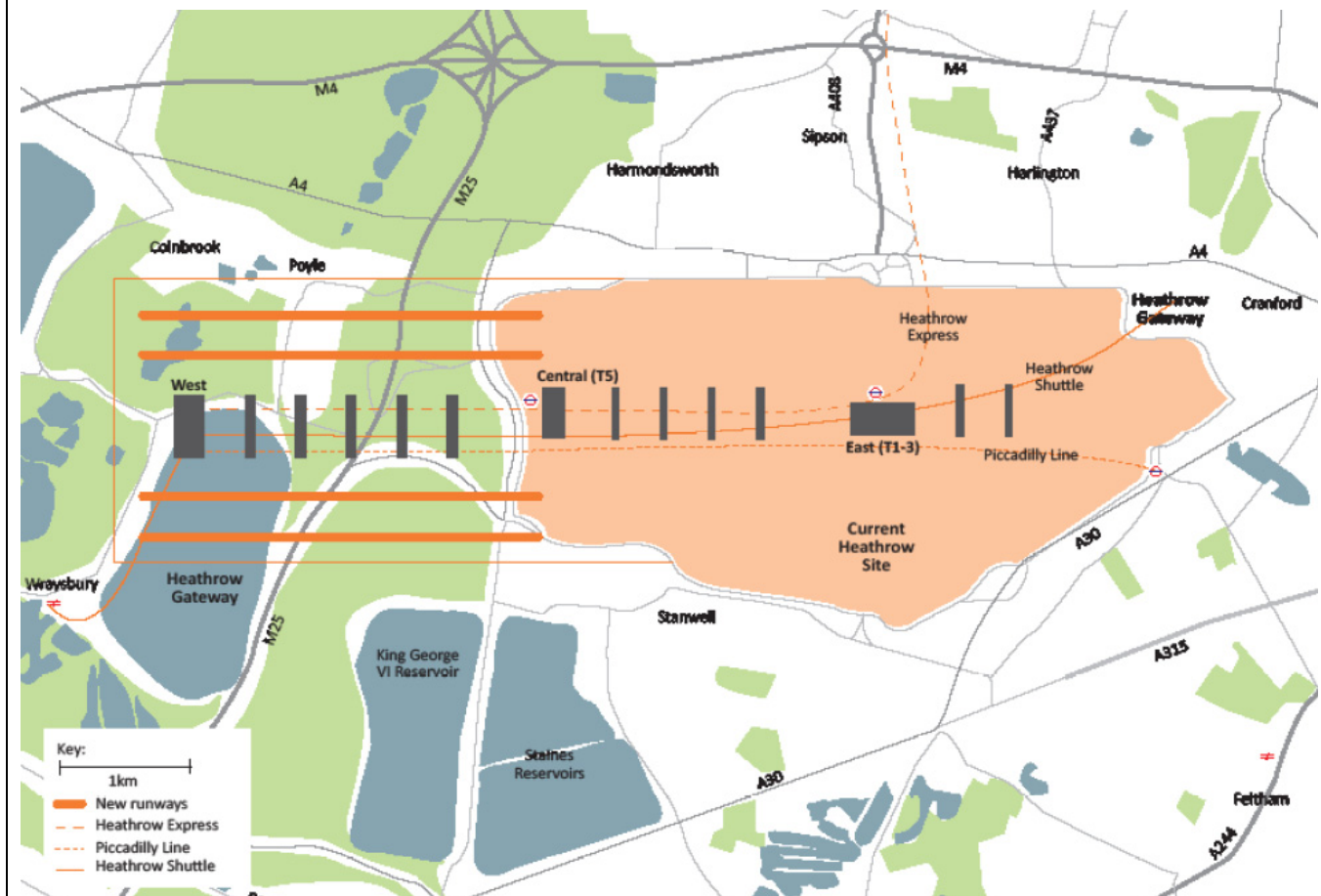


PROPOSAL TITLE:	Heathrow Airport	Group:	LHR
SUBMITTED BY:	Policy Exchange and Centre Forum	Reference No.:	38

PROPOSAL

Following a review of various aspects of the southeast airport policy debate, including economic, environmental and technical aspects, Policy Exchange and Centre Forum propose their preferred solution is to develop hub capacity at Heathrow. Heathrow development comprises the displacement westwards and marginal widening of separation of the current runways, and expansion to four by the addition of two close-spaced parallel runways one to the north and one to the south. The existing central terminal area would be retained (except Terminal 4), and extended westwards between the displaced runways.

The two pairs of close spaced runways would be around 380m apart, while the distance between the sets of runways would be 1,035m.



ASSESSMENT SUMMARY

Phased expansion, building upon existing airport and surface access infrastructure, with potential to expand to fifth or more runways if required. The scheme offers the potential for greater resilience over current operations.

This option offers the lowest population affected by noise nuisance of all the Heathrow options. However, it has the greatest negative impact on the existing reservoirs west of Heathrow and the SPA, and is the most expensive of the options at Heathrow.

The scheme incurs similar costs and challenges to the Heathrow South West runway scheme in terms of building over reservoirs, and to the Heathrow South West and North West schemes in terms of tunnelling or diverting the M25.

Some services may transfer from Gatwick, Stansted and Luton, because of enhanced opportunities to increase their viability and take advantage of hub connectivity. This may free capacity at those airports but may be seen to limit competition in the London system. The proposed reduced arrivals before 06:15 may negatively affect connectivity and competition on some key long haul routes.

The scheme adds to capacity whilst seeking to minimise the environmental impact of flying and make maximum use of existing infrastructure.

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OVERVIEW

Approach	<u>Enabling legislation 2015-2029 with construction commencing in 2019 with opening in 2025</u> (the earliest of HAL’s three options) following established regulated mechanism. <u>Public support for surface access and other costs: property and noise compensation, and mitigation and flood and ecology impact mitigation.</u>						Opening Year 2025	
Capacity	The westwards displacement of the runways could permit more movements whilst reducing the noise impact, potentially above the passenger capacity suggested.			Runways ATM pax	Airport 4 960,000 140 170	Net 2 480,000 50 80		
Cost			Airport	Access	Other	Sub Total	Including Risk/OB	
			7.5	4.5	2.0	14.0	29.4	
Surface Transport	<ul style="list-style-type: none">Proposal includes a new western entrance for both road and rail at Wraysbury including a rail link to Reading and Waterloo using existing infrastructure.No major highway upgrades proposed. Uncertainty as to whether the existing infrastructure could cope with increase in passengers given limited upgrades.				1 hr isochrone		16	
					2 hr isochrone		36	
					London centre		15 miles	
Economic	Borough	Hillingdon	Hounslow	Ealing	Slough	Spelthorne	Windsor	Runnymede
Unempnt (%)	7.9	7.5	10.7	8.2	4.4	4.2	4.3	
Ave. Salary (£/yr)	31,086	29,323	29,427	26,837	31,569	37,705	30,930	
County	Greater London	Surrey	Berkshire	Bucks				
GVA (£/cap)	34,779	25,432	31,057	22,125				
Environment	Significant impacts to a European/International designated reservoir likely to require compensatory habitat provision that could be difficult to deliver. Loss to river corridor and flood plain area requiring diversion and flood compensation storage.				57 LA _{eq} 55 L _{DEN}	Airport 187,000 483,000	Net (53,000)	
	SAC ¹	SPA ¹	Ramsar	CA ¹	AONB ¹	SSSI ¹	Listed Buildings	Houses Lost
	-	-	-	-	-	1	10	850

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

Borough	Hillingdon	Hounslow	Ealing	Slough	Spelthorne	Windsor	Runnymede
Unemployment (%)	7.9	7.5	10.7	8.2	4.4	4.2	4.3
Ave. Salary (£/yr)	31,086	29,323	29,427	26,837	31,569	37,705	30,930
County	Greater London	Surrey	Berkshire	Bucks			
GVA (£/capita)	34,779	25,432	31,057	22,125			

Impact on Industry

Relocating all of Heathrow's runways west and adding two more parallel runways at Heathrow would provide sufficient long term capacity for the airport to meet expected demand through to at least 2050, allowing more services with reduced delays due to improved resilience. This would support growth of aviation, tourism, logistics and related support businesses, and contribute to the agglomeration impacts of industry clustered in the Thames Valley/M4 corridor.

Airports Adding two runways at Heathrow to the West of the existing runways, and relocating the existing runways to be parallel, has the potential to double the existing 480,000 ATM fully segregated operation at Heathrow. Competition among London and South East airports will remain, although Heathrow's position will be strengthened by its additional capacity. It is expected that Heathrow would attract a small proportion of traffic from Gatwick. Compared to the Heathrow Hub proposal, this is likely to offer a moderately higher net capacity gain because parallel runways allow for more independent operation than extended dual operation runways.

Airlines Airlines currently using Heathrow others seeking to use them would benefit from the increase in capacity to offer more services, with fewer delays due to greater resilience. Airlines would continue to have the same choices of airports as at present. Some short-term relocation from Gatwick could enhance opportunities for airlines interested in new services at Gatwick. The proposal to end flights before 0615 would have a negative effect on connectivity for some routes where such a timing is critical to hubbing at both ends of a route (e.g. Hong Kong).

Passengers Passengers would benefit from increased capacity due to delay reductions and a greater choice of destinations/enhanced frequencies.

Local & Regional Economic Impacts

The new expanded airport would facilitate growth of new and existing industries in airport and aviation support services and travel, tourism, logistics and other related sectors, to service growth in passenger and freight demand. Almost all would be able to continue serving customers of the airport from their existing position on the M4 corridor. This proposal would support agglomeration in the Thames Valley/M4 corridor, given its proximity to existing commercial developments supported by Heathrow. Direct, indirect and induced employment effects would be in the immediate vicinity and along key corridors to Heathrow.

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.

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SURFACE ACCESS

Time/Distance to Central London Paddington 15 mins Docklands 40 mins 15 miles Journey times to other population centre Birmingham 50 mins Manchester 70 mins	1 hr isochrone population 16 2 hr isochrone population 36	Key required upgrade schemes <ul style="list-style-type: none"> ▪ HS2 Heathrow spur ▪ Western rail access line ▪ Southern rail access line
Rail Infrastructure Capacity Analysis No rail capacity analysis was included within the submission. The only mention is that the two track rail route west of Staines is currently underused and has available train paths to support direct train services from Wraybury to Reading, Woking and other South West Train Line stations. Two additional runways at Heathrow would however require substantial additional rail capacity.		
Highways Capacity Analysis The proposed 4 new runways would extend across the M25, Poyle Industrial Estate and northern part of the Wraybury reservoir . No direct access points to the terminals are proposed for road based traffic, with existing roads used for airport service traffic. The West Gateway would be the principle access, complemented by the smaller East Gateway. No coach, bus station or car rental facilities would be provided . The submission mentions that the main road infrastructure to the site already exists but it is unclear whether new access points would be required from the M25, A4 or other roads. The M25 would pass under the 4 runways. Two additional runways at Heathrow could require substantial additional highway capacity, which is not addressed in the submission.		
Accessibility to Population & Business centres Heathrow is currently well linked to the strategic highway network, with direct access from the M25 and M4, as well as being within 10 miles of the M3 and M40. However, the submission does not identify future highway access arrangements. Existing journey times to London Paddington on the Heathrow Express are 15 minutes, and there is likely to be little change in this journey time as a result of the proposal. The proposed upgrade of the Piccadilly Line would provide a 36 minute journey time to Piccadilly Circus . Connection from the airport's proposed West Gateway to Wraybury Rail Station and the upgrade of the Waterloo service on this line would reduce journey times to London Waterloo to 35 minutes . Heathrow Express and Crossrail Services could potentially connect to HS2 to Birmingham at Old Oak Common. Other rail improvements could provide direct rail access from Wraybury to Reading and Woking.		
Accessibility to Transport Interchanges The Heathrow Express, Crossrail and Piccadilly Lines would continue to link the airport and Central London and stop at the East, Central and West Terminals. The principle access point to the airport for road based traffic would be via the West Gateway, complemented by a smaller East Gateway. The two gateways would be linked by a driverless light rail transit system, connecting Wraybury Rail Station to the Gateway Zones, terminals, piers, and the East Gateway. The shuttle would run every two minutes and passengers could take the Heathrow Express, Crossrail, London Underground, or the Heathrow Shuttle to any terminal. The proposal states that the Heathrow Express and Crossrail would connect with HS2 at Old Oak Common. The proposed upgrade of the Piccadilly Line would offer 24 trains an hour taking 36 minutes from Heathrow East to Piccadilly Circus and 39 minutes to Canary Wharf . The proposal includes connection between the West Gateway and Wraybury Rail Station and onward links with Windsor, Richmond, Clapham Junction and Waterloo . The current Waterloo service from Wraybury could be upgraded to a quarterly hour service, with fewer stops reducing journey times to 35 minutes . An additional line could be provided to the north of Staines Station's northern platform to allow a Staines – Wraybury shuttle service. Other changes such as a small loop west of Staines Station could enable direct services from Wraybury/Heathrow Gateway Station to Egham, Reading, Woking and other stations on the South West Trains network. The proposal states that a non-stop train between Reading and Wraybury Rail Station could take 27 minutes . This could supplement the proposed new Reading-Heathrow Line, but the proposer recommends it might be sensible to have this in lieu of that proposal.		
Accessibility to Workforce The proposed and suggested rail schemes would increase the catchment area.		
Potential Wider Use Recommended rail improvements would benefit other users along associated corridors.		

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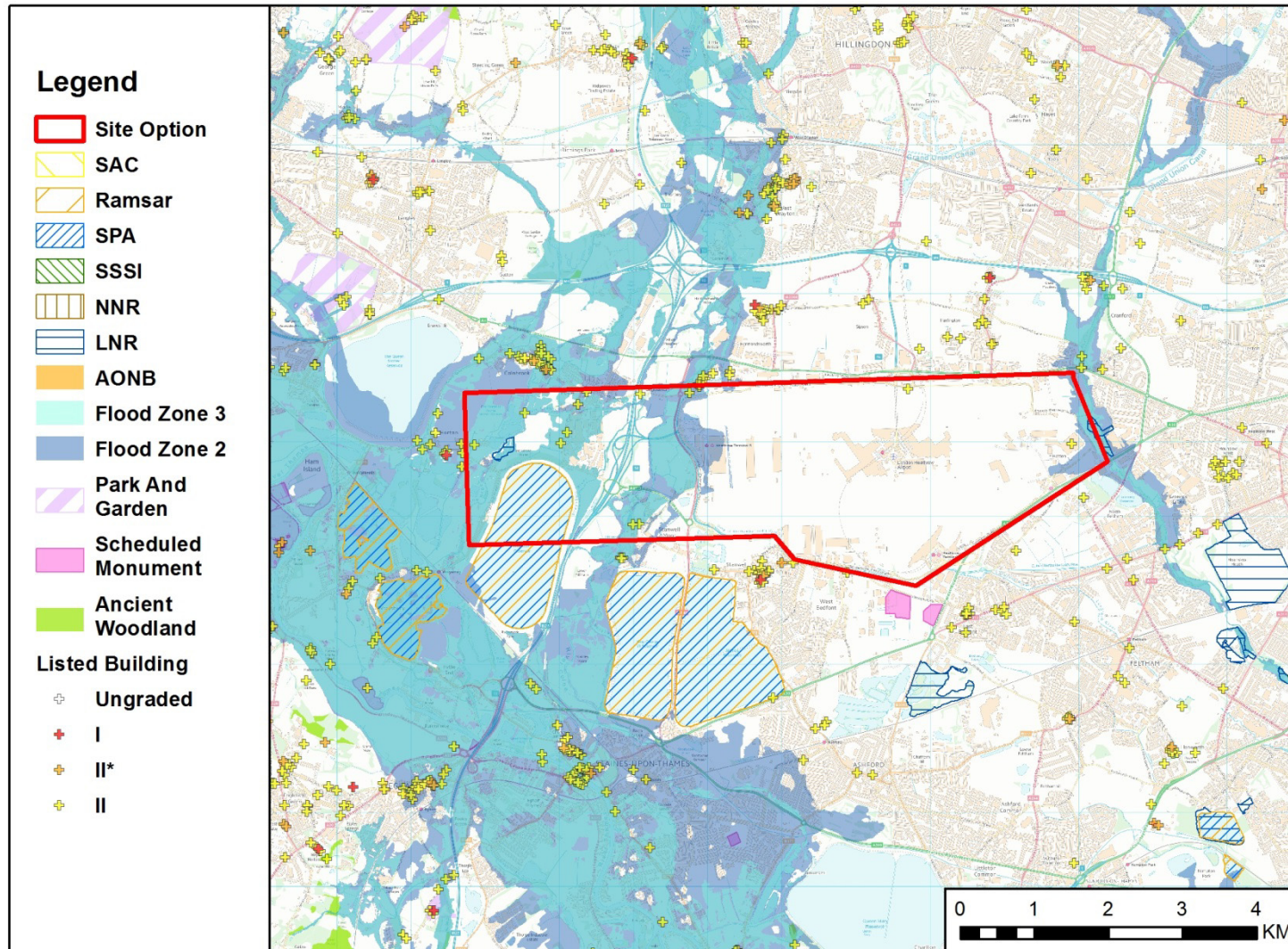
ENVIRONMENT

Overall noise impact	187,000 people within airport 57 LAeq contour – 53k less than currently affected.						57 LA_{eq}	Airport	Nett
							55 L_{DEN}	187,000	(53,000)
	SAC	SPA	Ramsar	CA	AONB	SSSI	Listed Buildings	SAM	Houses Lost
	-	1	1	-	-	1	10	-	850
Air Quality <u>Overall emissions are expected to remain within EU limits - due to technological improvements .</u> No significant difference between Heathrow runway options for meeting air quality standards.							Mitigation Plan <u>Vehicle emission improvements</u>		
Noise <u>Departures would follow existing flight paths so no new group under the flight path. Additional capacity to reduce need for night flights and use available slots. No planes would be allowed to arrive or depart after midnight and would have to be diverted to an alternative e.g. Gatwick.</u> <ul style="list-style-type: none"> The westward runway shift allows noise reductions for many in West London but does bring new areas into the 55 Lden and 57LAeq noise contours with increases for Sunnymeads, Datchet, Old Windsor and New Windsor – population numbers not given in the proposal. Independent noise analysis shows 187,000 people within 57LA_{eq} and 483,000 at 55 L_{DEN}. The option provides a reduction of 53,000 to the population currently affected by Heathrow (2012) within the 57 LAeq contour. This option affects the least number of people within the 57LA_{eq} compared to other Heathrow options but at 55L_{den} affects more people than the North West and South West runway schemes. 							Mitigation Plan <u>Continue existing measures for mitigation - runway alternation scheme to continue</u>		
Designations <u>Wraysbury reservoir would be need to be replaced by a reservoir elsewhere and the northern half refilled ready for have an airport built on top.</u> <ul style="list-style-type: none"> The proposer does not address the impact on the value of the designation. The option would have a direct impact on Wraysbury reservoir- part of the South West London Water Bodies SPA/Ramsar site (also an SSSI) and therefore of European/International and national importance. The site is designated largely for its importance for birds. Total loss of the reservoir designation is expected. The extent of impact related to bird strike control or noise changes on other adjacent reservoirs/wetlands is not clear. Impacts on the SPA/Ramsar sites would require Appropriate Assessment under the Habitats Regulations to determine significant adverse effects on integrity of the site. If determined as having no alternatives and being of overriding public interest, compensatory measures would be required. Although as a habitat type open water is not technically difficult to replace, finding new locations to replace habitat lost/affected by bird strike control measures would be very difficult. Note for example that Water Companies have struggled to find suitable and acceptable sites for new reservoirs in the region – there may be less resistance to provision of new wetlands. However, not clear, without Appropriate Assessment what the potential for mitigation would be and the scope of compensatory measures required. <p>The option involves significant negative impact on a reservoir forming part of a European/international site which would not be easy to mitigate/compensate for and compensation habitat would be costly to provide.</p> <p>Other designations affected include Grade II listed buildings in Stanwell Moor and Poyle. The setting for the Colnbrook Conservation Area would be affected by proximity to the runway and additionally the area may be affected by surface access changes.</p>							Mitigation Plan New locations to replace large reservoir area as habitat lost/affected by bird strike control measures would be difficult. <u>The Abingdon reservoir or raising heath of exiting reservoirs is suggested as a replacement for Wraybury.</u>		

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Climate Change <u>Operation:</u> Emissions for a given number of flights likely to be equivalent to those from other airport solutions. <u>Construction and demolition:</u> Construction related carbon emissions for this option are likely to be higher than for the north and north west options and South West option with the 4 runway construction, reservoir reconstruction, provision for habitat, flood storage and water supply storage compensation and additional M25 tunnelling.		Mitigation Plan	
Other Issues <ul style="list-style-type: none"> Runway crosses River Colne corridor with loss of flood zone 3 storage - this would require compensatory storage in addition to run-off attenuation. Water supply storage impact through reduction/loss of Wraysbury Reservoir - likely to require alternative storage capacity to be found. Land lost includes Greenbelt land and open space Landfill sites within runway footprint - may require relocation. 		Mitigation Plan	

PEOPLE

Housing <ul style="list-style-type: none"> Residential property in Stanwell Moor and Poyle Industrial Estate would be demolished. Along with the increase in employment opportunities, all Heathrow Hub options, are likely to add to housing pressure in the region. 	Demolished
Vulnerable Groups <ul style="list-style-type: none"> No information was provided for the population profile of the affected areas. High proportion of 'most deprived' wards around Heathrow. Little basis for distinguishing between runway options. 	
Quality of Life and Health <ul style="list-style-type: none"> Negative impacts on communities close to new runway e.g. Sunnymeads, Datchet Colnbrook and Old Windsor and New Windsor through new noise exposure, over flight, and access changes. Impacts on open space loss including the river corridor and changes to the setting for local open space. 	
Wider Social Impacts No difference between runway options in terms of wider social impacts.	



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COST

Capital Cost	£ bn
<u>Submitter estimates a cost of £10 bn, not adjusted for optimism bias and does not make any reference to contingency for risk. The submitter notes that this cost excludes transport links and their estimate requires a full engineering appraisal. Their estimate is a benchmark against Foster's Thames Estuary scheme.</u>	Airport 7.5
	Access 4.5
	Other: 2.0
	Sub-Total 14.0
	Risk 5.6
	Optimism Bias 9.8
	Total 29.4
Independent Cost Analysis assesses the scheme to cost £23.3bn, however, with allowance for the wider surface access costs, this increases to the c£30bn total indicated.	
Key Risks <ul style="list-style-type: none"> Construction in area currently occupied by reservoirs. Identification of a suitable, alternative location for the relocated reservoirs and obtaining planning permission. Risks associated with the construction of the relocated reservoirs. Diversion of the M25. Construction adjacent to and in line with the existing runways. Tunnelling for rail and road links. Extensive surface transport works local to Hub. 	
Risk and Contingency Allowances Independent assessment based upon 40% contingency and 50% optimism bias applied to risk adjusted cost.	
Surface Access Costs Allowance made for on and offsite highway works and rail works, however the broader surface access may raise the total cost to c £25bn.	
Other Off-Airport Costs Significant levels of mitigation and/or compensation required to ensure Water Framework Directive and flood risk storage requirements are met, an allowance of £1.5bn has been included. A further allowance of £0.5bn has been included to cover typical environmental mitigations measures.	
Summary Comments The approach adopted for the cost estimation is somewhat light and may underestimate the total cost including reconfiguration of the M25 and relocation of the impacted water reservoirs. The independent assessment however suggests that the total may be broadly similar to other similar Heathrow options.	

OPERATIONAL VIABILITY

Capacity	Net	Airport	Net
The westwards displacement of the runways could permit more movements whilst reducing the noise impact, potentially above the passenger capacity suggested.	Runways	4	2
	ATM	960,000	480,000
	pax	140	50
		170	80
Resilience, Reliability and Efficiency The proposal supports independent parallel approaches on the two centre runways and segregated operations/independent parallel departures on the two outer sets of runways. The proposal could be defined to meet resilience targets.			
Safety The proposal could be designed to comply with safety requirements, but would cause an increase in flights over central London, however, by providing the most westerly of landing thresholds of all Heathrow options, the height of aircraft over London would be increased to the greatest extent.			
Scalability The proposal is defined within an identified boundary and it is not clear that additional capacity could be developed if required.			
Airspace The proposal would not require significant airspace redesign. The boundaries of the London terminal manoeuvring area (LTMA) and Heathrow's SIDs, STARS and interfaces with en route airspace would be amended. 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

Enabling legislation 2015-2029 with construction commencing in 2019 with opening in 2025 following established regulated mechanism. **Public support for surface access and other costs: property and noise compensation, and mitigation and flood and ecology impact mitigation**

Commercial Deliverability

- May be delivered through private financing based on established RAB approach. Scale of investment is in line with capital programmes undertaken by HAL.
- However, Government support may be needed to support wider investment in surface transport.
- Effects on aero charges etc not stated but likely to be in line with other Heathrow options.