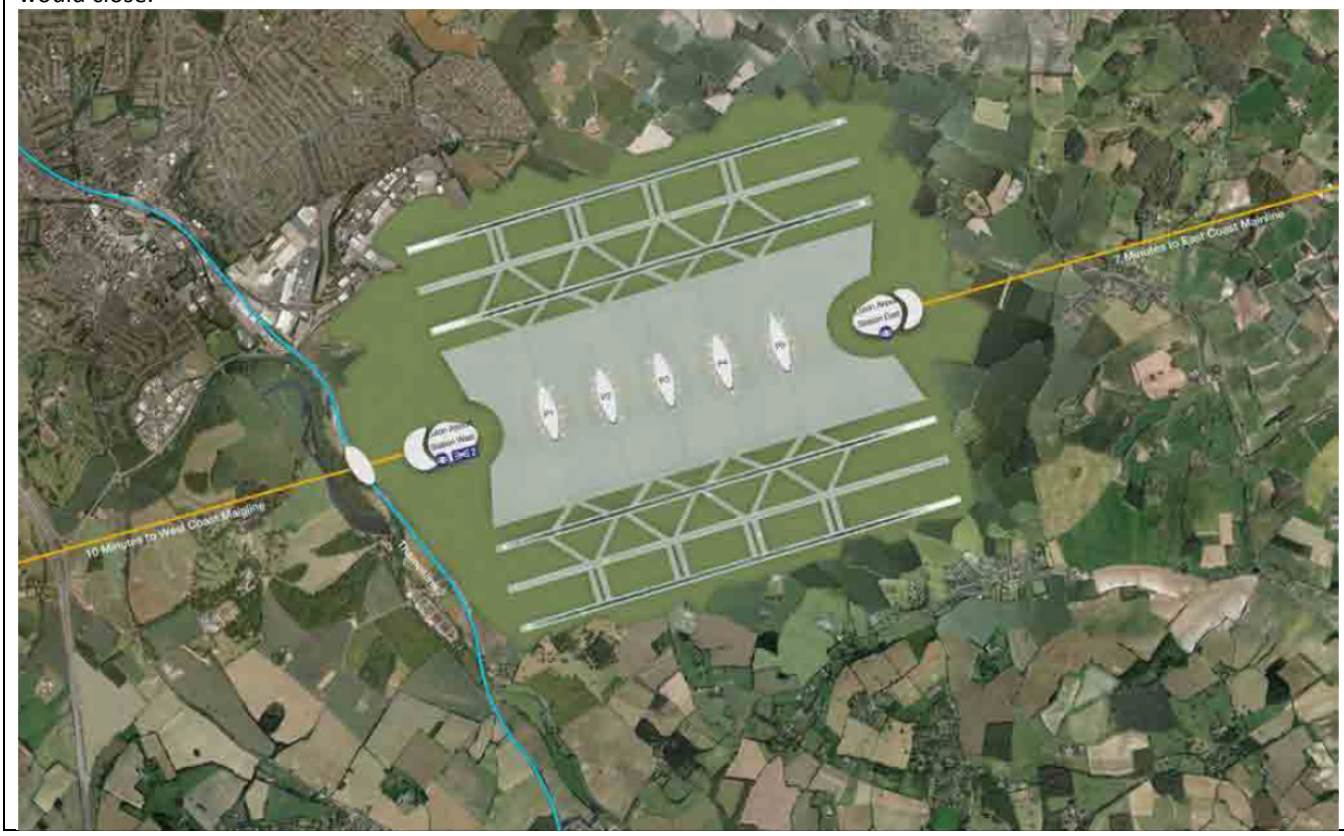
PROPOSAL TITLE:	London Luton Airport	Group:	Existing
SUBMITTED BY:	WestonWilliamson+Partners	Reference No.:	53

PROPOSAL

New 4 runway hub airport replacing the existing London Luton Airport. The proposal is to extent the current site southwards and eastwards into farmland between Luton and Kimpton. Two terminal buildings proposed serving five satellites. Runway pairs 1km apart on a 25km^2 site. Heathrow would remain open as a point to point airport and Stansted would close.



ASSESSMENT SUMMARY

In principle, both this proposal and the concept from Centre Forum / Policy Exchange are similar, providing expansion building upon existing infrastructure, with the potential to offer a larger, more efficient configuration enabling a resilient operation. Although the system gains a net benefit in capacity, that benefit is delivered at the cost of affecting a significant, currently not impacted, population around Luton.

As part of this assessment it is assumed that the commercial delivery of this proposed airport would likely require the closure of Heathrow, and Stansted would be caused to close due to airspace conflicts, the net capacity benefit to the London system is somewhat limited. The Luton hub option may therefore offer an inferior net capacity benefit compared to Gatwick. The closure of Heathrow and Stansted would reduce competition in the London system (to a greater extent than the Gatwick option only closing Heathrow). The capital cost is, however, lower than for either the Stansted to Gatwick options.

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OVERVIEW

Approach	Unstated, but assumes that, following enabling legislation, an appropriate Special Purpose Vehicle would be established to construct and operate the airport and presumably manage the State-led closure of both Heathrow and Stansted airports. Opening may be 2025-2030.						**Opening Year**	2030
Capacity						**Runways**	**Airport** 4	**Net** 0
						ATM	900,000	(5,000)
						pax	170	22
Cost		**Airport**	**Access**	**Other**	**Sub Total**		**Including Risk/OB**	
		15.3	5.9	0.5	21.7		46.2	
Surface Transport	A direct link to the Midland Mainline is essential, but it is unclear whether there is adequate capacity on the line to provide the necessary level of service frequency to meet demand for access to the new hub. A light rail connection (LRT) to the West Coast Main Line (WCML) and East Coast Main Line (ECML) is unlikely to have a high impact. Major highway improvements are likely to be necessary, particularly to address east-west traffic movements from the A1(M), A10 and M11, and possible congestion on the M1 and M25.						**1 hr isochrone**	15
							2 hr isochrone	29
							London centre	27 miles

Economic					
Borough	**Luton UA**	**Central Beds**	**St Albans**	**Bedford**	**Dacorum**
Unemployment (%)	9.4	6.1	5.2	7.3	5.7
Ave. Salary (£/yr)	25,111	28,694	35,110	26,905	29,375
Borough	**Stevenage**	**North Herts**			
Unemployment (%)	7.6	6.9			
Ave. Salary (£/yr)	28,314	32,448			
County	**Luton UA**	**Beds (rest)**	**Hertfordshire**		
GVA (£/capita)	21,829	15,883	23,073		

Environment	22 Ancient woodlands directly impacted. More residences would be demolished than at Stansted (STN). Deprived areas within Luton may benefit more than area around STN.						**57 LA_{eq}**	**Airport** 133,000	**Net** (115,000)
							55 L_{DEN}	**<u><50k</u>** 201,000	
	SAC[1]	**SPA**[1]	**Ramsar**	**CA**[1]	**AONB**[1]	**SSSI**[1]	**Listed Buildings**	**SAM**[1]	**Houses Lost**
	-	-	-	-	-	-	42	1	520

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

ECONOMY

Borough	Luton UA	Central Beds	St Albans	Bedford	Dacorum
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Impact on Industry

A new airport with two pairs of close, parallel runways to the south of Luton Airport would necessitate the closure of Stansted. With Heathrow also required to close, this would provide one net additional runway, but no material change in ATM capacity, although passenger capacity would increase. The redistribution of low cost flights to Gatwick may create benefits at Luton, allowing new services and reducing operational costs due to the operation of a more efficient airport, with increased runway capacity and better utilisation, particularly if operated in full mixed mode. However this may be offset in part by increased landing charges to recover capital costs of construction, and being slightly less well located for the airlines' prime passenger market. It would free up land at Stansted and Heathrow for redevelopment, helping address demand for land for housing.

Airports	With the existing Stansted airport required to be closed for airspace reasons, and Heathrow to be closed to facilitate hub status at Luton, the additional runway capacity satisfies demand for only the near future, with full mixed mode necessary for any material passenger capacity increase. The airport could attract network traffic away from Gatwick, while having to subsume the traffic of Stansted and Luton. Closure of Heathrow and Stansted airports would reduce competition in the London airport system.
Airlines	As with any other major new hub airport displacing Heathrow, airlines currently using Heathrow and others seeking to use it would benefit from the increase in capacity allowing new direct routes, higher frequencies, reduced delays, because of sufficient capacity for resilience. LCC and charter airlines would not find sufficient capacity in dedicated airports and may have to share, though this may facilitate growth at Southend, Southampton, Birmingham, etc. Interline traffic would have more potential to increase, enhancing the viability of some direct routes, particularly by airlines based at the new hub.
Passengers	As with any other large new hub airport, passengers would benefit from increased capacity at the new site via delay reductions, a greater choice of destinations/enhanced frequencies, more competition (reducing fares) and faster terminal throughput times. But travel times and costs would increase on average for typical customers in London and most of the SE, albeit only modestly, and with reductions from the Midlands and the areas adjacent to Luton. The closure of Stansted would be detrimental to passengers local to Stansted.

Local & Regional Economic Impacts

The airport is located in Luton district, an area of relatively high unemployment and low economic product for the southeast. Surrounding areas vary from somewhat low to somewhat high unemployment for the region, and the economic product of the rest of Bedfordshire is very low. The site providing an expanded airport with sufficient capacity to meet expected short term demand would facilitate growth of new and existing industries in aviation, 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. Many of these businesses would have relocated from the vicinity of Heathrow. The immediate effect would be to increase commercial property development in the vicinity of the new site, but there would also be significant potential to redevelop the Heathrow site for both commercial purposes and residential development. The agglomeration effects of the existing Heathrow/Thames Valley/M4 corridor would be diluted, as such businesses may prefer to locate closer to the new airport and in the M1 corridor. Reduced noise impacts are likely to have a modestly positive effect on land prices to the east of the Heathrow site, offset by some smaller negative impacts closer to the new airport. There would be significant dislocation of employment, with many employees needing to relocate, although house prices are high in much of the area outside Luton and Bedford themselves. Existing commuters in the area may experience increased congestion and travel costs, despite the improved transport connections.

National Economic Impacts

The main national economic impacts come from the provision of new capacity, enabling more flights and connectivity, and the increase in business and leisure trips, and trade in goods and services (and the indirect effects on inward investment. Increased choices of flights and airlines, reducing travel time and fares should generate significant consumer/welfare benefits. The benefits would be offset by higher access costs from London (although lower costs for the Midlands and areas surrounding Luton). Increased congestion in the M1 corridor may also be problematic for transport artery of national significance.

SURFACE ACCESS

Time/Distance to Central London	1 hr isochrone population	Key required upgrade schemes
40 mins on MML 27 miles	15	▪ East-west LRT from Tring on the WCML, via all 5 airport terminals, to Stevenage on the ECML
Journey times to other population centre	**2 hr isochrone population**	▪ Diversion of Thameslink services via the airport ▪ Platform capacity enhancements at St Pancras and other London termini
Birmingham 1hr 15 mins Manchester 2hr	29	▪ East/west LRT service from the WCML at Tring running via the airport to the ECML at Stevenage ▪ New link road from airport to the A1(M) (and possibly A10 and M11) ▪ Capacity improvements to the M1 and M25. ▪ Improved and higher capacity local highways (e.g. B653, B652)

Rail Infrastructure Capacity Analysis

The sponsor has not conducted any analyses of whether the surface rail access could support a Luton hub. The proposal suggests the use of light rail to connect to the West Coast Mainline at Tring and the East Coast Mainline at Stevenage, meaning an additional interchange for travellers so offering inferior service compared to direct rail links. A dedicated link to the Midland Mainline is also proposed allowing access to St. Pancras, and then central and South London via Thameslink. It is unclear whether there would be adequate capacity on the Midland Mainline to support the necessary frequencies for the passengers likely to use a Luton hub. Whilst some surface access rail trips would utilise Thameslink services direct into London, others would use a longer route via an east-west LRT to Tring or Stevenage, and then WCML or ECML services to Euston and Kings Cross. This would increase journey times, and make the achievement of a high public transport mode split difficult. It is proposed that both Crossrail 1 and Crossrail 2 be extended to the new airport, although this would be a major diversion from the committed and planned routes, be expensive and a relatively slow option for access into London. It would be difficult to justify either such extension without further analysis.

Highways Capacity Analysis

The submission states that airport would utilise existing highway infrastructure rather than requiring new infrastructure provision, and that it is well served by both the M1 and A1. The sponsor has assumed that there would be a major increase in public transport usage, including existing rail services linked to the airport via new light rail service. Given that most highway surface access road trips would use the M1, this would put a lot of pressure on an already congested motorway, and is likely to require major widening of the M1, A1(M) and the northern half of the M25. It is likely that either a new link road or significant upgrades of existing roads from the east connecting the A1(M), and possibly the A10 and M11, would be required to avoid severe congestion from traffic accessing from Essex, Suffolk, Cambridgeshire and the East Midlands.

Accessibility to Population & Business centres

The airport would be well served by the strategic highway network with the M1 located to the west and the A1(M) to the east providing links to London and the M25 to the south. To the north the M1 provides links to Milton Keynes, Coventry, Leicester, Nottingham and northern England, and the A1 provides a key link to Peterborough. The proposed diversion of Thameslink through the airport would provide direct links to London and Bedford. Connection to the East Coast and West Coast Mainlines would further enhance connectivity to London as well as providing connection to key population and business centres such as Peterborough, Leeds, York, Birmingham, Manchester, Liverpool, Newcastle and Scotland.

Accessibility to Transport Interchanges

A light rail link is proposed to directly connect to Tring and Stevenage. This would provide a 10 minute journey time to the West Coast Mainline at Tring providing access to Euston Station and a 7 minute journey time to the East Coast Mainline at Stevenage providing access to London Kings Cross Station. Direct trains would serve St Pancras, and key London stations such Farringdon, Blackfriars and London Bridge (for South Eastern) in addition to Gatwick in the south.

Accessibility to Workforce

It is likely that the workforce would be drawn from Luton, Stevenage, Milton Keynes and Watford and that much of the workforce would access the airport by car, as only some commuters would have convenient access by public transport.

Modal Split Assumptions

It is assumed at 55% of airport passengers would arrive by public transport. For employees, it has been assumed that 30% would arrive by private transport. Both of these assumptions appear to be optimistic, given planned public transport schemes.

Potential Wider Use

The light rail connections proposed within the submission are unlikely to have significant economic benefits, but increased capacity on the key highway links should have some economic benefits for commuters and other traffic.

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ENVIRONMENT

Overall noise impact	Significant local negative impact, potentially impacting on Stevenage, but net system reduction.							Airport	Net
							57 LA_{eq}	133,000	(115,000)
							55 L_{DEN}	201,000	
	SAC	SPA	Ramsar	AONB	SSSI	CA	Listed Buildings	SAM	Houses Lost
	-	-	-	-	-	-	42	1	520

Air Quality Measures aiming for 55% public transport could benefit air quality, however the area of the new airport would experience a significant negative impact, although this would be offset by positive impacts around the reduction of Heathrow airport's contribution to local $NO_2$and reductions around Stansted airport.	**Mitigation Plan**
Noise Submission states that **the estimate of the number of people affected by noise above 55dbA is less than 50,000**. However, the independent noise modelling for comparison provided the following results: ▪ 57LAeq: 133,000 people affected; ▪ 55Lden: 201,000 people affected. The population affect by 57LAeq represents a 126,000 increase at Luton Airport, however the London system would experience a net reduction of 115,000 given the potential closure of Heathrow and to a lesser extent, Stansted. The impact of this increase would disproportionately impact Stevenage.	**Mitigation Plan**
Designations **Proposal may impact 3 Scheduled Monuments and 5 listed buildings, plus a number of listed buildings and Conservation Areas associated with surrounding villages and towns. Listed buildings will need to be demolished at Breakwood Green, Peter's Green and Ansells End Farm.** Likely loss of a number of cultural heritage designations, ancient woodland and landscape impacts. GIS analysis indicates a direct impact of 42 listed buildings, 1 Scheduled Monument and 22 Ancient Woodlands.	**Mitigation Plan**
Climate Change **Goal that 45% of airport passengers would travel to the airport by car and 55% by public transport.** Modal change from passenger transport to airport via rail. Carbon footprint likely to be less than a wholly new hub location, efficiencies may result in lower carbon emissions per traveller than average.	**Mitigation Plan** Efficiency potential in technology, modal shift, design and operation. Proposal to increase passenger use of public transport to 50% to contribute to reduced C02 emissions.
Other Issues **Impact on agricultural land and woodland.** No significant flooding issue.	**Mitigation Plan**

PEOPLE

Housing Properties would be lost in the hamlets of Peter's Green, Chilten Green and the larger village of Breachwood Green.	Demolished 520
Vulnerable Groups Most of the wards within Luton have a high score on the Indices of Multiple Deprivation, indicating a primarily deprived area with scope for improvement and might benefit more from new opportunities the airport hub could bring.	
Quality of Life In addition to the property loss detailed above, there would be significant impacts on a number of additional villages close to the airport footprint (New Mill End, East Hyde, Kimpton, Bendish). Stevenage would experience a significant increase in noise nuisance.	

Wider Social Impacts

A new hub airport at Luton would employ over 150,000 people directly with another 200,000 in associated employment. There are likely to be additional impacts from in-migration of working population in terms of increased pressure on services such as health, housing and education and changes to population mix and health issues. Additional pressure on housing and housing/rental could reduce affordability for the existing population. Social impacts at Heathrow and Stansted would depend on redevelopment of the airport sites and the extent they can provide for housing and employment needs.

Wider economic benefits stated but specific benefits for areas of unemployment and deprivation not addressed. Enhanced connectivity internationally, and between regional UK location and the rest of the world.

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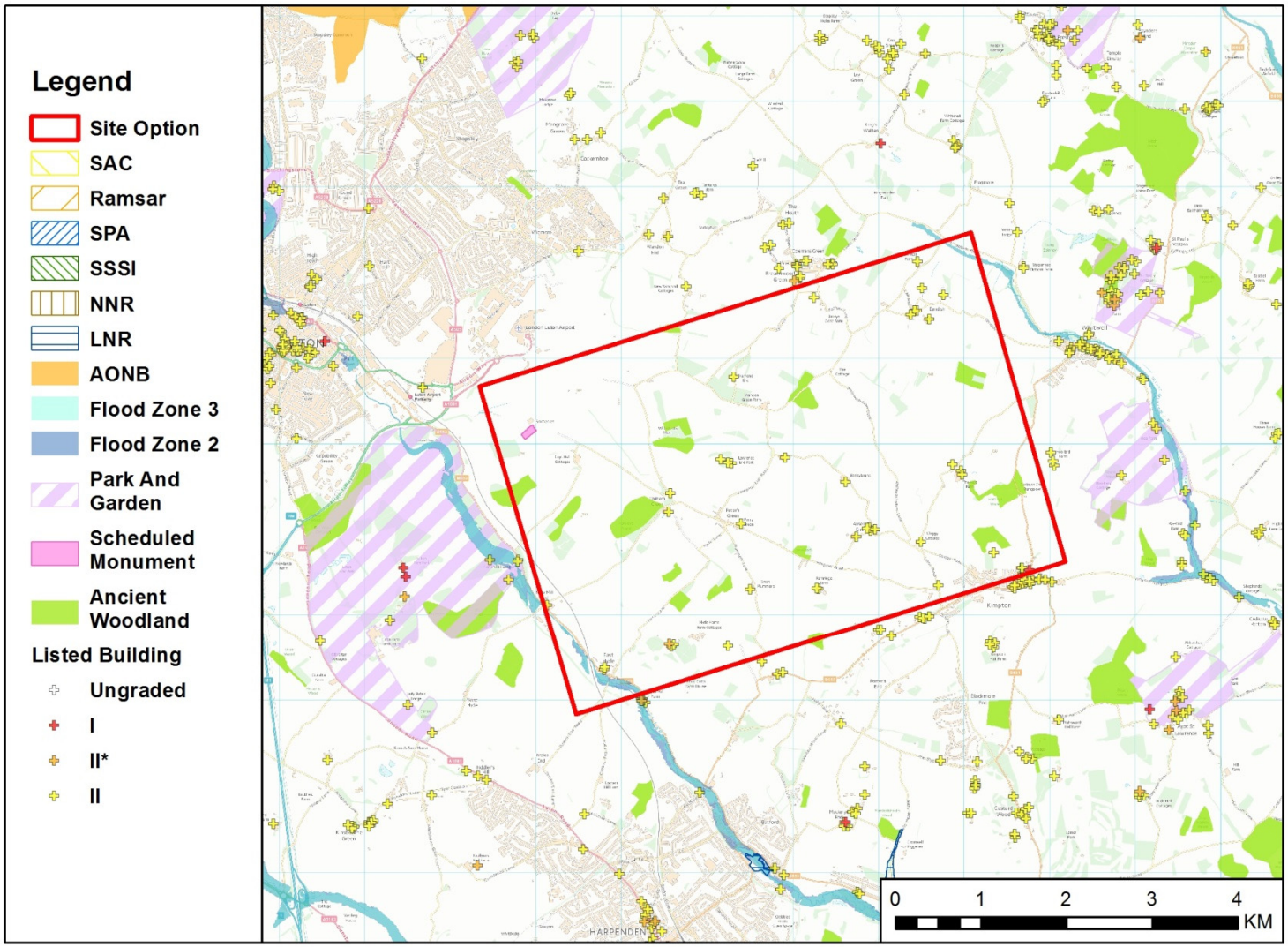

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COST

Capital Cost

Proposed scheme would cost £25 bn, unadjusted for bias and submission does not state any allowance for risk. Submitter provides little costing information but estimates rail connection to East Coast Main Line, West Coast main line and Thameslink would cost £600 million. Unclear if this is included within the £25 bn.

Independent cost analysis assesses the scheme to cost £46bn.

	£ bn
Airport	15.3
Access	5.9
Other	0.5
Sub-Total	21.7
Risk	9.1
Optimism Bias	15.4
Total	46.2

Key Risks

- Undulating topography of the proposed site would need serious consideration during the construction phase.
- Surface access links required.

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 into London. 50% optimism bias applied to all costs.

Surface Access Costs

£0.9bn estimate for road and rail links based on requirement for infrastructure (as identified by independent analysis), with further allocation of £5bn for offsite upgrading of road and rail access. This allocation may underestimate the full cost which could increase the total cost to c £50bn.

Other Off-Airport Costs

An allowance of £0.5bn has been included to cover other typical environmental mitigations measures.

Summary Comments

Proposed costs appear to underestimate the potential cost of the airport and its wider access requirements.
Costs associated with the potential closure of Heathrow have been excluded.

OPERATIONAL VIABILITY

Capacity

The closure of Heathrow and potentially Stansted leads to a minor reduction in system ATM capacity; however the greater average passengers per ATM achieved at the new airport compared to either the current Luton or Stansted airports would be expected to lead to an overall increase in passenger capacity. The LCC sector would be disproportionately disadvantaged with only Gatwick remaining in the London system primarily serving the sector.

	Airport	Net
Runways	4	0
ATM	900,000	(5,000)
pax	170	22

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 outer runways require inner runway crossings to access. Easterly approaches would overfly Stevenage, however the extent is significantly less than the approaches over London into Heathrow the new airport replaces.

Scalability

It is possible to build further runways to the east to avoid Harpenden, however Harpenden would lie close to the western end of any future runways, which has the potential to create risks around noise, air quality and the environment.

Airspace

The proposal would require significant airspace design. The boundaries of the London terminal manoeuvring area (LTMA) and Luton's SIDs, STARS and interfaces with en route airspace would be amended to reflect the new airport. 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.

Timescale

Unstated, but assumed that following enabling legislation an appropriate Special Purpose Vehicle would be established to construct and operate the airport and presumably manage the, State-led, closure of other airports. Opening may therefore be 2025-2030.

Sources of funding

LLAOL may be unlikely to invest in expansion given short timescale of remaining lease. Assuming that similar funding to other new hub proposals could be raised from private sources through Development Company (likely to be underwritten by Government), it would be a requirement to revisit LLAOL's lease situation with a view to extension.

Assume government funds surface access. Potentially 50% grant, 50% private of which 20% (10% overall) from private equity. Highly geared approach due to limited availability of construction equity. Debt financing primarily through bond market, combination of fixed rate and index-linked.

Public funding

Comprehensive government guarantee package likely to be required including management of the potential closure of Heathrow, availability of surface access, financing market disruption, change of law/policy protection, limitation of cost/time overrun. Direct guarantees of senior debt may even be needed.

Private funding

Likely to comprise significant debt funding (mainly bond) 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 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.