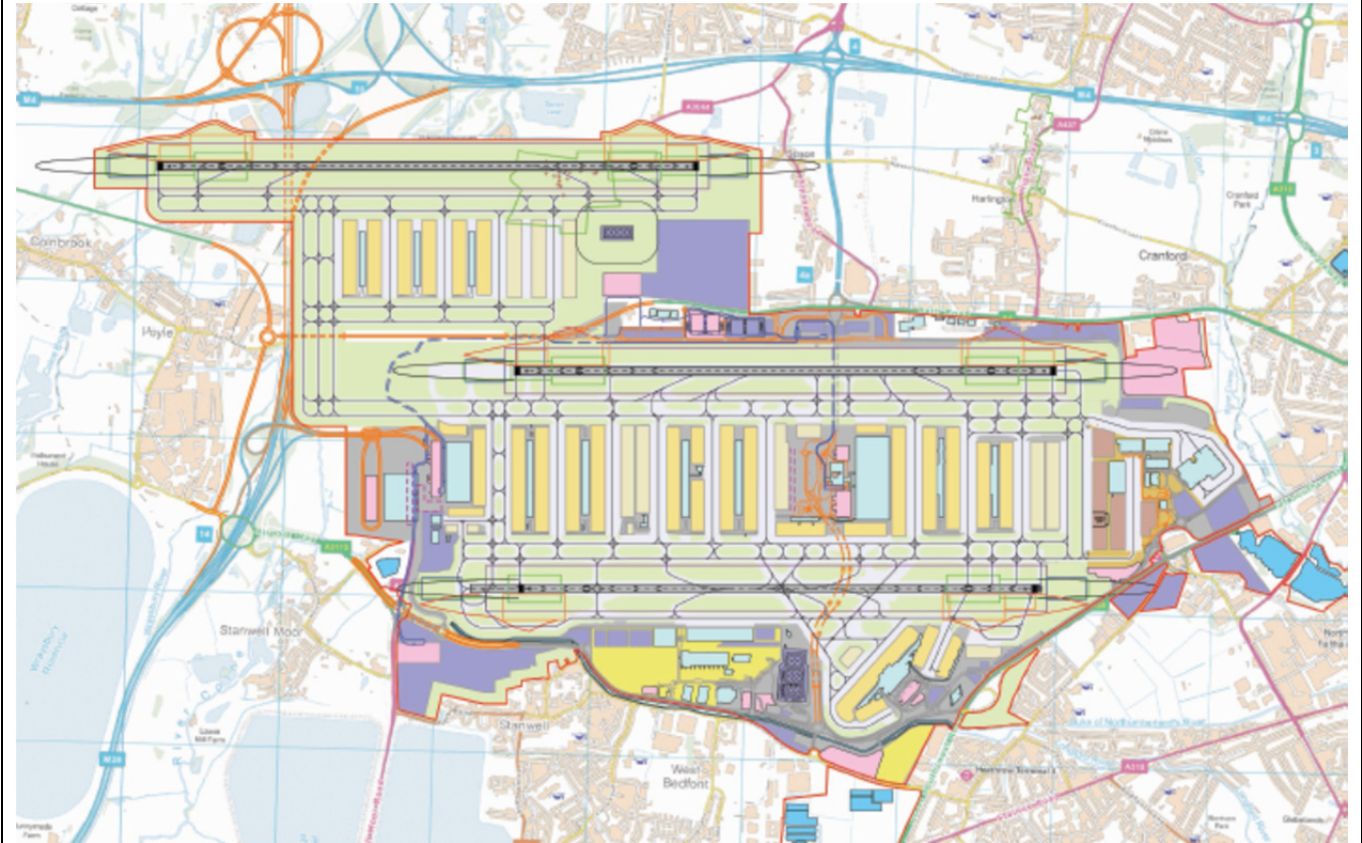


PROPOSAL TITLE:	Northwest Runway	Group:	LHR
SUBMITTED BY:	Heathrow Airport Limited	Reference No.:	35

PROPOSAL

New 3,500m runway constructed to the northwest of the existing airport with linking taxiways to the west of the current north runway. The new runway could operate independently from the existing runways. Includes expansion of existing terminals plus new Terminal 6 immediately west of Terminal 5 serving new satellites and aprons located between the new and current northern runways. Requires tunnelling of the M25 under the new development, plus reconfiguration of the existing M4/M25 interchange.

The new runway is located as far west as possible to reduce noise impact over London.



ASSESSMENT SUMMARY

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

A lower population could be affected by noise nuisance than currently. This option lies between the northwest (least beneficial) and southwest (most beneficial) options in terms of the reduction in affected population. This option potentially impacts the existing reservoirs and the SPA, although to a much lower degree than the southwest option.

Some services may transfer from Gatwick, because of enhanced opportunities to increase their viability and take advantage of hub connectivity.

The scheme adds to capacity whilst seeking to minimise the environmental impact of flying whilst making maximum use of existing infrastructure. It is therefore aligned with the Commission's terms of reference.

PROPOSAL TITLE:	Northwest Runway	Group:	LHR
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OVERVIEW

Approach	Enabling legislation 2015-2029 with construction commencing in 2019 with opening in 2026 following established regulated mechanism. Public support for surface access and other costs: property and noise compensation, and mitigation and flood and ecology impact mitigation, and the infrastructure costs of building over the M25.							Opening Year	2026
Capacity	<div>Runways</div> <div>ATM</div> <div>pax</div>							Airport	Net
								1	1
								740,000	260,000
								130	40
Cost	<div>Airport</div> <div>Access</div> <div>Other</div> <div>Sub Total</div>							Including Risk/OB	
	6.1 3.5 0.5 9.6							19.7	
Surface Transport	<ul style="list-style-type: none"> Rail provision includes Heathrow Express (HEX); Crossrail; improved Piccadilly line; south rail connection, west rail connection and potentially a HS2 spur. Assumption that extra runways can be provided without any increases of airport-related demand on the surrounding road network. No major highway upgrades. 							<div>1 hr isochrone</div> <div>2 hr isochrone</div> <div>London centre</div>	<div>16</div> <div>36</div> <div>15 miles</div>
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	Bucks	Greater London	Berkshire	Surrey					
GVA (£/cap)	22,125	34,779	31,057	25,432					
Environment	Loss of 2 communities including Harmondsworth Conservation Area & listed buildings, with a greater direct impact on cultural heritage interest compared to the other options. Loss of flood plain but much less than for the South West runway.							<div>Airport</div> <div>57 LA_{eq}</div> <div>55 L_{DEN}</div>	<div>Net</div> <div>(35,000)</div> <div>(47,000)</div>
	SAC ¹	SPA ¹	Ramsar	CA ¹	AONB ¹	SSSI ¹	Listed Buildings	SAM ¹	Houses Lost
	-	-	-	-	-	-	30	-	1,510

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	Bucks	Greater London	Berkshire	Surrey			
GVA (£/capita)	22,125	34,779	31,057	25,432			
Impact on Industry							
Adding a third runway at Heathrow to the northwest of the current airport would allow 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. A fourth runway option could be preserved parallel to this runway, or at the south-western site.							
Airports	Adding a third runway at Heathrow to the northwest of the existing runways, would provide a capacity increase of 260,000 to the existing 480,000 ATM fully segregated operation at Heathrow from 2026. There would be no changes to competition in the London airport system; although it is expected Heathrow would attract a proportion of traffic from Gatwick. A fourth runway option would need to be preserved to match the expected capacity of the Heathrow Hub and Centre Forum proposals (either parallel to this site or at the south-western site).						
Airlines	Airlines currently using Heathrow and others seeking to use it 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. Potential relocation from Gatwick could enhance opportunities for airlines interested in new services at Gatwick.						
Passengers	Passengers would benefit from increased capacity due to delay reductions and a greater choice of destinations/enhanced frequencies.						
Local & Regional Economic Impacts							
The 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 2040 (whilst preserving options for a fourth runway), 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 The sponsors state that the proposed rail connections would provide sufficient capacity to support airport passengers and staff, in addition to new demand for non-airport users. Average September weekday 2030 assessments have identified busiest evening peak demand to the airport on Crossrail and Heathrow Express of 4,000 passengers/hr (combined), compared to a proposed seating capacity of 4,500 passengers/hr and 8,500 passengers/hr respectively. The annual demand from Heathrow using the Piccadilly Line is expected to fall by 2030 relative to 2011 levels due to Crossrail. Furthermore, the upgrade would increase trains per hour and capacity. Network Rail is developing proposals for a Western Rail Access Link to Heathrow, with anticipated operation by 2021. However, no specific proposals are currently in development by Network Rail for a Southern Rail access to Heathrow. At this stage it is unclear that the proposed rail services can cater for the increase in rail demand, but a combination of HEX, Crossrail, Piccadilly Line, Western Rail Access and Eastern Rail Access provides a significant increase in current capacity.		
Highways Capacity Analysis Heathrow is currently well located in relation 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. The sponsors state that they expect no major improvements to highway capacity to be necessary as part of the proposals to expand LHR. The road-based mode share is predicted to reduce from 60% currently to 50% in 2030, with total passengers increasing from 70 mppa to 100 mppa. A larger reduction in mode share is predicted for taxi and 'kiss and fly' compared to 'park and fly', resulting in a lower average number of traffic movements per passenger in 2030 than 2011, and representing more efficient car use. It is unclear that the increase in airport capacity would be catered for by increases in public transport mode choice and 'background changes' and that airport-related traffic would not rise.		
Accessibility to Population & Business centres Over 16 million people currently live within a 60 minute journey time of LHR, with 6 million having a public transport option. LHR is currently connected to Central London by the Heathrow Express (taking 15 minutes), Heathrow Connect (25 minutes) and the Piccadilly Line (45-60 minutes). The surface access strategy builds on existing projects to provide 17 miles of new railway on the following new rail access lines: Crossrail (25 minutes to Central London and 40 minutes to Canary Wharf); Piccadilly Line upgrade (frequency and journey time improvements); Western Rail Access (direct connections to Slough, Reading and the wider Thames Valley; not committed), HS2 Heathrow spur (providing an interchange at Old Oak Common, for services to the north; not committed) and Southern Rail access (providing rail access to south and southwest London, Surrey and the South Coast; not committed). No new road links are proposed as the sponsors state that it is possible to deliver a third runway without increasing airport-related traffic on the roads.		
Accessibility to Transport Interchanges Key transport interchanges directly served by the proposed rail services include: Paddington; Farringdon; Tottenham Court Road; Bond Street; Canary Wharf; Old Oak Common and Reading. The HS2 Heathrow Spur would enable direct services to Birmingham, Leeds, Manchester, Nottingham, Edinburgh and Glasgow, with journey time savings of between 80 and 120 minutes, compared to today's journey times.		
Accessibility to Workforce Currently, 35% of employees use sustainable modes to access the airport. The target is to increase this to 40%. This would be achieved by public transport service improvements and staff incentives, and reduced staff car parking supply with priority for car sharers. Daily staff vehicle movements are predicted to reduce by approximately 30% with the reduction in staff related car movements off-setting a marginal increase in passenger related traffic. The catchment area for airport employees is expected to be increased, with the improvements to rail services.		
Modal Split Assumptions Currently 40% of passengers and 35% of employees use sustainable travel modes to access LHR. This represents 19 mppa using public transport, with 8.2 mppa using the underground, 6.8 mppa using bus/coach services and 3.8 mppa using Heathrow Express. The surface access strategy is based on increasing the public transport mode share in 2030 to 50% for passengers and 40% for employees. This would represent 34 mppa using public transport, split as follows: bus/coach (10.2 mppa); underground (6.9 mppa); Crossrail (6.6 mppa); Heathrow Express (5.6 mppa) and Western/Southern Rail (4.7 mppa). However, the biggest component of the increase in public transport mode share from 40% to 50% in 2030 is		

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'background changes' (3.7%) due to traffic growth, travel cost increases and wider committed rail service improvements. New coach services account for 2.3% of the increase (doubling of frequencies and new routes). Beyond 2030, it has been assumed that improvements in public transport technology and policy/attitude changes would deliver greater modal shift.

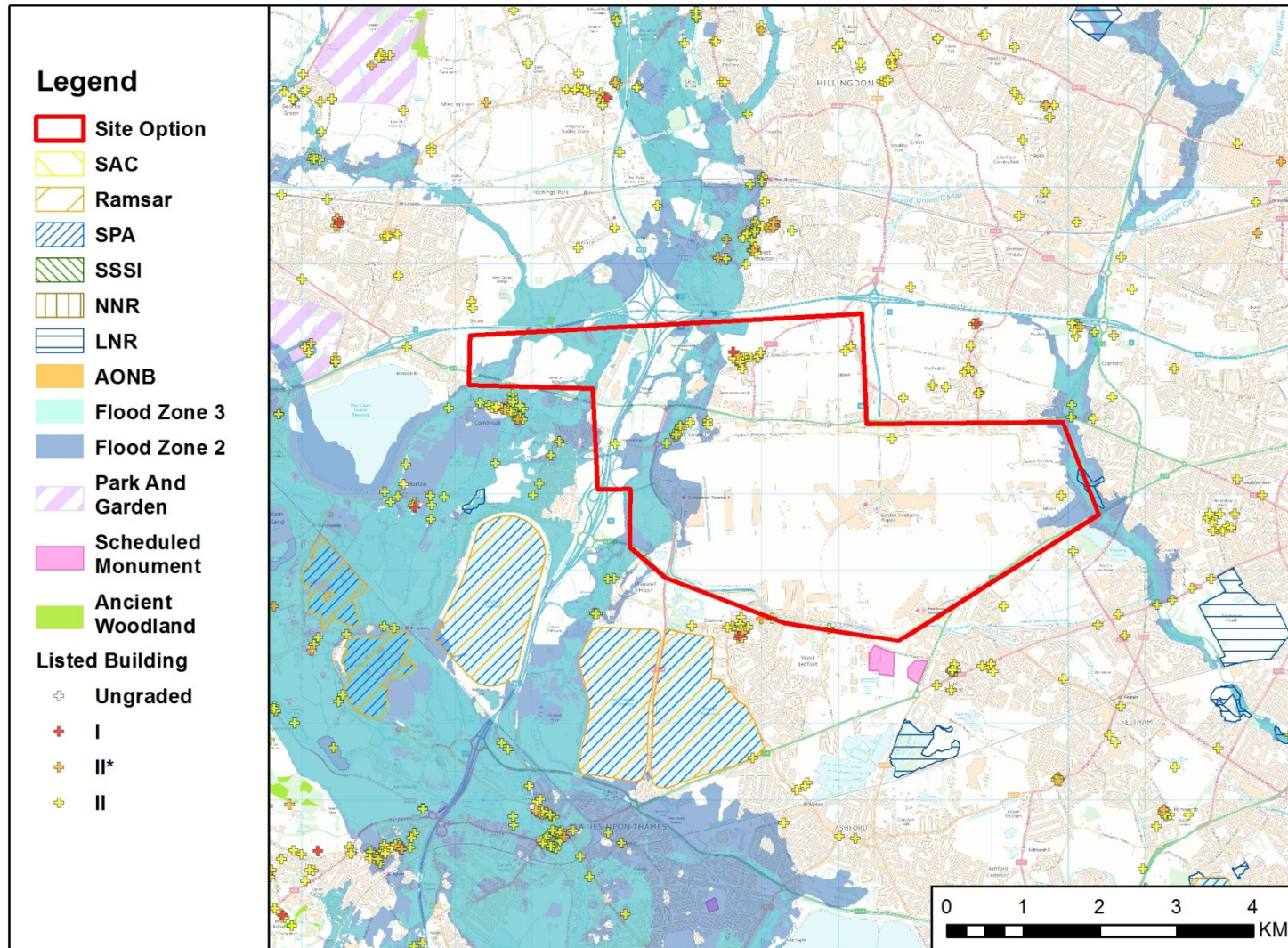
ENVIRONMENT

Overall noise impact	<u>196,000 people within airport 57 LAeq contour 15% less than currently affected (2011).</u>						Airport	Nett	
							57 LAeq	196,000	(35,000)
								193,000	(47,000)
							55 L _{DEN}	378,000	
							457,000		
SAC		SPA	Ramsar	CA	AONB	SSSI	Listed Buildings	SAM	Houses Lost
-		-	-	-		1	30	1	1,510
Air Quality							Mitigation Plan		
Heathrow located in southern part of Hillingdon AQMA with exceedences for NO₂ predominately at residential properties close to heavily trafficked roads. Additional capacity can be delivered at Heathrow whilst meeting air quality standards.							Maximise public transport use and restrict access to Low emission vehicles only - 3 objectives and steps set out. No increase in road transport and modal shift to 50% public transport. Work with partners in surrounding areas to ensure air quality limits are not breached.		
HAL’s analysis is based on modelled results and assumptions for:									
<ul style="list-style-type: none">2030 with 570,00 ATMs and for 2040 with 740,000 ATMs and expected improved standards and aircraft fleet for 2030;- improvements in road vehicle emissions and assuming an increase use of passenger public transport use to 50%. - Airside emission assumptions include increased use of low emission vehicles.									
No significant difference between Heathrow runway options for meeting air quality standards.									
Noise							Mitigation Plan		
<u>Population within 57 dB Leq will be reduced by 15% compared to 231,000 people affected currently.</u> The reduction is due to the change in aircraft emissions as the fleet complies with higher standards outweighing the increased ATMs. Although there is an overall reduction, the population affected includes communities not currently experiencing noise nuisance, an increase in noise nuisance to others and reductions to some.							<u>Current restrictions on night flights to continue. Potential for further operational mitigation in use of runways. Full packages for compensation/mitigation for new and increased noise exposure</u>		
Independent noise modelling for comparison provided the following results:									
<ul style="list-style-type: none">57LAeq: 193,000 people affected (providing a reduction of 47,000 compared to the current population affected, estimated as 240,000 based on 2012 data).55Lden: 457,000 people affected.									
The difference between the HAL’s figures and the independent analysis due to a combination of different assumptions for aircraft mix and flight paths and population data.									
<u>With same restrictions on night flights and use of just one runway for small number of night flights - could operate to provide respite to residents through runway alternation. Respite achievable with three runways generally averages to 33% of the time, compared with 50% of the time now and under a 4-runway scenario.</u>									
Overall this northwest option affects a smaller population than the north option and provides slightly greater respite for night time noise.									

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Designations <u>Loss of the Tithe barn and St Mary's church.</u> <ul style="list-style-type: none"> Loss of Harmondsworth, including the Conservation Area, and Longworth. A total of 30 listed buildings may be lost. The Great Tithe Barn is a Grade 1 listed building and St Mary's Church is a Grade II* listed building would be lost. The area is also an Archaeological Priority Area. This option has a greater impact on Harmondsworth's and Longworth's historical buildings than the north option. 		Mitigation Plan <u>Examining potential to retain the listed buildings</u>	
Climate Change <u>A third runway is consistent with meeting UK's legally binding climate change targets. Providing a UK hub is more carbon efficient than UK customers using a European Hub.</u> This is the same for all runway options and all hub options. <u>Construction and demolition:</u> <p>Northwest option includes M25 tunnel diversion. Construction related carbon emissions for this North West runway option are likely to be lower than for South West and much less than a new hub location.</p>		Mitigation Plan <u>Efficiency potential in technology, modal shift design and operation</u> <u>Proposal to increase passenger use of public transport to 50% to contribute to reduce CO₂ emissions.</u>	
Other Issues <ul style="list-style-type: none"> <u>116,000m³ flood zone 3 storage area lost</u> – but much less than storage lost with the southwest. Greenbelt losses and open space recreational amenity losses including Harmondsworth Moor Country Park located on a restored landfill site. Loss of Old Lane Sewage treatment works. Loss of Harmondsworth cemetery. 		Mitigation Plan	

PEOPLE

Housing <u>Longford and Harmondsworth to be subject to compulsory purchase.</u> <u>Sipson Harlington Cranford Cross, Colnbrook and Poyle communities retained.</u> <p>Higher number of residential properties lost compared to Southwest options.</p> <p>Along with the increase in employment opportunities, all Heathrow options are likely to add to housing pressure in the region.</p>	Demolished 1,510
Vulnerable Groups <ul style="list-style-type: none"> High proportion of 'most deprived' wards around Heathrow. Little basis for distinguishing between runway options. No information was provided in the proposal for the population profile of the affected areas. Loss of Longworth and Harmondsworth as communities. The northwest option is likely to be similar to South West runway in terms of level disruption to vulnerable groups in the community but also likely to be less disruptive than north option. Loss of the Heathrow Special Needs Farm – would require relocation. 	
Quality of Life and Health <ul style="list-style-type: none"> Affects an area adjacent to M4/M25 junction and existing airport therefore an area already heavily affected by major transport infrastructure. Population noise impact higher than southwest option although offers similar level of respite from night time noise base on HAL's modelling assessment. Additional impacts from aircraft noise increase affecting both new populations and currently affected populations. Less open space lost than for South West option and less severance effects for surrounding communities than for the southwest and north runways. 	
Wider Social Impacts <p>Little difference between runway options in terms of wider social impacts.</p>	



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COST

Capital Cost	£ bn
<u>HAL estimates a single point cost estimate of £16.9 bn (at 2013 rates).</u> Independent Cost	Airport 6.1
Analysis assesses the scheme to cost £21.2bn.	Access 3.5
This cost is comparable to the Heathrow South West Runway Option and Policy Centre Forum Heathrow proposal.	Other 0.5
	Sub-Total 10.1
	Risk 3.0
	Optimism Bias 6.6
	Total 19.7
Key Risks	
<ul style="list-style-type: none"> Construction may impact area currently occupied by reservoirs. Construction over the M25 and adjacent to the M25/M4 interchange. Construction adjacent to and in line with the existing northern runway. Tunnelling for rail and road links. 	
Risk and Contingency Allowances	
HAL include a 15% contingency. Independent assessment based upon 30% contingency, reflecting the greater degree of definition of the scheme, and 50% optimism bias applied to risk adjusted cost.	
Surface Access Costs	
£3.5bn estimate for onsite road and rail links and identified costs for offsite highway works (including cut and cover tunnelling for M25) and rail works for additional capacity within the main line network. The surface access sum includes connection to HS2 estimated at £1.7bn.	
Other Off-Airport Costs	
Mitigation and/or compensation required ensuring Water Framework Directive and flood risk storage requirements are met; an allowance of £0.5bn has been included, also covering typical environmental mitigation measures.	
Summary Comments	
Whilst the approach to cost estimating is generally reasonable, the cost may underestimate the consequential costs, leading to an underestimate in total.	

OPERATIONAL VIABILITY

Capacity	Net	Airport	Net
Increase to existing airport capacity and enabling operations to be conducted in a more resilient manner.	Runways	1	1
	ATM	740,000	260,000
	pax	130	40
Resilience, Reliability and Efficiency			
The proposal supports independent parallel approaches, however, capacity has been constrained to limit noise impacts. The proposal could be defined to improve resilience over current operations.			
Transfer between terminal zones may exceed times acceptable to airlines.			
Safety			
The proposal would be designed to comply with safety requirements, but would cause an increase in flights over central London.			
Scalability			
This option of the three presented by Heathrow Airport is the only proposal that allows for development of a fourth runway without either development of a completely new site or relocation of any of the existing runways. Such a fourth runway, to the north of this third, however would require displacement of the M25/M4 interchange. Conversely, a fourth runway could be delivered by adopting the southwest runway option, although this would establish a third operational centre remote from the two that would exist at that time.			
Airspace			
The proposal would not require significant airspace redesign. The boundaries of the London terminal manoeuvring area (LTMA) would be amended and Heathrow's SIDs, STARS and interfaces with en route airspace would be amended to include the additional runway. 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

Open in 2026, with public policy in place 2015 to 2019.

Commercial Deliverability

- Private financing based on established RAB approach (roughly doubling current RAB value).
- Effects on aero charges etc not stated but asserted to be lower than other hub options, though increased RAB could result in charges rising by 25-40%.
- Viability may be dependent upon suggested increase in regulatory period or WACC adjustment.
- Government support of £4-6bn funding plus potential debt underwriting needed to support financeability/viability, raising issues of affordability, value for money and potential legal issues (e.g. State Aid).