

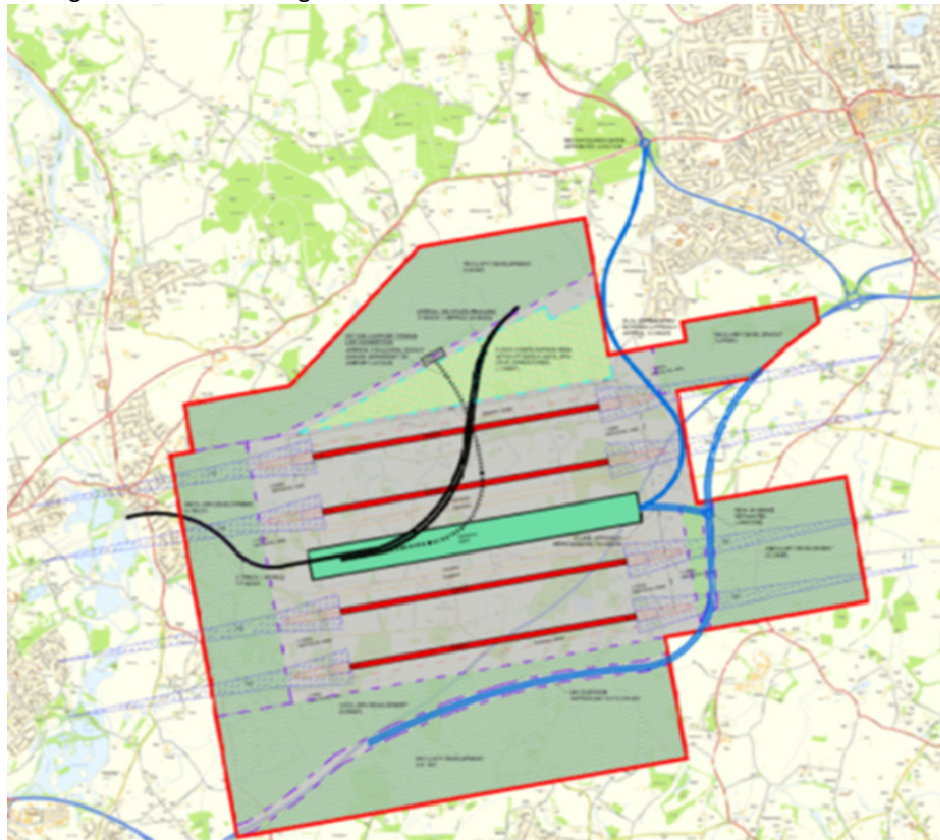
PROPOSAL TITLE:	Maidenhead Airport	Group:	New
SUBMITTED BY:	Airports Commission Secretariat	Reference No.:	45

PROPOSAL

New airport, constructed as a replacement for Heathrow, located between Maidenhead and Reading, 30 miles west of central London, straddling the M4 and Great Western Main Line (GWML) rail corridor. Four Code 4F runways are proposed, two to the north and two to the south of the proposed terminal area. The inner two runways offer independent parallel approaches. The north and south runway pairs support independent parallel departures and segregated operations.

The new airport will be accessed from the diverted M4 motorway and from the A404 (M). The airport would also be served by either re-routing the GWML or an automated people mover with a new station on the Main Line.

A compensation flood alleviation scheme is proposed within the ancillary development areas, partially underground, to manage the known flooding risk in the area.



ASSESSMENT SUMMARY

The scheme is likely to provide a more operationally efficient airport than Heathrow and provides the opportunity for long term expansion with reduced environmental impact. Located 15 miles west of Heathrow it is the closest option to central London and existing centres of demand. Its new location means that the employees of existing businesses supporting the airport or dependent on the airport would most likely not have to relocate..

Although the proposal offers a significant benefit to those communities currently affected by noise and poor air quality at Heathrow, there is a disbenefit to those communities which are currently unaffected. . Of the three non-estuary new site options, this scheme impacts the largest population. This option also requires the greatest number of houses to be demolished.

The site is within areas prone to flooding by the Thames and tributaries. Recent measures to protect existing settlements have only been partially successful.

The scheme does not currently have a sponsor. Should a privately funded approach be adopted, a range of support measures may be needed, including government support / commitment and supportive regulatory framework and planning environment. The scale of private financing involved would be large and deliverability is not certain, even with significant government funding and underwriting of risk.

The proposal increases the net capacity of the London system, and although it is at the expense of current capacity at Heathrow, it is provided in a manner that may not unduly disrupt existing businesses and provides the basis for long term expansion. The scheme may therefore be aligned with the Commission's terms of reference.

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OVERVIEW

Approach	Government to provide enabling legislation by 2020 and to facilitate the closure of Heathrow with the transfer of traffic to the new airport at opening, assumed to be 2030. In parallel, government to provide necessary surface transport upgrades.						Opening Year	2030
Capacity	<div> <div>Runways</div> <div>ATM</div> <div>pax</div> </div>						<div>Airport</div> <div>4</div> <div>715,000</div> <div>128</div>	<div>Net</div> <div>2</div> <div>235,000</div> <div>38</div>
Cost	<div> <div>Airport</div> <div>Access</div> <div>Other</div> <div>Sub Total</div> <div>Including Risk/OB</div> </div>						<div>22.6</div> <div>2.2</div> <div>0.5</div> <div>25.3</div> <div>53.1</div>	
Surface Transport	<ul style="list-style-type: none"> Does not require extensive new rail/road infrastructure due to location near Great Western Main Line (GWML) and M4 motorway. Could utilise HEX train paths. Available train capacity on GWML lines uncertain. Will require M4 and M25 widening. 						<div>1 hr isochrone</div> <div>2 hr isochrone</div> <div>London centre</div>	<div>13</div> <div>27</div> <div>30 miles</div>
Economic	Borough	Windsor and Maidenhead	Wokingham	Bracknell Forest	Wycombe	Slough	Reading	
	Unemployment (%)	4.2	3.7	5.2	6.6	8.2	6.5	
	Ave. Salary (£/yr)	37,705	34,444	29,806	32,245	26,837	30,893	
	County	Berkshire	Bucks					
	GVA (£/capita)	31,057	22,125					
Environment	Significant impact on villages, cultural heritage interest, agricultural land, ancient woodland and recreational amenity including green belt land. Large area of flood plain loss will require compensatory provision.						<div>Airport</div> <div>92,000</div> <div>297,000</div>	<div>Net</div> <div>(148,000)</div>
	SAC¹	SPA¹	Ramsar	CA¹	AONB¹	SSSI¹	<div>Listed Buildings</div> <div>30</div>	<div>SAM¹</div> <div>Houses Lost</div> <div>1,800</div>
	-	-	-	-	-	-		

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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County	Berkshire	Bucks				
GVA (£/capita)	31,057	22,125				
Impact on Industry Replacing Heathrow with a new airport to the west with 2 additional runways would provide sufficient capacity to at least 2050, and would enable the development of new services with reduced operating costs from a more efficient airport. The site would be readily accessible from London by both road and rail, with only modest increases in surface access travel times and costs, and the bulk of existing employees and businesses which rely on Heathrow would not need to relocate. It would release land at Heathrow, potentially helping to address demand for development.						
Airports	No new direct competition with other airports. Would not require closure of any additional airports other than Heathrow. Equivalent to adding 2 full new runways to Heathrow. The airport would benefit from having a good strategic location for access to regional and national markets using the Great Western Main Line (to the West, South West and into Wales and London), Crossrail (into Central London, Canary Wharf and to the East and North East) and the M4 (to London, the West and Southwest), M40 via the A404 (to Oxford and Birmingham) and towards the M25 for the South, East and North.					
Airlines	Airlines using Heathrow and others seeking to use it would regard this airport as being conveniently located, and would benefit from the increase in capacity by being able to offer more services, with fewer delays and greater resilience. Greater competition than at Heathrow and reduced airline ‘slot’ values for those currently using Heathrow will have a modest compensating effect on some airlines. Interline traffic would have greater potential to increase, thereby enhancing the viability of more direct routes, particularly by airlines based at the new hub.					
Passengers	Passengers will benefit from increased capacity at the new site due to a greater choice of destinations and enhanced frequencies, more competition (which should reduce fares), fewer delays and a new more efficient airport. Travel times to London by both rail and road would marginally increase.					
Local & Regional Economic Impacts The new expanded airport would facilitate growth of new and existing industries in and around the airport and aviation support services. It would also facilitate growth in travel, tourism, logistics and other related sectors serving the growth in passenger and freight demand which would be handled by the new airport. Some of these businesses will need to relocate from the Heathrow site or from its surrounding areas, but some will be able to continue serving the airport customers from their existing locations in the M4 corridor. The immediate effect will be to increase commercial property development in the vicinity of the new site, but there will also be significant potential to redevelop the Heathrow site for commercial and residential purposes. Unlike other options to replace Heathrow as a hub airport, this proposal would support agglomeration in the Thames Valley/M4 corridor, given its proximity to existing commercial developments supported by Heathrow. Reduced noise impact is likely to have a modestly positive effect on land prices to the east of the Heathrow site, offset by some negative price impact closer to the new airport. There would be no significant negative impact on employment given the proximity to Heathrow, although some employees would face increased access costs (particularly those dependent on the Piccadilly line at present).						
National Economic Impacts The main national economic impacts come from the provision of new capacity sufficient to meet demand till at least 2050, with no negative impacts on airport competition. The benefits would be offset by higher access costs from London (although lower costs for users from the West Midlands, West, South West and Wales).						

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SURFACE ACCESS

Time/Distance to Central London 25-60 mins 30 miles Journey times to other population centre Birmingham 60 min Bristol 80 min Oxford 35 min	1 hr isochrone population 13 2 hr isochrone population 27	Key required upgrade schemes <ul style="list-style-type: none"> ▪ New M4 junction (between J8 and J10) and airport spur; ▪ New access to A404; ▪ M4 capacity improvements between J3 and J12; ▪ Either rerouting the GWML under the new airport terminal, or provide a new station on the existing GWML and a people mover system; ▪ Extend Crossrail westwards from Maidenhead.
Rail Infrastructure Capacity Analysis <p>Two options have been considered to serve the airport by rail. Option 1 would re-route the Great Western Main Line (GWML) under the airport allowing both long distance rail services to serve the airport in addition to local stopping services. Option 2, which is a lower cost option, is for the rail line to remain in its current location, with a new station, connected to the terminal via an automated people mover. Both options have their pros and cons.</p> <p>Due to the scale of the new airport, most intercity services on the GWML would likely stop at the airport from the West. However the exact amount of platforms at the airport would be determined by the exact numbers of services it could facilitate. Crossrail, currently planned to terminate at Maidenhead, is proposed to be extended by around 4 miles westwards to serve the airport, and would provide a service pattern of eight trains an hour, with direct connections to the City and Docklands. In addition a dedicated airport express service is proposed. This service would utilise the existing Heathrow Express train paths up to the West Drayton junction and would have to fit in with the existing train services west of this junction to the airport. There are existing airport express facilities at Paddington and the proposed interchange at Old Oak Common will relieve the pressure on dispersion at Paddington. However, given current constraints on the GWML and expected growth in commuter traffic this may not prove sufficient. Further analysis would be needed to confirm whether additional lines from Old Oak Common into Paddington were needed to accommodate additional airport related demand.</p>		
Highways Capacity Analysis <p>Two new road access links to the airport site are proposed: a spur from a new junction on the M4 motorway to the south of the airport and a link to the A404 to the north of the airport. The new junction on the M4 would be located between junctions 8 and 10 and would provide the main road access to the site. Access would also be provided to J9b of the A404 to the north of the site.</p> <p>The M4 between junctions 8 and 10 is approaching capacity during the peak periods, particularly in an eastbound direction during the a.m. peak (vehicle/capacity ratio of 0.91). Thus the addition of a substantial volume of new airport traffic would require an upgrade or enhanced management of the existing 3 lane motorway in this area up to where 4 lanes commence to the east of the M4 Junction 5. The Highways Agency plans to introduce a scheme post 2015 to manage the M4 between Junctions 3 and 12 by introducing variable speed limits and allowing hard-shoulder running during the peak periods.</p>		
Accessibility to Population & Business centres <p>The airport is located c. 30 miles from central London. A car journey would take around 1 hour 25 minutes in peak periods and 1 hour 10 minutes off peak. An airport express rail service would take around 20 minutes to get to Old Oak Common and 25 minutes to Paddington. A Crossrail extension would provide a slower service serving central and eastern London destinations, taking around 45 minutes to Bond street and around 59 minutes to Canary Wharf.</p>		
Accessibility to Transport Interchanges <p>Key transport interchanges to the west of London are well served with a direct service to Paddington, Old Oak Common and to the regions from Reading. Other important stations such as Kings' Cross and St. Pancras are less well served, but with Crossrail and Thameslink, most of London is accessible with a single interchange.</p>		
Accessibility to Workforce <p>It is likely that the airport is within commuting distance of the existing Heathrow workforce. Improved public transport provision for access from Reading and Oxford to the west and from Slough to the east may be required. Access is weaker to the south east with no direct rail link to Staines, Kingston-upon-Thames and Hounslow.</p>		
Modal Split Assumptions <p>The rail journey times saving compared to car travel to London would make public transport a more attractive prospect than at Heathrow. In addition with Crossrail and better public transport links to the West, a public transport mode share of over 50% should be targeted.</p>		
Potential Wider Use <p>The proposed road and rail connections are airport-specific and are unlikely to have significant wider economic benefits.</p>		

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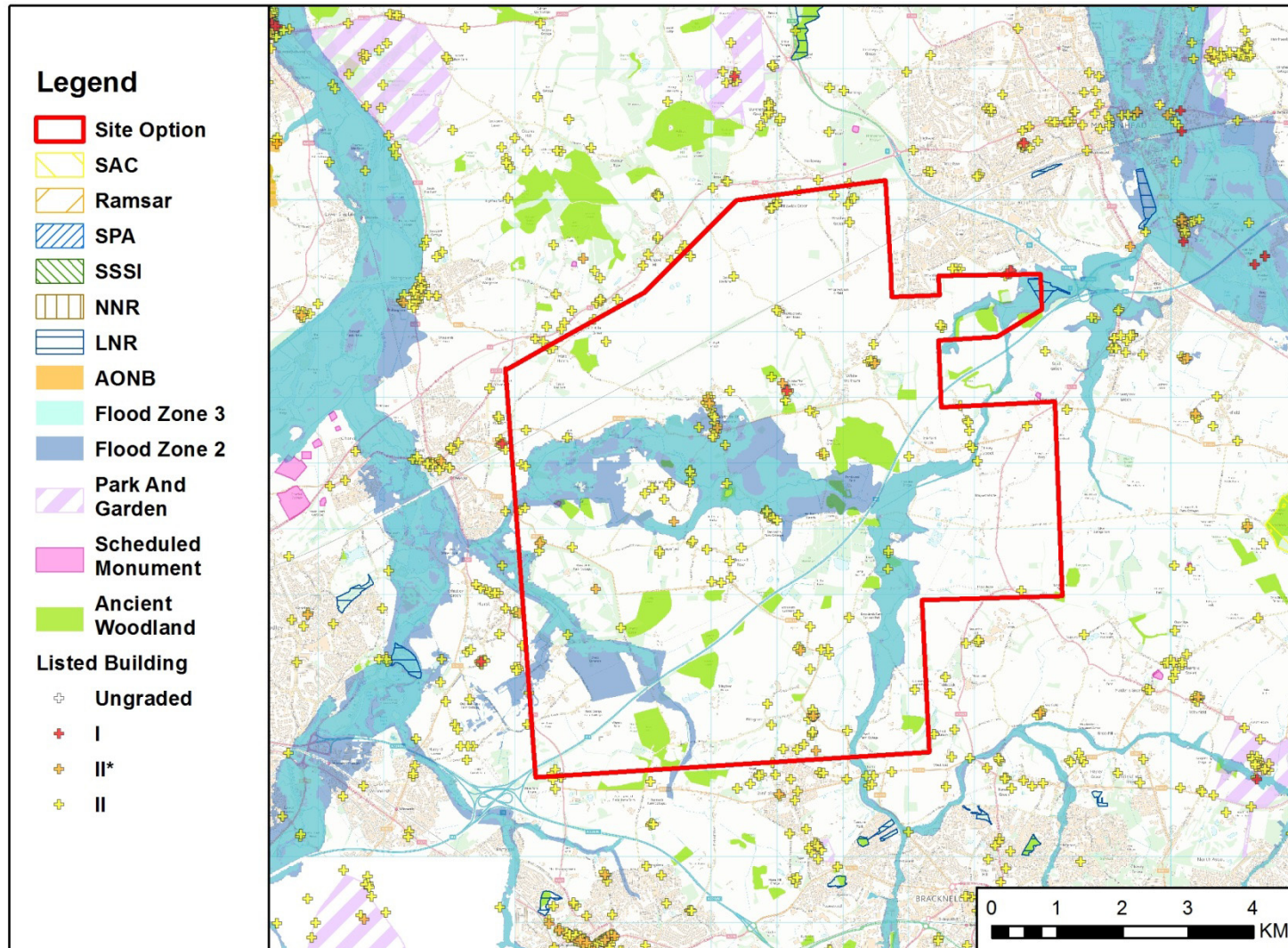
ENVIRONMENT

Overall noise impact	Net c 151,000 fewer people within the 57 LA _{eq} contour.						57 LA_{eq}	Airport	Net
							55 L_{DEN}	92,000	(148,000)
	SAC	SPA	Ramsar	CA	AONB	SSSI	Listed Buildings	SAM	Houses Lost
	-	-	-	-	-	-	30	-	1,800
Air Quality Nearest existing AQMAs are in Reading, Windsor, and Maidenhead town centres, and Bray/M4. Impact on air quality is likely to be local to the airport or related to increased traffic on access roads. Direct impacts on the town centre AQMAs are expected to be low although could be affected by indirect increases in traffic generated through development related to employment and business opportunities. Potential opportunity with new infrastructure for surface access to optimise rail access with lower air pollutant emissions and through airport design in order to minimise taxi distances. <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 NO ₂ .							Mitigation Plan Detailed transport planning to minimise additional traffic within existing AQMA area		
Noise <u>Local:</u> significant increase in noise for a population of around: <ul style="list-style-type: none"> 57 dB LA_{eq} 16 hr: 92,000 55 dB L_{den}: 297,000 <u>National:</u> The airport would lead to a significant relief from noise nuisance for the densely populated area in west London around Heathrow. The net change is a reduction (57 dB LA _{eq} 16 hr exposure) for 148,000 people							Mitigation Plan Noise mitigation strategy eg minimise night flights through appropriate restrictions and incentives to airlines e.g. QC system. Financial assistance for insulation and property purchase schemes.		
Designated Sites The main impact would be on cultural heritage designations. The following sites would be lost: <ul style="list-style-type: none"> Waltham St Lawrence Conservation Area St Mary's & Bury Court Conservation Area More than 30 Listed buildings The airport would be located within designated Green Belt land intended to control development between settlements. Ancient woodland loss: Great Wood and additional small areas including an area which would be removed for the M4 diversion. Potential for further cultural heritage and ancient woodland and property loss related to provision of flood compensation areas and transport infrastructure.							Mitigation Plan Replacement planting for lost woodland proposed, but loss of ancient woodland and designated sites difficult to mitigate.		
Climate Change <u>Aircraft movements:</u> level of greenhouse gas emissions will be related to aircraft movements for 120mppa and independent of the airport location. All new hub airports can offer more efficient ground and airspace use e.g. reduced stacking and departure queues. <u>Operation:</u> scope to minimise emissions from surface transport, airport buildings and airport transport. Opportunity to encourage modal shift to rail through new infrastructure arrangements. <u>Construction and demolition:</u> As a significant new build, construction will involve high carbon emissions likely to be higher than adaptation of an existing resource. Demolition and reconstruction at Heathrow will also result in additional carbon emissions.							Mitigation Plan Mitigation to minimise carbon emissions required along with design for climate change resilience.		

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Other Issues <ul style="list-style-type: none"> ▪ Significant flood compensation area provision and flood attenuation will be required; ▪ The loss of a large area of mixed farming land, parkland and recreational amenity and settlements (approximately 2,000 ha); ▪ Severance of transport links; ▪ Historical landfill sites within the development area; ▪ Groundwater protection zones 1,2 & 3 around drinking water supply; ▪ Minor rivers would require diversion. 		Mitigation Plan Flood compensation provision for approximately 2.76 million m ³ flood water and 2.8 million m ³ of attenuation storage provided partly through underground storage along with pollution prevention.	

PEOPLE

Housing The development causes the loss of the villages of White Waltham, Waltham St Lawrence, Shurlock Row and West End with a total population of approximately 4,500 affected and 1,700 dwellings. The new airport would cause increased demand for housing development in the Reading and Maidenhead areas. The scheme could however, provide an opportunity for significant new housing, depending on the potential for redevelopment at Heathrow.	Demolished 1,800
Vulnerable Groups The proposed airport is close to two of the least deprived local authorities in the country: Wokingham, and Windsor & Maidenhead. The benefits of the new Hub for local employment, access and services may not be as great as for locations with higher levels of deprivation. There are a high proportion of the 'most deprived' wards around Heathrow, which may be adversely affected by the loss of the airport as a source of local employment. The extent to which this can be mitigated will depend on the redevelopment of Heathrow and any specific provision beneficial to the vulnerable groups locally.	
Quality of Life and Health The introduction of noise and overflight for populations within Reading and Maidenhead not currently directly under a flight path will have a significant impact on this population. Quality of life will be affected by the loss of green space and recreational amenity and associated increased surface traffic and pressures from related development. Much of this land is designated as Green Belt. There may be some benefits to the area through improved employment opportunities, connectivity and access and services but the general area is already well served. Depending upon the redevelopment of the Heathrow site, the quality of life for currently affected populations would be significantly improved, principally from the loss of the current noise impact. Adverse changes to employment opportunities, connectivity and access to services will be mitigated to some extent by the proximity of the new hub.	
Wider Social Impacts Loss of green space and recreational amenity between Reading and Maidenhead. Additional pressure on housing and housing/rental could reduce affordability for the existing population.	



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COST

Capital Cost		£ bn
Independent cost analysis based on a common set of assumptions for all similar schemes estimates a total cost in the order of £53bn.	Airport	22.6
	Access	2.2
	Other	0.5
	Sub-Total	25.3
	Risk	10.1
	Optimism Bias	17.7
	Total	53.1
Key Risks		
<ul style="list-style-type: none"> The passing of enabling legislation; Delivery of off-site surface transport links (assumed to be financed and delivered by government and in some cases via PPPs). 		
Risk and Contingency Allowances		
40% contingency added to all costs. 50% optimism bias applied to risk adjusted costs.		
Surface Access Costs		
£2.2bn estimate for road and rail links based on the requirement for infrastructure identified by independent analysis. However, this could potentially increase by a further £2bn if further surface access is deemed necessary.		
Other Off-Airport Costs		
An allowance of £0.5bn has been included to cover typical environmental mitigation measures.		
Summary Comments		
On-site airport development costs appear reasonable. Surface transport costs may underestimate the full cost of all requirements.		
Costs associated with the closure of Heathrow have been excluded.		

OPERATIONAL VIABILITY

Capacity	Net	Airport	Net
Replaces Heathrow, with a more resilient, flexible airport, with greater capacity without wider impact to the London system	Runways	4	2
	ATM	715,000	235,000
	pax	128	38
Resilience, Reliability and Efficiency			
Resilience depends on a number of factors: utilisation rates; mode of operations; and schedule shape. The proposal supports independent parallel approaches on the two centre runways and segregated operations/independent parallel departures on the two outer sets of runways. It is not clear when this operational configuration will become a limit on capacity but it is unlikely to be realised before 2050. The proposal could be defined to meet resilience targets.			
Safety			
The runway configuration requires runway crossings to access the outer runways. There does not appear to be any need to overfly significant population centres on final approach or immediately after departure.			
Scalability			
Although the proposal is defined within an identified boundary, it appears that additional capacity could be developed if required. More flexible modes of runway operation should support additional movements before further development is required.			
Airspace			
The proposal would require significant considerable 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 need to be extended from the new airport in the West to Gatwick in the South. However, given the long-term nature of the options and the likely airspace and air traffic management developments under SESAR, restructuring could be achieved as part of the on-going development process. There would not need to be any change of international boundaries.			

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DELIVERY

Timescale Depends upon public policy, decision assumed to be by the 2015-2020 government, developed through the 2020s, opening 2030.
Sources of funding Funding is proposed to be from government (including grants, procurement of certain surface access infrastructure, payment of running yield during construction) and ultimately from passengers/users/airlines. Some elements would be subject to government guarantees, the cost of which would not normally be passed through the end users or borne by the taxpayer, unless there was a default.
Public funding Assuming government grant monies of c.£23bn likely to comprise significant public debt funding (mainly government bonds) and limited equity investment.
Private funding Peak financing requirement of c.£32bn assuming interest is capitalised during construction at 6%. Likely to comprise significant debt funding (mainly bonds) and limited equity investment.
Commercial/financial structure (e.g. RAB, PPP, other) RAB structure for new airport plus PPP/conventional government procurement for surface access and utility company finance for utilities.
Commercial Deliverability Even with government grant the scale of the private financing requirement is very significant, but may be achievable subject to having a suitable regulatory structure and a comprehensive and appropriate government support package. Raises major taxpayer Value for Money questions and 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.