PROPOSAL TITLE:	Stansted Hub	Group:	Existing
SUBMITTED BY:	Manchester Airport Group; Mayor of London	Reference No.:	55

PROPOSAL

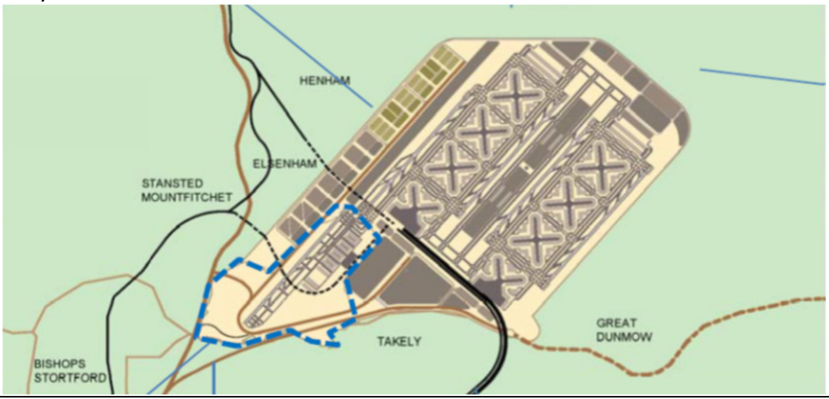
Similar concepts for the provision of four (MAG) to five (Mayor of London) runways, including the current runway. Although unstated by MAG, the closure of Heathrow would appear to be a necessary component of both schemes.

MAG presents an in-principle concept for a northwest runway and two further wide spaced runways to the east. Depending upon separations the runways could be operated in segregated mode or as independent, dependent pairs.

The Mayor of London (MoL) proposes to retain the existing runway and terminal zone as a separate entity adjacent to the new four runway hub airport. The hub airport would offer four independent runways.

MAG:

Mayor of London:



ASSESSMENT SUMMARY

In principle, both these proposals and that from MSP Solutions are similar, providing phased expansion building upon existing infrastructure, with the potential to offer a larger, more efficient configuration enabling a more resilient operation than Heathrow, with an overall reduction in population affected by aircraft noise nuisance on closure of Heathrow. In contrast to both the Luton and, more significantly, Gatwick hub options, the system reduction in population affected by noise nuisance is achieved at Stansted as expansion would not affect a noticeable additional population.

Given that commercial delivery is likely to require the closure of Heathrow, and that Luton would also be required to be reduced or close due to airspace conflicts, the net capacity benefit to the London system is somewhat limited. The Stansted hub option may therefore offer an inferior net capacity benefit compared to Gatwick. The closure of Heathrow and Luton would reduce competition in the London system, and to a greater extent than the Gatwick option as this would only close Heathrow.

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OVERVIEW

Approach	MoL proposes Government led initiative to acquire Heathrow, construct the new airport and supporting infrastructure, transfer operations and redevelop Heathrow site before sale of both assets, with opening in 2029. MAG assumes that only airport infrastructure is developed by the private sector, but with no proposals to manage Heathrow's closure.	Opening Year 2029

Capacity	The Mayor's proposal assumes the existing runway is retained however, it is not clear whether the existing runway could be operated as proposed and the capacity appears optimistic. MAG's wide-spaced four runways may accommodate the claimed 950,000 ATMs at maximum. The closure of Heathrow and Luton offsets the capacity increase at Stansted. The Low Cost Carrier sector however would be disproportionately disadvantaged with only Gatwick remaining in the London system primarily serving the sector.	Mayor	Airport	Net
		Runways	**5**	1
		ATM	**1,250,000**	345,000
		pax	**210**	62
		MAG		
		Runways	**4**	0
		ATM	**950,000**	45,000
		pax	**160**	12

Cost	Cost includes mooted high speed rail link into London. Without this direct link, cost would be c £60bn.	Airport	Access	Other	Sub Total	Including Risk/OB
		22.4	15.1	0.5	38.0	81.8

Surface Transport	Major capacity improvements are required on the West Anglia Mainline and the Stansted Airport branch to accommodate additional passengers, and at least either an extension to the proposed Crossrail 2 or a dedicated high speed rail link to central London. Besides new airport access roads, the M11, A120 and M25 would require significant widening and other capacity improvements to accommodate the expected additional traffic.	1 hr isochrone	16
		2 hr isochrone	27
		London centre	30 miles

Economic	Borough	Uttlesford	East Herts	Harlow	Broxbourne	Enfield
	Unemployment (%)	3.7%	4.4%	10.5%	5.9%	10.5%
	Ave. Salary (£/yr)	29,968	32,765	26,733	29,630	28,850
	Borough	South Cambs	Epping Forest	Welwyn Hatfield	North Herts	Stevenage
	Unemployment (%)	4.1%	5.7%	5.3%	6.9%	7.6%
	Ave. Salary (£/yr)	31,938	29,016	32,448	28,314	32,183
	County	Hertfordshire	Essex ex UAs	Cambs ex UAs	Outer London E&NE	
	GVA (£/capita)	23,073	16,707	21,598	13,428	

Environment	The footprint at Stansted would impact fewer environmental and heritage sites than the proposed footprints at Luton or other proposals for Stansted.		Airport	Net
		57 LA_{eq}	15,000	(233,000)
		55 L_{DEN}	92,000	

	SAC[1]	SPA[1]	Ramsar	CA[1]	AONB[1]	SSSI[1]	Listed Buildings	SAM[1]	Houses Lost
	-	-	-	-	-	2	91	2	330

[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	Uttlesford	East Herts	Harlow	Broxbourne	Enfield
Unemployment (%)	3.7%	4.4%	10.5%	5.9%	10.5%
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County	Hertfordshire	Essex ex UAs	Cambs ex UAs	Outer London E&NE	
GVA (£/capita)	23,073	16,707	21,598	13,428	

Impact on Industry

An extended airport resulting in four or five runways would, with Heathrow and Luton closing, provide one or two net additional runways, although with modest capacity increases. However, this creates benefits by allowing new services and reduced operational costs due to the operation of a more efficient airport and increased runway capacity with 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 Luton and Heathrow for redevelopment helping address demand for land for housing.

Airports	With Luton airport required to be closed for airspace reasons, and Heathrow to be closed to facilitate hub status at Stansted, the additional runway capacity satisfies only short term needs, with full mixed mode necessary for material capacity benefits. The large capacity of the airport could attract network traffic away from Gatwick, while having to subsume the traffic of Stansted and Luton, making for a potentially difficult traffic mix (i.e. low cost and network carriers typically require/prefer different infrastructure and service levels). The low cost sector would be disproportionately impacted, with only Gatwick remaining in the London system offering significant appropriate capacity. Closure of Heathrow and Luton 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 more 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 surface transport travel times and costs would increase on average for typical customers in London and most of the south east, and with reductions from the Midlands and the areas adjacent to Luton. The closure of Luton would be detrimental to passengers local to that airport.

Local & Regional Economic Impacts

The airport is located in Uttlesford district, and close to East Hertfordshire, an area of low unemployment. Whilst many other surrounding areas have low unemployment, Harlow and Enfield have high unemployment and are of easy access to the airport. Essex and adjacent areas of outer London have low economic product. 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. 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 from Heathrow, with many employees needing to relocate, although house prices are high in much of the area around Heathrow. 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; the increase in business and leisure trips; 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 airport's hinterland.

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SURFACE ACCESS

Time/Distance to Central London	1 hr isochrone population	Key required upgrade schemes	
30 minutes 30 miles **Journey times to other population centres**	16 **2 hr isochrone population** 27	▪ Second rail tunnel on airport branch ▪ West Anglia Main Line)WAML) 4 tracking ▪ 12 car, non-stop services to Liverpool St ▪ Crossrail 2 extension or high speed rail to central London. ▪ Additional local rail connections and services to the N, NE and NW.	▪ Additional M11 junction and access link. ▪ M11 widening (M25-A11) ▪ A120 widening and upgrades ▪ Local highway and access road improvements.

Rail Infrastructure Capacity Analysis

The existing Stansted station can accommodate up to 14 services an hour, but to accommodate the additional passengers expected from a hub, requires a second rail tunnel on the Stansted branch and 4-tracking of the West Anglia Mainline to allow for non-stop frequent services into Liverpool St. In addition, it is likely that at least, either an extension of Crossrail 2 from Tottenham Hale (which would provide a "Piccadilly line" equivalent stopping metro service) or a dedicated high speed railway to central London would be required to meet demand (both have been proposed by submitters). It is not clear which are essential and which are useful but not ideal. Essentials are probably improvements to the WAML and a new high speed rail service and improvements to WAML, and useful are probably extensions to CrossraiL 1 and Crossrail2, and HS1/HS2 connections. More analysis is required to validate this.

Highways Capacity Analysis

Whilst the M11 and A120 currently have spare capacity, a hub airport would require a wide range of major highway improvements including a new access route from the airport to the M11, widening of the M11 south to the M25 and north to the A11, widening of much of the A120, significant widening of the M25 and likely capacity improvements to wide range of connecting highways and local/access roads. The Mayoral submission predicts approximately 8,000 two-way vehicle trips would be made to the airport during the peak hour (0700-0800). It is stated that long term provision would be dictated by general changes in traffic levels and land uses. Even with a 65% public transport mode share target, a hub airport at Stansted would require the above listed major highway improvements.

Accessibility to Population & Business centres

Stansted is adequately connected to central London by existing services, and the proposed improvements would provide significantly enhanced access into London. Hourly rail services operate to Cambridge and Birmingham, which could be improved. The M11 provides good access towards west London with connections to the M25 and A406 across outer, east, north and central London, and to Cambridgeshire, with connections to Suffolk, Norfolk and the Midlands, but involves lengthy journey times from west and south London and counties to the south and west of London.

Accessibility to Transport Interchanges

Currently there are rail links to Liverpool Street and Tottenham Hale and a separate service to Cambridge, Peterborough and Birmingham. A Crossrail 2 extension would connect the airport to Euston, Victoria and Clapham Junction, whilst a high speed rail link could connect to multiple London rail interchanges (proposed is Stratford, Old Oak Common, Canary Wharf, London Bridge and Waterloo).

Accessibility to Workforce

MAG suggests that **up to 8 million people would fall within a 1 hour public transport journey** if infrastructure upgrades could be provided. The Mayor **states that around half of all staff trips would be drawn from a 'local' 20km catchment** including Bishop's Stortford and Harlow. It is difficult to forecast the redistribution of commuting patterns from the closure of Heathrow.

Modal Split Assumptions

A 60-65% public transport mode share is assumed by both submitters. MAG assumes a maximum employee public transport modal split of 24%.

Demand Management

MAG considers that the Stansted Travel Plan has a range of adequate measures to encourage public transport use, and the Mayor states that some measures would be needed to incentivise public transport use.

Potential Wider Use

Highway improvements on the M11 and A120 around Stansted would substantially benefit existing populations, commuters and businesses along associated corridors. The rail improvements would benefit commuters, particularly if the location of the new hub airport was combined with more land being available for housing along the West Anglia Mainline corridor to create demand for more frequent commuter services on the improved railway.

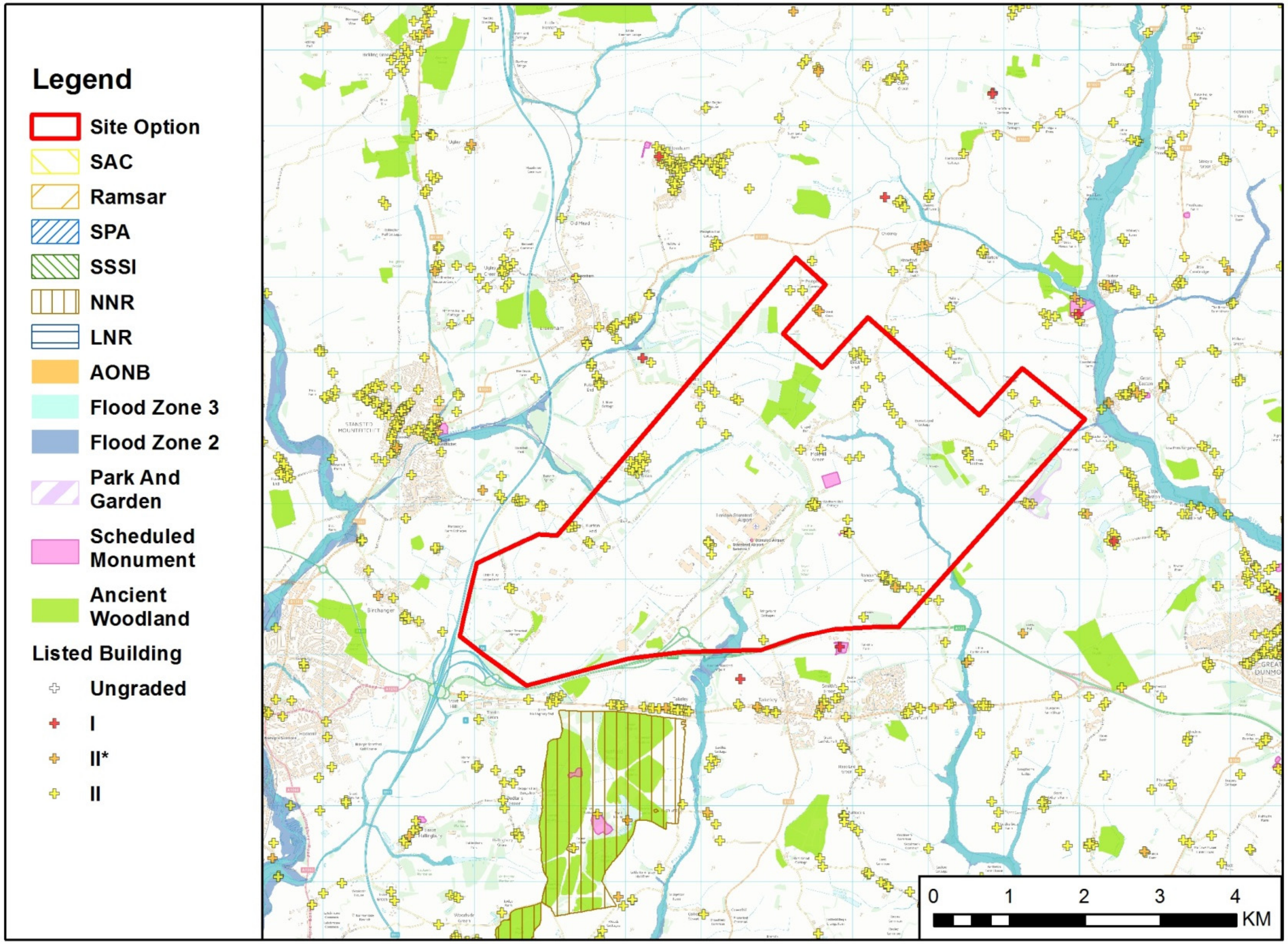
ENVIRONMENT

Overall noise impact	**Even at a high throughput of 140 mppa (twice current Heathrow), the number of people within the 57 dB contour would be <14,000, compared to 240,000 for Heathrow**							Airport	Net
							$57\ LA_{eq}$	**12-14,000** 15,000	(233,000)
							$55\ L_{DEN}$	**35-40,000** 92,000	
	SAC	SPA	Ramsar	AONB	SSSI	CA	Listed Buildings	SAM	Houses Lost
	-	-	-	-	2	-	91	2	**240-400** 330

Air Quality **A relatively large area would be subject to "medium risks". Potential for exceeding of the annual mean NO2 objective for 300 people.** Air emissions are likely to depend greatly on surface access and the use of public transport. 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. With closure of Luton airport there is a benefit of loss of airport and related traffic contribution to air emissions locally	**Mitigation Plan** **Maximising the use of public transport access and potentially restricting access to low emission vehicles only**
Noise **A new hub airport at Stansted would expose around 35-40k people to noise in excess of 55dB Lden, 8k to Lnight over 50 dB, and 12-14k to 57dB.** Independent noise modelling for comparison provided the following results: ▪ 57LAeq: 15,000 people affected; ▪ 55Lden: 92,000 people affected. The population affect by 57LAeq represents a 14,000 increase at Stansted Airport, however the London system would experience a net reduction of 233,000 given the closure of Heathrow and Luton.	**Mitigation Plan** **Careful orientation of the runways and flight paths, the use of noise abating operating procedures, to minimise their exposure. Surface access noise, would need to be managed and minimised through careful siting and planning of new and existing rail and road links**
Designations Direct loss of 2 woodland SSSIs and local wildlife sites; GIS analysis shows 91 listed buildings and 2 Scheduled Ancient Monuments within the footprint. Designated sites nearby are additionally potentially affected by surface transport and associated development. Potential impacts on a nearby National Nature Reserve. Direct impacts on 12 blocks of Ancient woodlands.	**Mitigation Plan** **Habitat enhancement of surrounding environments; planning and detailed design to avoid environmentally sensitive areas and seasonal activity.**
Climate Change **130-140 Kg CO2 per passenger for Air Traffic Movement** **350 KT CO2 per annum for surface access emissions** 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**
Other Issues **Temporary and permanent works are required to ensure the surrounding area will not be prone to flooding as a result of new construction.** Large area of agricultural land loss.	**Mitigation Plan**

PEOPLE

Housing **Residential property loss 240-400** Development would generate significant additional demand for housing in the region	Demolished c330
Vulnerable Groups Most of the wards within the towns closest to Stansted Airport, such as Bishops Stortford, have a low score on the Indices of Multiple Deprivation, indicating a primarily non-deprived area. Impacts on health, vulnerable groups and local communities are not specifically addressed other than through employment opportunities.	
Quality of Life Noise and visual impacts and significant loss of open space and recreational amenity with the additional urbanisation of the area would affect local quality of life. Benefits through improved opportunity, access to services and connectivity.	
Wider Social Impacts **Could support regeneration aims for the Upper and Lower Lea Valley and east London with associated social benefits to areas of deprivation and unemployment.** 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 Luton would depend on redevelopment of the airport sites and the extent they can provide for housing and employment needs	


Legend
Site Option
SAC
Ramsar
SPA
SSSI
NNR
LNR
AONB
Flood Zone 3
Flood Zone 2
Park And Garden
Scheduled Monument
Ancient Woodland
Listed Building
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COST

Capital Cost

MAG estimates the cost of the airport as c £9-10bn. The Mayor estimates c £68bn for the fully developed airport.

Independent cost analysis assesses the scheme to cost £81.8bn.

	£ bn
Airport	22.4
Access	15.1
Other	0.5
Sub-Total	38.0
Risk	16.5
Optimism Bias	27.3
Total	81.8

Key Risks

- Land acquisition costs.
- Tunnel construction.
- Widening of M11 and M25.
- Rail connection to London.

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

£15.1bn estimate for road and rail links based on submission and requirement for infrastructure identified by the independent analysis. The independent cost estimate includes allowances for a high speed rail link /Crossrail extension and express rail link to London Waterloo.

Other Off-Airport Costs

An allowance of £0.5bn has been included to cover typical environmental mitigations measures for flood protection and habitat loss.

Summary Comments

The approach adopted by the Mayor appears reasonable, but may underestimate the cost of the surface access transport works.

Costs associated with the closure of Heathrow have been excluded.

OPERATIONAL VIABILITY

Capacity

The Mayor's proposal assumes the existing runway is retained and a further four constructed, with the new four runways able to handle 1,000,000 pa. It is not clear however, whether the existing runway could be operated as proposed and this capacity appears optimistic. MAG's wide-spaced four runways may accommodate the claimed 950,000 at maximum.

The closure of Heathrow and Luton offsets the capacity increase at Stansted. 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 Low Cost Carrier sector however would be disproportionately disadvantaged with only Gatwick remaining in the London system primarily serving the sector.

Mayor	Airport	Net
Runways	**5**	1
ATM	**1,250,000**	345,000
pax	**210**	62
MAG		
Runways	**4**	0
ATM	**950,000**	45,000
pax	**160**	12

Resilience, Reliability and Efficiency

The proposals could be defined to meet resilience targets.

Safety

The proposals could be designed to comply with safety requirements.

Scalability

Further eastwards expansion could provide additional capacity if required.

Airspace

The proposal would require significant airspace design. The boundaries of the London Terminal Manoeuvring Area (LTMA) and Stansted's Standard Instrument Departure (SID) routes, Standard Terminal Arrival (STAR) routes and interfaces with en route airspace would be amended to reflect the essentially new airport and the closure of Heathrow and Luton. However, given the long-term nature of the options and the likely airspace and air traffic management developments under SESAR (the Single European Sky ATM Research Programme) and the London Airspace Management Programme (LAMP), restructuring could be achieved as part of the on-going development process. There would not need to be any change of international boundaries.

DELIVERY

Timescale

Unstated by MAG, but Mayor suggests 2029 following a state-led process to manage the closure of both Heathrow and Luton airports.

Public funding

Mayor essentially proposes a Government -funded scheme delivered via Special Purpose Vehicle with some new road links via Public-Private Partnership (PPP) with potential government underwriting of demand risk. Constructed airport then operated by private operator.

No clarity re estimates for Heathrow acquisition/resale/redevelopment.

Private funding

Package of support measures may be needed for private financing, including government support/commitment (e.g. loans, debt guarantees, minimum demand guarantees, tax incentives) and supportive regulatory framework. These measures may be needed to reduce cost of finance or, more fundamentally, for accessing sufficient quantum of private finance before financing cost considerations arise.

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

Regulatory Asset Base 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.