at Gravesend). Gravesend central station and Ebbsfleet are key local hubs to direct non-stop or limited services from the following London main line terminal station: St Pancras, King’s Cross, Waterloo, Victoria, London Bridge, with connections through Clapham Junction. Journey times from St Pancras or King’s Cross to Gravesend and Gatwick are predicted to be around 10-15 minutes, although this appears optimistic. Stratford is 7 minutes away from Ebbsfleet. Services from Charing Cross, Waterloo East, Cannon Street, and London Bridge to and beyond Gravesend take less than one hour and improvements over the next several years will reduce journey times further. The presences of Airport Services Complexes (ASCs) as terminal points for public or private motor transport are proposed to rationalise access to the airport. The shuttle service from Gravesend is planned to be an important hub, designed to feed into the airport terminal area and also be extended to the ASC in Essex. Transport is proposed to be heavily oriented towards electric vehicles, although it is unclear how this will be incentivised.</p>		
<p>Potential Wider Use</p> <p>The proposed road and rail connections are mostly airport-specific and are unlikely to have significant wider benefits.</p>		

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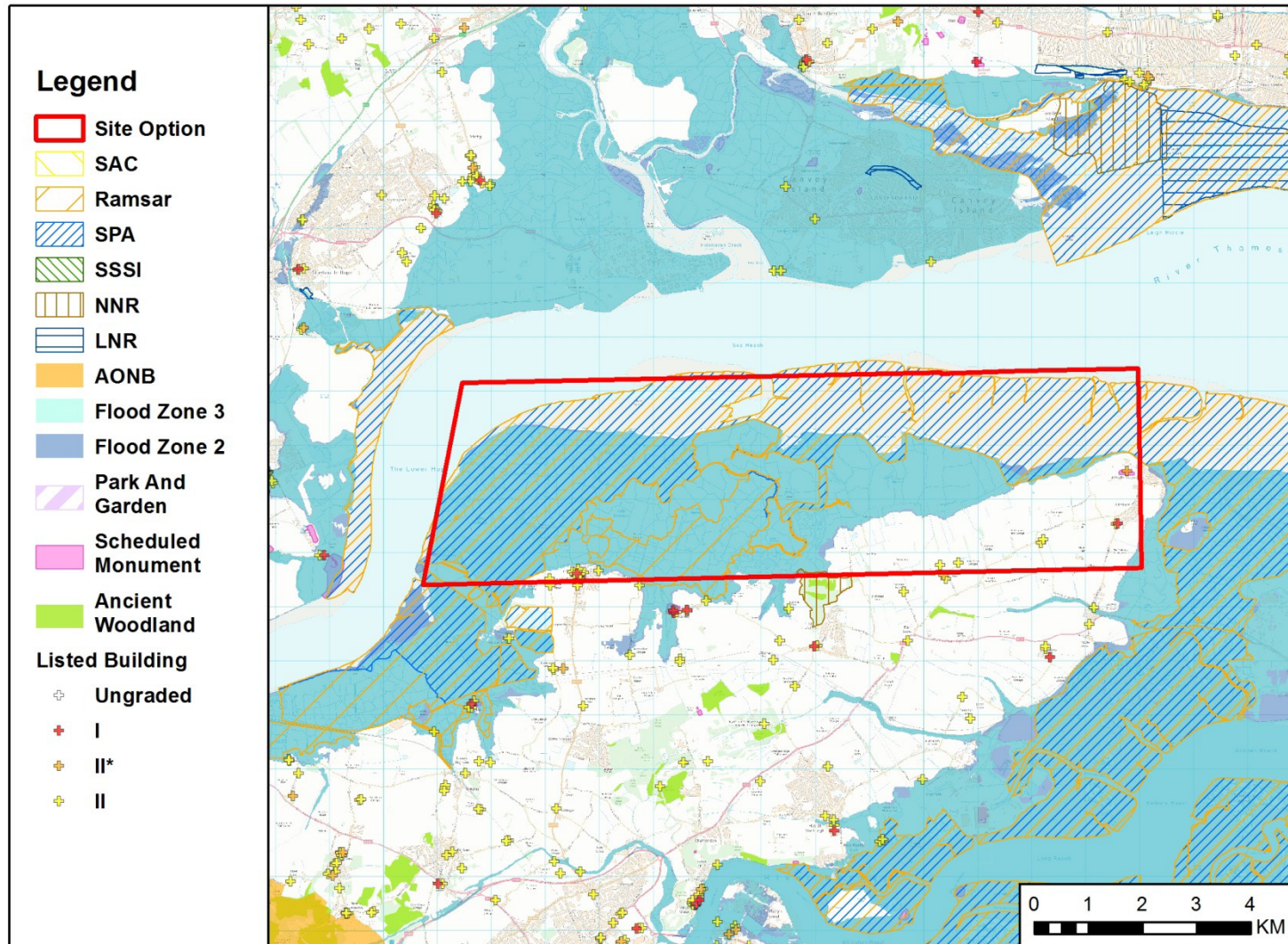
ENVIRONMENT

Overall noise impact	Significant system reduction on the closure of Heathrow.						Airport	Net	
							57 LA _{eq}	(233,000)	
							55 L _{DEN}		
	SAC	SPA	Ramsar	AONB	SSSI	CA	Listed Buildings	SAM	Houses Lost
	-	1	1	-	3	-	21	1	910
Air Quality							Mitigation Plan		
<p>Complicated scheme with various surface transport upgrades that complicates air quality assessment.</p> <p><u>Other Airports:</u> As for all new hub options, potential for some local air quality benefits through removal or reduction of Heathrow airport’s contribution to local NO₂. Luton airport would close for this option, with removal of airport and related traffic contribution to air emissions locally.</p>							<p>Maximise public transport use.</p>		
Noise							Mitigation Plan		
<p>Independent noise modelling for comparison provided the following results:</p> <ul style="list-style-type: none"> 57LAeq: 7,000 people affected; 55Lden: 68,000 people affected. <p>The population affect by 57LAeq represents a net reduction of 233,000 given the closure of Heathrow.</p> <p>Increased noise impacts compared to the Isle of Grain schemes due to the more western location on the Hoo Peninsula.</p>									
Designations							Mitigation Plan		
<p>More western location and orientation on Hoo Peninsula increases latitudinal land take impact on Thames Estuary and Marshes SPA or Ramsar and has direct impacts on an additional terrestrial SSSI and National Nature Reserve. Approximately 50% of the site is located within the boundaries of the SPA or Ramsar site and another 3 SPAs are located within 5km.</p> <p>Significant effects on Natura 2000 sites unlikely to be avoidable and therefore compensation i.e. replacement habitat needed. Would need to follow process under Habitats Regulations (implementing EU Habitats and Birds directives) and undertake Appropriate Assessment, demonstrate no alternatives and overriding public interest and provide compensatory measures.</p> <p>21 listed buildings and 1 Scheduled Monument would be directly affected.</p>							<p>Suggest impacted SPA can be mitigated by, unspecified, sites in Essex.</p>		
Climate Change							Mitigation Plan		
<p>Proposed includes some measures to reduce energy consumption and generate energy from renewable sources , but these would be unlikely to offset the total energy requirements of the proposal.</p>							<p>No petrol or diesel engine vehicles to be allowed into the “airport area”.</p>		
Other Issues							Mitigation Plan		
<p>Proposal highlights “official survey” (unreferenced) of birdstrike in the Thames Estuary which classified the Hoo peninsula as ‘low risk.’This is contrary to other reports of over-wintering bird numbers along the coastal Hoo peninsula, the majority of which is designated SPA and includes important bird reserves.Proposal notes that the area is already under existing Heathrow flight paths, although does not take account of the increased height above ground level.</p> <p>Approximately 50% of airport footprint in Flood Zone 3 (high probability), and 50% in Flood Zone 2 (medium probability).</p> <p>Significant impacts from surface transport and additional development, agricultural land loss and agricultural land quality impacts, displacement of industrial development and contaminated land not covered, each of which may be considerable.</p>									

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PEOPLE

<p>Housing Hoo peninsula is sparsely populated. Footprint map in indicates loss of properties in the villages of Cliffe, Allhallows and Allhallows-on-Sea.</p>	<p>Demolished 910</p>
<p>Vulnerable Groups Vulnerable groups not addressed specifically: high level of unemployment and educational needs in Medway noted, along with high outward migration.</p>	
<p>Quality of Life Noise and air quality benefits: considerable net gains for large population around Heathrow. Some noise and air quality disbenefits around new hub, but improved employment and housing access significant contribution to health and quality of life. Temporary losses with employment loss and transition time likely to most adversely affect vulnerable groups with less mobility and flexibility.</p>	
<p>Wider Social Impacts Reference is made to potential wider economic benefits for the Hoo Peninsula but also for the wider Essex and Kent estuary areas. There are likely to be additional impacts from in-migration of working population in terms of increased pressure on services such as health, housing and education and changes to population mix and health issues. Additional pressure on housing and housing/rental could reduce affordability for the existing population. Social impacts at Heathrow and Luton would depend on redevelopment of the airport sites and the extent they can provide for housing and employment needs.</p>	



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COST

Capital Cost	£ bn														
Although the submission discusses comparable costs in general terms, no cost information is provided . Independent Cost Analysis assesses the scheme to cost £66.4bn.	<table border="0"> <tr> <td>Airport</td> <td style="text-align: right;">21.6</td> </tr> <tr> <td>Access</td> <td style="text-align: right;">9.2</td> </tr> <tr> <td>Other</td> <td style="text-align: right;">0.8</td> </tr> <tr> <td>Sub-Total</td> <td style="text-align: right;">31.6</td> </tr> <tr> <td>Risk</td> <td style="text-align: right;">12.6</td> </tr> <tr> <td>Optimism Bias</td> <td style="text-align: right;">22.1</td> </tr> <tr> <td>Total</td> <td style="text-align: right;">66.4</td> </tr> </table>	Airport	21.6	Access	9.2	Other	0.8	Sub-Total	31.6	Risk	12.6	Optimism Bias	22.1	Total	66.4
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Optimism Bias	22.1														
Total	66.4														
Key Risks															
<ul style="list-style-type: none"> ▪ Nature of reclaimed land platform poses increased risk of differential settlement. ▪ Surface access. ▪ Marine habitat compensation and coastal flood/erosion protection measures. ▪ Sea Bed Licences. 															
Risk and Contingency Allowances															
A 40% contingency adopted for all costs, with a 50% optimism bias applied.															
Surface Access Costs															
£9.2bn estimate for road and rail links based on requirement for infrastructure identified by independent analysis.															
Other Off-Airport Costs															
An allowance of £0.3bn has been included within the independent cost analysis for Marine habitat compensation and coastal flood/erosion protection measures. A further £0.5bn has been included to cover other typical Environmental mitigation measures.															
Summary Comments															
Cost estimate based upon independent assessment, comparable to other schemes. Costs associated with the closure of Heathrow have been excluded.															

OPERATIONAL VIABILITY

Capacity	Airport	Net									
Few details of configuration or capacity provided. It is assumed that the proposed three runways would be configured to optimise potential capacity.	<table border="0"> <tr> <td>Runways</td> <td style="text-align: center;">3</td> <td style="text-align: right;">1</td> </tr> <tr> <td>ATM</td> <td style="text-align: right;">780,000</td> <td style="text-align: right;">300,000</td> </tr> <tr> <td>pax</td> <td style="text-align: right;">140</td> <td style="text-align: right;">50</td> </tr> </table>	Runways	3	1	ATM	780,000	300,000	pax	140	50	
Runways	3	1									
ATM	780,000	300,000									
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Resilience, Reliability and Efficiency											
The proposal would appear to support independent parallel approaches to the wide-spaced runway pair, but dependent within the northern runway pair. The proposal could be defined to meet resilience targets.											
Safety											
The runway configuration requires runway crossings to access the northern runway. There does not appear to be any need to overfly significant population centres on final approach or immediately after departure. The removal of approaches to Heathrow over central London would increase system safety.											
The LNG facility to the south may infringe the obstacle limitation surfaces and may negatively impact operations, particularly during periods of low visibility.											
The Kentish Flats windfarm may conflict with radar and may require relocation.											
Bird strike would represent an unusually high threat compared to inland airport locations. Fog may also present a significant hazard, although its greatest negative impact maybe on capacity.											
Scalability											
The proposal is defined within an identified boundary and is developed on its southern, landward, side. Therefore, whilst in principle, it appears that additional capacity could be developed if required this would be further into the estuary.											
Airspace											
The proposal would require significant airspace design in terms of relocating the boundaries of the London terminal manoeuvring area (LTMA), SIDs, STARS and interfaces with en route airspace. The LTMA would extend from the new airport in the east to Gatwick in the South, Luton and Stansted in the north. This would be a major reconfiguration and would also require international consultation and agreement. Given the long-term nature of the option and the likely airspace and air traffic management developments under SESAR, restructuring maybe achieved as part of the on-going development process, however this is not certain. International boundaries may require amendment.											

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DELIVERY

Timescale

Timescale not defined, but notes 10 to 11 year delivery period, which may imply completion in 2027 after public policy adoption in 2016.

Sources of funding

States that the **funds required to finance the airport will be entirely private. The sources are private and confidential.**

Public funding

Proposer states that **Government will be involved only in the leasing of the package of land sufficient to develop the airport by combining MOD, PLA and Church Commissioners land with land that our partners own. Government could also take a golden share which will be essential to prove the longevity and diligence of Government support in the longer term. Otherwise there will be no investment and no new airport. Government has no money for such a large project and should not get involved except in leasing and golden share participation.**

Commercial Deliverability

Even considering the assertions made, the scale of private financing challenge is very significant, but may be achievable subject to regulatory structure and comprehensiveness of government support package. Raises major taxpayer value for money questions plus could impact government balance sheet treatment. Without grant funding landing charges would need to rise to levels that are likely to be unsustainable if the airport were to remain competitive.