

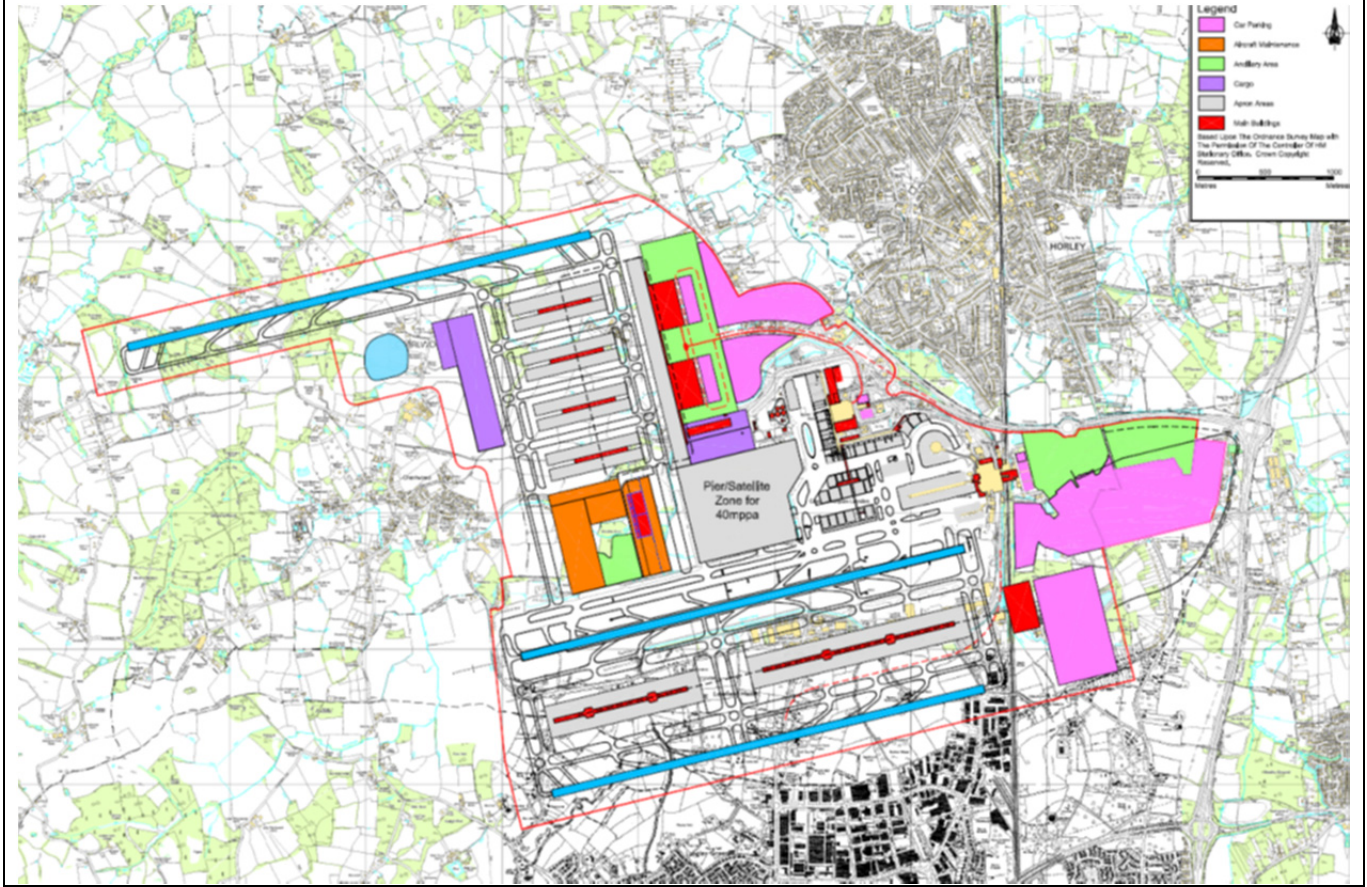
PROPOSAL TITLE:	London Gatwick Airport – Hub Option	Group:	Existing
SUBMITTED BY:	Airports Commission Secretariat	Reference No.:	54

PROPOSAL

This proposal would require significant expansion of Gatwick, in line with the options considered prior to the 2003 Air Transport White Paper consultation exercise, as a replacement for Heathrow.

A second runway is provided to the south of the existing runway at a width that enables mixed mode operations (similar to current Gatwick Airport proposal).

A third, independent runway is provided to the north, with an enlarged terminal zone between the current and the additional northern runways. The scheme could be further expanded to include a fourth runway to the north if required.



ASSESSMENT SUMMARY

The scheme delivers phased expansion building upon existing infrastructure, with the potential to offer a larger, more efficient configuration enabling a more resilient operation than Heathrow. An overall reduction in population affected by aircraft noise nuisance is created by the closure of Heathrow, (although that benefit is achieved by impacting currently unaffected populations with overflying of Horley and nearby villages and the southern runway adjacent to Crawley).

Heathrow and Gatwick currently represent 96% of the capacity of a three runway airport. The fourth runway may meet unconstrained demand for the near future only. Resilience and capacity issues may re-emerge beyond 2040 if demand continues to grow as forecast by DfT.

Given that commercial delivery is likely to require the closure of Heathrow, the net capacity benefit to the London system is somewhat limited. It is also not clear that locating the UK’s principal hub south of London would be the preferred location, with increased travel times for users from west, north and east London and counties beyond London. The closure of Heathrow may also reduce competition in the London system.

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OVERVIEW

Approach	Unclear but may be Government led initiative to acquire Heathrow, construct the enlarged airport and supporting infrastructure, transfer operations and redevelop Heathrow site before sale of both assets, or airport infrastructure, through established regulated approach with public support to close Heathrow and develop surface transport.						Opening Year 2030		
Capacity	Replaces Heathrow with a potentially more resilient airport, however, two additional runways, do not replace the lost capacity. Three additional runways, i.e. the 4 runway, configuration adds to the London airport system capacity.		Phase 1		Phase 2				
			Runways	Airport	Net	Airport	Net		
			ATM pax	3 640,000 120	0 (120,000) (20)	4 880,000 160	1 120,000 20		
Cost			Airport	Access	Other	Sub Total	Including Risk/OB		
			20.4	15.1	0.6	36.1	77.7		
Surface Transport	<ul style="list-style-type: none">▪ Poor access to cities north of London.▪ Current rail London access is congested and shared with commuters.▪ New rail line into Central London would be expensive and difficult to construct.▪ Would require extensive widening of M23 and M25.▪ Would require new highway capacity north of the M25 into south London, which would be expensive and disruptive.				1 hr isochrone	14			
					2 hr isochrone	22			
					London centre	25 miles			
Economic	Borough	Crawley	Mid-Sussex	Horsham	Reigate & Banstead	Tandridge	Mole Valley		
	Unemployment (%)	7.6	3.4	4.6	4.7	4.6	4.3		
	Ave. Salary (£/yr)	25,527	29,884	29,968	36,239	30,716	34,284		
	County	West Sussex	Surrey						
	GVA (£/capita)	19,241	25,432						
Environment	Loss of agricultural land (1500 Ha), direct loss and wider setting impacts for a number of cultural heritage features, ancient woodland, and landscape character impacts. High potential for buried archaeological interest. River diversions required and additional risk to downstream flooding in River Mole catchment. Surface access improvements with potential for significant environmental impacts.					Phase 2			
						Airport	Net		
						57 LA _{eq}	31,000		
						55 L _{DEN}	70,000		
Phase	SAC ¹	SPA ¹	Ramsar	CA ¹	AONB ¹	SSSI ¹	Listed Buildings	SAM ¹	Houses Lost
2	-	-	-	-	-	-	18	-	580

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	Crawley	Mid-Sussex	Horsham	Reigate & Banstead	Tandridge	Mole Valley
Unemployment (%)	7.6	3.4	4.6	4.7	4.6	4.3
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County	West Sussex	Surrey				
GVA (£/capita)	19,241	25,432				
Impact on Industry Replacing Heathrow with an expanded Gatwick hub with two additional runways would reduce net capacity in the London system. A third additional runway would increase net capacity and allow more services with reduced operational costs. The site would be readily accessible to London by rail, but be inferior to other options for road access to much of London. It would free up land at Heathrow for property development. The bulk of businesses located at Heathrow would need to relocate. Many commuters would face relocation or have significant increases in commuting times.						
Airports	Adding three runways at Gatwick (and closing Heathrow) would be equivalent to adding one more runway to the London airport system. Competition in the London airport system would reduce, which may increase demand for Stansted enhancing the business case for Stansted expansion. A 5 th runway may be needed in time at Gatwick.					
Airlines	Airlines currently using Heathrow and Gatwick, and others seeking to use them would benefit from the increase in capacity (once all three additional runways were opened) to offer more services, with fewer delays due to greater resilience. However, Low Cost Carriers and charter airlines may increasingly prefer to use Stansted and Luton.					
Passengers	Passengers will benefit from increased capacity due to delay reductions and a greater choice of destinations/enhanced frequencies. Access to Sussex, Surrey, Kent and south/south east London would be improved, compared to options at Heathrow, Luton or Stansted. However, there would be significant increases in travel times for access to north, west and east London by road, compared to such options and to the West, North, East and the Midlands of England. Travel times would be comparable to central London by rail, from Stansted or Luton.					
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 the growth in passenger and freight demand met by the new airport. Most of these businesses would need to relocate from the Heathrow site and its vicinity, which would itself be dependent on redevelopment to generate new commercial and residential activity in west London (which would benefit by the removal of the noise impacts of flights into Heathrow). Agglomeration impacts would appear over time in the Crawley area, significantly offset by the diminution of those impacts in the Thames Valley/M4 corridor. However, additional employment in this area would mean significant relocation of employees to enable reasonable commuting times to Gatwick compared to Heathrow.						
National Economic Impacts The main national economic impacts come from the provision of new capacity to meet immediate demand (although additional capacity may be needed). There is a modest negative effect on airport competition. The benefits would be partly offset by higher access costs from London, the West, North and East (although lower costs for users from Surrey, Sussex and Kent compared to options to the north and west of London).						

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SURFACE ACCESS

Time/Distance to Central London 30 mins 25 miles	1 hr isochrone population 14	Key required upgrade schemes <ul style="list-style-type: none"> ▪ M23 J8-J10 widening ▪ M25 J2-J16 capacity improvements
Journey times to other population centre Birmingham 140 mins Manchester 180 mins	2 hr isochrone population 22	<ul style="list-style-type: none"> ▪ East Croydon station flyunder for Gatwick express trains ▪ Capacity improvements on Gatwick-London rail line ▪ London terminal station capacity improvements ▪ A23 London dualling or M23 extension to north of Croydon
Rail Infrastructure Capacity Analysis Rail infrastructure analysis is somewhat out of date. The Route Utilisation Strategy (RUS) for the south east shows the Gatwick-Victoria line is predicted to be at 105% of capacity by 2031 without airport expansion. There is limited scope for increasing the number of trains possible on this line; however the proposers do include provision for Airport express trains to skip East Croydon station via a fly under, this would decrease delays on the line as trains could bypass East Croydon station. If services to Victoria and London Bridge were expanded it would put increasing pressure on dispersion and platform capacity at these stations both of which are currently overcrowded (2012 South East Route Utilisation Strategy). Services via Thameslink would increase to 10 trains per hour (tph) from 4 tph when Thameslink upgrade is complete, although this will be shared between airport and non-airport users with primarily commuting rolling stock. Likely need for a dedicated new line to be built at considerable expense.		
Highways Capacity Analysis The highway analyses is somewhat out of date, however it shows a number of Junctions on the M23 would need significant upgrades in addition to a major upgrade of the M23 from 3 Lane Dual Carriageway to 4 Lane Dual Carriageway between Junctions 8 and 10. A second access direct to the new terminal would also need to be constructed. Even with these improvements the M25 (J2- J16) and the A232 south of Crawley would be under stress from increased airport traffic. A23 north of the M25 would likely face severe congestion, requiring either disruptive dualling of the single carriageway sections or revival of the expensive M23 north extension (tolled) perhaps as far north as Balham with much tunnelling to mitigate the high impacts on local communities.		
Accessibility to Population & Business centres Gatwick is located 25 miles south of London. Its current rail access is via the Gatwick Express to Victoria, local services on the Southern network and Thameslink services which currently serve central London, Luton and Bedford and will be expanded to Cambridge and Peterborough by 2018. Direct services to coastal Kent, Brighton and Portsmouth run to the south. Road Access to the north/south is via the M23 which runs north to M25 J7, where it continues to Croydon and Central London as the A23. Local East/West road access is provided by the A24. Access is good by rail into south and central London, good by road to Surrey, Sussex, Kent and Berkshire, but poor by road into central London.		
Accessibility to Transport Interchanges The Thameslink service serves key London Termini such as London Bridge (for trains to South East), Blackfriars, Tottenham Court Road (for Crossrail post 2018), Farringdon and Kings Cross/St Pancras, providing onward connection on to London Underground and to trains to the north from Euston Kings Cross and St Pancras. For the South West, connections can be made at Clapham Junction or Victoria. There is also a direct connection to Reading which serves the South West and Wales.		
Accessibility to Workforce Current workforce is concentrated in nearby towns such as Crawley, and would need to be expanded. Local rail access is strong to nearby populations such as Brighton, Redhill, Croydon and South London, which is where the increased employment is likely to be sourced. Access is poor for those in west London where current Heathrow employment is sourced.		
Modal Split Assumptions The current Public Transport mode share is around 42% and therefore a target of 45% should be attainable with moderate improvements to public transport.		
Potential Wider Use There would be no real positive impact on the wider economy from surface access upgrades as they would serve airport passengers. If rail capacity is diverted away from commuters to provide for airport passengers then this may have a negative impact on towns to the south of the Airport where fast, frequent connections to London are vital to the local economy. Additional capacity on the M25, M23 and enhanced capacity into central London could have considerable local benefits in reducing congestion and travel times, and improving accessibility for south London.		

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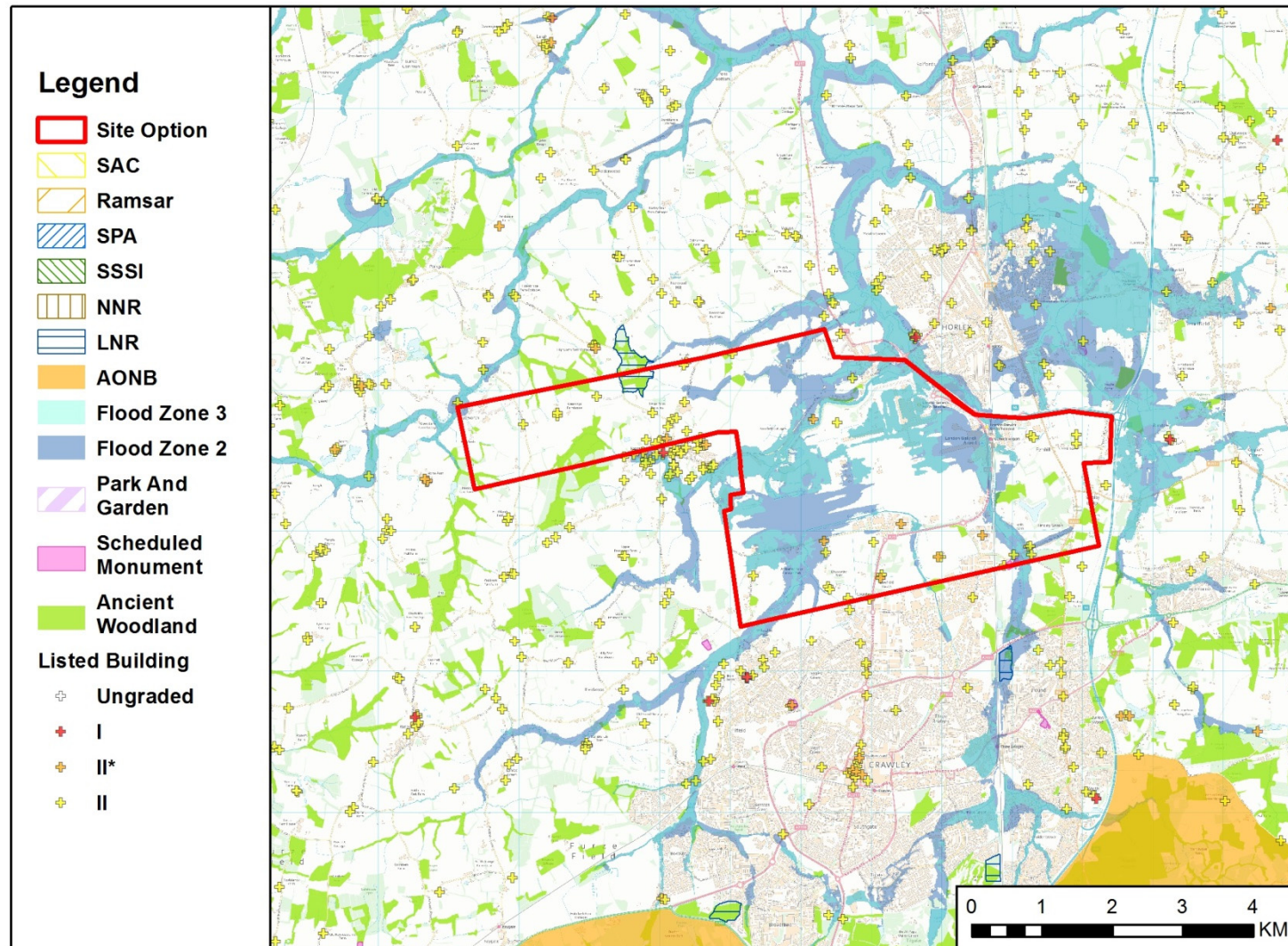
ENVIRONMENT

Overall noise impact							Phase 2		
Net c 230,000 fewer people within the 57 LA _{eq} contour.								Airport	Net
							57 LA _{eq}	31,000	(212,000)
							55 L _{DEN}	70,000	
Phase	SAC	SPA	Ramsar	CA	AONB	SSSI	Listed Buildings	SAM	Houses Lost
2	-	-	-	-	-	-	18	-	c580
Air Quality New Hub Potential additional risk to Horley Air Quality Management Area (AQMA) close to Gatwick Airport and the AQMA on the nearby section of the M23 for NO ₂ emissions. Potential opportunity with new infrastructure for surface access to optimise rail access with lower air pollutant emissions and through airport design minimising 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 . The benefit will depend on levels of traffic generated by new development of the site.							Mitigation Plan Development Control: additional development pressure on surrounding towns would need to consider traffic generated and air quality impacts, especially for existing AQMAs. Surface access and Airport air quality strategies to minimise air pollutant emissions		
Noise New flight paths would expose additional currently largely unaffected populations. Significant new noise and over flight for Horley and nearby villages but can be minimised through runway operation. <u>Local:</u> increase in noise for a population of around <ul style="list-style-type: none"> 57 dB LA_{eq} 16 hr: 31,000 55 Lden 70,000 The existing runway can be used for night flights limiting the additional night time noise nuisance. <u>National:</u> The Gatwick hub 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 212,000 people.							Mitigation Plan Noise mitigation strategy – to minimise noise nuisance including the use of runways to provide relief to populations and minimise nuisance from night time flights. Minimise night flights through appropriate restrictions and incentives to airlines e.g. Quota Count system. Financial assistance for insulation and property purchase schemes		
Designated Sites Possible loss or setting impacts for around 18 listed buildings, local sites of wildlife interest and ancient woodland. The site lies over some areas of high archaeological potential. Impact on Conservation Area and associated listed buildings. Impacts on the settings of other nearby Conservation Areas and cultural assets. Views from nearby Area of Outstanding Natural Beauty (AONB) may be affected. Potential additional significant impacts on designated sites from surface access improvements.							Mitigation Plan Further investigation of cultural heritage and potential archaeological interest with studies to minimise impacts. Potentially relocate certain listed buildings.		
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> Carbon footprint expected to be less for expansion of existing facility as opposed to a new airport. Utility supply infrastructure requirements considered less than with a new location hub airport. Demolition and reconstruction at Heathrow will result in additional carbon emissions.							Mitigation Plan Mitigation plan required to minimise carbon emissions and to ensure climate change resilience.		

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Other Issues <ul style="list-style-type: none"> Potential loss of large area of agricultural land and farm business impacts. Significant landscape character change to area north of Crawley and loss of recreational areas and impact on areas of high archaeological interest. Impacts on watercourse would require diversion of River Mole with significant run off attenuation required with opportunity to reduce downstream flood risk. Potential significant additional environmental impacts from the surface access improvements. 		Mitigation Plan Mitigation plan for agriculture/soils, landscape and visual impacts, cultural heritage and provision for drainage. There may be potential to retain buildings of particular value close to the site. Include significant run off attenuation, and pollution prevention measures.	

PEOPLE

Housing Some land has been safeguarded for future expansion limiting the impact on properties. The expanded airport would lead to significant increased housing pressure in the region in an area constrained by environmental and planning designations. Potential opportunity for redevelopment of Heathrow to provide housing as for all new hubs.	Demolished c 580
Vulnerable Groups Few of the ‘most deprived’ ward areas in the local authority areas can be found around Gatwick. The benefits of the expanded airport in this location may be less compared to other new hub locations areas in terms of new employment, access and connectivity. High proportion of ‘most deprived’ wards around Heathrow airport. These may be adversely affected by the loss of the airport as a major source of local employment, the extent this could be mitigated would depend on the redevelopment of Heathrow and any specific provision beneficial to the vulnerable groups locally.	
Quality of Life and Health <ul style="list-style-type: none"> Significant additional noise and over flight to Horley and surrounding villages. Some of these areas are in close proximity to Gatwick so some changes may be incremental. Loss of green space and recreational amenity and associated increased surface traffic and pressures from related development. Change to character and setting of surrounding settlements and rural area from aircraft noise, traffic and surrounding ancillary development. Possible additional benefits to the current accessibility and connectivity through new surface transport infrastructure and also from improved local services along with employment opportunity. Potential benefits likely for residents around Heathrow airport mainly through noise reduction but some negative effects related to loss and risk to employment, connectivity and services mitigation dependent on redevelopment of Heathrow site.	
Wider Social Impacts Significant urbanisation and loss of open space and recreation areas north of Crawley and west of Horley. 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 would depend on redevelopment of the airport site and the extent they can provide for housing and employment needs	



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COST

Capital Cost	£ bn	2
Independent cost analysis based on a common set of assumptions for all similar schemes estimates total cost in the order of £75.6bn for a 4 runway airport layout including significant off site transport upgrades.	Airport	20.4
	Access	15.1
	Other:	0.6
	Sub-Total	36.1
	Risk	15.7
	Optimism Bias	25.9
	Total	77.7
Key Risks		
<ul style="list-style-type: none"> Further unknown environmental requirements. Surface access, particularly M23 extension north of the M25 Rive Mole Diversion. 		
Risk and Contingency Allowances		
40% contingency adopted for airport works. 50% contingency adopted for surface access costs reflecting the greater uncertainty of scope and complexity of extending links through South London. 50% optimism bias applied to all costs.		
Surface Access Costs		
£1.2bn estimate for local road and rail links based on requirement for infrastructure identified by independent analysis. Wider transport requirements, including widening of the M25, M23 and extension of the M23 north of the M25 are likely to have significant capital costs estimated at c £14bn.		
Other Off-Airport Costs		
Mitigation and/or compensation required to ensure flood risk storage requirements are met. Allowance of £0.1bn included within independent cost estimate for river diversion and flood attenuation. Additional allowance of £0.5bn has been included to cover typical environmental mitigations measures.		
Summary Comments		

OPERATIONAL VIABILITY

Capacity	Phase 1		Phase 2		
Heathrow and Gatwick currently represent 96% of the capacity of a three runway airport; the fourth runway may meet unconstrained demand for only the medium term. Resilience and capacity issues may re-emerge beyond 2040 if demand continues to grow as forecast by DfT.	Runways	Airport	Net	Airport	Net
		3	0	4	1
	ATM	640,000	(120,000)	880,000	120,000
	pax	120	(20)	160	20
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. It is not clear when this operational configuration will become a limit on capacity. The proposal could be defined to meet resilience targets, however, the greater potential for periods of low visibility at Gatwick compared to Heathrow, could lead to greater system impacts were Gatwick the principal hub compared to Heathrow.					
Safety					
The runway configuration requires runway crossings to access the outer runways which could be mitigated through additional taxiways. The new northern runways would necessitate the over flight of Horley to the east – previously not exposed to overflights.					
Scalability					
Although the proposal is defined within an identified boundary, it appears that additional capacity could be developed if required, although this is likely to be to the north of the new runways and therefore increasingly distant from the rail station.					
Airspace					
The proposal would not require significant airspace redesign. The boundaries of the London Terminal Manoeuvring Area (LTMA) would be amended on closure of Heathrow, and Gatwick’s SIDs, STARS and interfaces with en route airspace would be amended to include the additional runways. 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

This could be developed through the 2020s, opening in 2030, although this would depend on the Government, planning and legislation. Works could not commence until after the ending of the 2019 agreement with West Sussex County Council.

Sources of funding

Funding proposed to be from Government (including grants, procurement of certain surface access, payment of running yield during construction) and ultimately from passengers/users/airlines (other than elements subject to Government guarantees that are not passed through to end users).

Public funding

Depending upon procurement approach, Government grant monies may relate only to the resolution of Heathrow, or may comprise significant debt funding (mainly bond) and limited equity investment related with the airport development.

Private funding

Depending upon procurement approach likely to comprise significant debt funding (mainly bond) and limited equity investment.

Commercial/financial structure (e.g. RAB, PPP, other)

Regulatory Asset Base (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 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.