CAA CAP 1616 Options Appraisal Assessment (Phase II Full)

Title of Airspace Change Proposal:	Introduction of RNP AR procedures at EGLC		
Change Sponsor:	London City Airport Ltd		
ACP Project Ref Number:	ACP-2025-003		
Case study commencement date:	16/01/2026	**Case study report as at:**	30/01/2026

Instructions

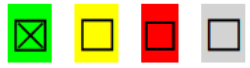
To aid the SARG project leader's efficient project management, please highlight the "status" cell for each question using one of the four colours to illustrate if it is:

Resolved - GREEN Not Resolved – AMBER Not Compliant – RED Not Applicable - GREY

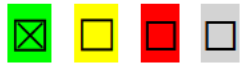
Guidance

The broad principle of economic impact analysis is **proportionality**; is the level of analysis involved proportionate to the likely impact from that ACP There are three broad levels of economic analysis; qualitative discussion, quantified through metrics, and monetised in £ terms. The more significant the impact, the greater should be the effort by sponsors to quantify and monetise the impact.

1. Background			**Status**
1.1	Has the change sponsor developed the initial options appraisal into a full options appraisal? [CAP1616f: 4.12-4.15]	Yes, the change sponsor has developed the initial options appraisal into a FoA, quantifying key appraisal and impact metrics in line with requirements for Stage 3 using TAG. The sponsor has undertaken: - Noise - Full primary & secondary metrics + WebTAG monetisation - GHG: Modelled CO_2e + WebTAG monetisation	☒ ☐ ☐ ☐

		- Fuel: Quantified & monetised fuel burn - Air Quality: Quantified but not monetised due to negligible differences (proportionate). - Other topics (tranquillity, biodiversity, capacity): Qualitative assessment. - Surface access benefit: Monetised - Qualitatively assessed impacts: - Communities, Local AQ - Wider society, Tranquillity - Wider society, Biodiversity - Wider society, Capacity and Resilience - General Aviation – Access - Commercial Airlines – Training Costs - Commercial Airlines – Other Operational Costs - Airport / ANSP – Deployment & Operational Costs. The change sponsor has included updated noise modelling metrics, including the noise modelling category and quantified assessments where possible, stating where data has been sourced from and any assumptions that may have been made. From stage 2, design components have been refined and combined with current IFP procedure components. These IFP's are considered a single design option (as this is just an RNP-AR approach, reflecting existing approach operations at LCY and not changing where aircraft fly only a shallower descent on approach).	
1.2	Has the change sponsor provided a robust rationale supported with appropriate evidence, justifying why certain design option(s) were not progressed to the full options appraisal?	The change sponsor has provided information on how the design components have been developed into the final options within the consultation material. The FoA does not make any reference to this and refers readers to the consultation document. It would be	

	[CAP 1616f: 4.13]	beneficial to have information on how the options have been developed between the stages in the FoA. Noting this, the change sponsor has explained what work they have done to decide on the final alignment of the approach procedure within the consultation material (500m offset swathes from current-day centrelines vs keeping the approach on the current paths). **Requirement: For transparency and clarity include information on the options development from Stage 2 to 3 within the FoA.** **Updated on 15/02/2026, V1.2 submission, the change sponsor has added an appropriate cross-reference to the main consultation document detailing the information of options development within the in the FoA. RAG status changed from Yellow to Green.**	
1.3	Has this rationale plus the supporting evidence been clearly explained in any consultation/engagement materials? [CAP 1616f: 4.13]	Yes, the consultation material describes the FoA process, clearly outlining what has been undertaken and why the change sponsor intends to implement the airspace change. The options development from Stage 2 to Stage 3 has been clearly described, illustrating the current approach track, proposed track and constraints that the sponsor has taken into consideration when discounting / progressing options. This is summarised in chapter 4 of the main consultation document. As per 1.2 above, the recommendation applies here.	☒ ☐ ☐ ☐
1.4	Has the initial options appraisal been developed into a detailed quantified and monetised assessment for the full options appraisal? [CAP 1616f: 4.14]	Yes, the change sponsor has developed the initial options appraisal into a FoA, quantifying key appraisal and impact metrics in line with requirements for Stage 3 using TAG. The sponsor has undertaken: - Noise - Full primary & secondary metrics + WebTAG	☒ ☐ ☐ ☐

		monetisation - GHG: Modelled CO_2e + WebTAG monetisation - Fuel: Quantified & monetised fuel burn - Air Quality: Quantified but not monetised due to negligible differences (proportionate). - Other topics (tranquillity, biodiversity, capacity): Qualitative assessment. - Surface access benefit: Monetised - Qualitatively assessed impacts: - Communities, Local AQ - Wider society, Tranquillity - Wider society, Biodiversity - Wider society, Capacity and Resilience - General Aviation – Access - Commercial Airlines – Training Costs - Commercial Airlines – Other Operational Costs - Airport / ANSP – Deployment & Operational Costs.	
1.5	Does the full options appraisal include: - All evidence gaps identified at Stage 2 fully assessed - All reasonable costs and benefits quantified - All other costs and benefits described qualitatively - Reasons why costs and benefits have not been quantified - Detail on the preferred design option, setting out reasons for the preference (where relevant) - A more detailed assessment of the impacts on safety, if completed by the change sponsor	- FOA Chapter 1.3 explicitly lists the Stage-2 evidence gaps (noise Cat-B modelling; AQ; GHG/fuel; tranquillity; biodiversity; capacity/resilience; economic impacts; costs) and states these have been fully addressed in Stage 3 with greater detail provided in technical annexes (A–E). - Yes. Quantified: Noise, GHG, Fuel burn, Surface access, Local air quality (quantified but not monetised). These represent all impacts for which quantification was proportionate and supported by available methods.	

	- A quantified and monetised environmental assessment, including all direct and consequential impacts [CAP 1616f: para 4.14]	- However, surface access assessment may be considered disproportionate to the scale of the ACP given that LCY are not explicitly intervening within the surface access transport market. The changes in demand for surface transport are thought to be bought about more demand for services to / from LCY. Whilst in theory, the sponsors assumption sounds logical there is a large degree of analytical uncertainty in terms of whether the ACP can be seen to be a causative effect of this. Given that this assessment claims a large proportion of overall monetised benefits, a sensitivity test should be undertaken or presented as a Level 2 benefit as per TAG guidelines. Note that this assessment makes no reference to negative externalities that could arise due to network reassignment / traffic re-distribution. - Yes. Qualitatively assessed: Tranquillity, Biodiversity (HRA), Capacity & resilience, General aviation access, Airline training/equipage costs, ANSP/airport deployment costs. - Yes - The FOA explains non quantification choices, in particular to reference to AQ where differences are deemed to be negligible and thus monetisation disproportionate. Night N60 not produced due to insufficient night movements. Fleet mix sensitivity not undertaken, due to agreement with CAA based on proportionality. Rationale has been provided and documented explicitly where required. - The FoA provides an overview of safety discussions that LCY has had with LCY tower controllers and London Terminal Control controllers on 14th & 21st July 2025. Discussions include: Considerations (approach angle, catch-up scenarios, TCAS, PAPI). Conclusion of **no increased risks**. Future assurance activities are	

		planned, including Safety and Human Factors Hazard Analysis workshops, Safety and Human Factors reports and a change assurance report. **Requirement: Sponsor must include further information on the analytical risks of the passenger surface time access assessment, detailing any weaknesses and uncertainty of the current methodology as appropriate and justifying the inclusion of this benefit stream.** **Recommendation: Sponsor should undertake a sensitivity test on the passenger surface access time as required per TAG, given that there is inherent uncertainty in the assumptions or likelihood of impacts occurring.** **Recommendation: Sponsor should consider presenting the passenger surface access time benefit stream as a "Level 2" or "adjusted" present value of benefit, given that the impact is uncertain or make qualitative reference to impacts.** **Updated on 15/02/2026, V1.2 submission, the sponsor has added further narrative to Appendix B, detailing the key uncertainties and assumptions made within the appraisal of passenger surface access time benefits and noted appropriate caveats. Sponsor has also undertaken a sensitivity test within appendix B by halving the VoT adopted for passenger travel time savings, but this has not been reported within the main FoA. RAG status changed from Yellow to Green.** **Recommendation as of 15/02/2026: The change sponsor should include reference to the sensitivity testing in the main FoA by presenting a table that shows the impact of the sensitivity test on the NPV derived. The standalone sensitivity test is within the appendix but is not used to draw out any conclusions, therefore it appears to be**	

		slightly redundant when read in isolation.	
1.6	Has the change sponsor used the most up-to-date, credible, and clearly referenced sources of data to assess the impacts of the baseline scenarios and design options? [CAP1616f: 4.16]	Broadly, the change sponsor has used up to date modelling and appraisal assumptions and credible data sources to inform the full options appraisal. For the surface access assessment, the sponsor has adopted the air passengers value of time from the Airports Commission. Whilst this is a suitable data source for air passengers, the assessment captures time savings for people who will (hypothetically at least) travel to LCY over competitor airports. Therefore, the value of time adopted may be perceived as incorrect as it refers a completely different travel mode (air vs surface). **Requirement: Sponsor to add further information about the use of the VoT assumption for surface access assessment – following clarification questions the response is acceptable but should be explained in the FoA.** **Updated on 15/02/2026, V1.2 submission, the sponsor has added further narrative to Appendix B, detailing the key uncertainties and assumptions made within the appraisal of passenger surface access time benefits and noted appropriate caveats. RAG status changed from Yellow to Green.**	☒ ☐ ☐ ☐
1.7	Has the sponsor explained the methodology it adopted to reach its input and analysis results? [CAP 1616f: 4.16]	The change sponsor has provided sufficient explanation on how they have arrived at their results, detailing any assumptions made and the process of obtaining the monetised benefits.	☒ ☐ ☐ ☐

2. Potential Impacts					Status
2.1	Has the change sponsor conducted a full options appraisal of each of the design options which it intends to consult/engage on using the following metrics and level of analysis? [CAP 1616f: 4.14]				☒ ☐ ☐ ☐
2.1.1	Communities	Not applicable	Qualitative	Quantified	Monetised
	- Noise				X
	- Local air quality			X	
2.1.2	Airport/ANSPs	Not applicable	Qualitative	Quantified	Monetised
	- Infrastructure		X		
	- Operational		X		
	- Deployment		X		
	- Other(s)	X			
2.1.3	Commercial Airlines/General Aviation	Not applicable	Qualitative	Quantified	Monetised
	- Training		X		
	- Increased effective capacity		X		
	- Fuel burn			X	X
	- Other(s)				
2.1.4	General Aviation	Not applicable	Qualitative	Quantified	Monetised
	- Access		X		
	- Increased effective capacity		X		
	- Fuel burn		X		
2.1.5	Wider society	Not applicable	Qualitative	Quantified	Monetised

	- Greenhouse gas emissions			X	X
	- Tranquillity		X		
	- Biodiversity		X		
	- Capacity/resilience		X		
2.1.6	Military	Not applicable	Qualitative	Quantified	Monetised
	-				
2.1.7	Other	Not applicable	Qualitative	Quantified	Monetised
	Passenger surface access travel time savings			X	X
2.3	Has the change sponsor discussed their methodology with the CAA when quantifying and monetising impacts in the groups 'Commercial airlines' and 'Airport/air navigation service provider'? [CAP 1616f: 3.42]	N/A – impacts are deemed to be marginal in practice, with costs being associated with flight crew training and authorisation procedures and relevant updates to the UK AIP. No new ground infrastructure is required for the proposed RNP-AR approaches.			☐ ☐ ☐ ☒
2.4	Has the CAA reviewed the safety implications to determine whether we agree that is the only potential design option, on the grounds of safety? [CAP 1616f: 4.15]	Given the nature of the ACP and the rationale for the change it is deemed proportionate that the sponsor considers the one "option" (With change scenario fleet / RNP-AR enabled approach at shallower descent angle) from an economic SME perspective. The ACP will still be subject to a detailed safety review as the process develops from technical / IFP regulators for implementation and operational safety.			☐ ☐ ☐ ☒

3. Economic Indicators			**Status**
3.1	Has the change sponsor provided traffic forecasts for year 1 and year 10? [CAP 1616f: 3.22]	Yes, a detailed traffic forecast spanning an appraisal period of 12 years has been provided for with and without change scenarios. A 12-year forecast has been provided as LCY has a 9m per annum passenger cap which was forecast to be reached within the counterfactual, but is	☒ ☐ ☐ ☐

		achieved sooner with fewer ATM's due to fleet changes enabled by this ACP. Forecast movements have been provided for each runway and first / last year of appraisal for the year 1 and year 12 forecast. These forecasts are also broken down into their fleet mixes for year 1 and year 12 forecast. A total ATM forecast that excludes corporate jets but covers the entire 12-year period including intermediate years has also been provided which presents the airport level movements. The sponsor forecasts that as a result of the change there will be approximately 76,500 fewer air traffic movements but an approximate increase of 14m passengers (noting the 9m per annum cap) over the 12 year appraisal period.	
3.2	Has the change sponsor valued all relevant costs and benefits of the design options using: - Net present value (NPV) - Benefit cost ratio (BCR) - Cost benefit analysis (CBA)? [CAP 1616f: 3.43]	Yes – the sponsor has presented all relevant impacts in monetised form, forming a final NPV to summarise the appraisal.	☒ ☐ ☐ ☐
3.3	When appraising costs and benefits of a design option, has the change sponsor assessed them incrementally against the baseline scenarios? [CAP 1616f: 3.45]	Yes – the sponsor has directly compared the with change and without change option for all impact areas, incrementally assessing each impact stream. The appraisal has been undertaken in line with TAG and 1616 requirements.	☒ ☐ ☐ ☐
3.4	Has the change sponsor expressed the values derived for the costs and benefits set out above in 'real' rather than 'nominal' terms? [CAP 1616f: 3.46]	Yes – most monetised values have been reported in 2023 prices and values as per TAG, with the change sponsor adopting the TAG Databook GDP deflators to adjust prices to real values.	☒ ☐ ☐ ☐
3.5	Have values been reported in the base year for the assessment?	Monetised values have been reported in 2023 prices as per TAG.	☒ ☐ ☐ ☐

	[CAP 1616f: 3.47]		
3.6	As well as taking account of inflation in real prices, has the change sponsor used a social time preference rate? [CAP 1616f: 3.48]	Yes, with a caveat. Monetised values have been reported in 2023 prices and values as per TAG, or where TAG workbooks have been used to assess the valuation of impacts. Where bespoke assessments have been undertaken (Fuel burn & surface access time savings assessment) the change sponsor has used the Excel NPV function to apply the discounting. A manual cross-check against the worked example in TAG (Unit A1.1, Appendix C, Table C1) shows diverging results for the final, discounted value. **Requirement: Sponsor to cross-check the discounting calculation against TAG for both Fuel burn and surface access assessment appraisal – this will ensure that the assessments are in line with the TAG workbooks in terms of calculation steps. The sponsor should use manual calculations (Rather than in-built Excel functions, NPV function) where appropriate so that these can be verified in the interests of transparency and error checking.** **Update as of 15/02/2026: The sponsor has addressed this within their latest copy of the CBA workbook. RAG status changed from Yellow to Green.**	☒ ☐ ☐ ☐

4. Summary of the Full Options Appraisal			
4.1	What are the qualitative/strategic impacts of the design options?	- The with-change option allows LCY to reach and sustain 9mppa with ~76,500 fewer flights over 12 years. - Lower ATMs reduce controller workload, simplify operations, and improve reliability. - The design increases resilience to disruption by lowering complexity in the approach environment.	☒ ☐ ☐ ☐

<table>
<tr><td></td><td></td><td>- Fewer total flights mean reduced overflight impacts on aggregate, including noise, tranquillity and GHG emissions.
- Airlines may incur:
o Crew training for RNP AR,
o Approvals and equipage costs (if not already equipped).</td><td></td></tr>
<tr><td>4.2</td><td>What are the overall non-monetised (quantified) impacts of the design options?</td><td>- Modelled NO_2, PM_{10}, $PM_{2.5}$ show slightly lower concentrations with the change; all values remain well below legal limits
- 76,500 fewer ATMs (12-yr total) to meet demand; ~14m more passengers over 12 years; 9mppa reached earlier.
- Reductions in population/dwellings inside day/night contours (e.g., 2038, 57 dB LAeq16h population falls from ~38.6k to ~27.9k
- Overall net reduction of fuel used (Jet A1, 5.78kt reduction over 12).</td><td>☒ ☐ ☐ ☐</td></tr>
<tr><td>4.3</td><td>Where impacts have been monetised, what are the overall net present values (NPV) of the design options?</td><td>Figure 33 summarises the quantified and monetised impacts over the 12-year appraisal period. Positive values represent net benefits relative to the without-change baseline. Benefits are split into Level 1 (core) and Level 2 (additional).
Figure 33 Summary of quantified and monetised impacts (NPV, £m at 2023 prices)
<table><tr><th>Impact category</th><th>Net Present Value (£m)</th></tr><tr><td colspan="2">Level 1 Impacts</td></tr><tr><td>Communities: Noise impacts</td><td>£32.2</td></tr><tr><td>Wider society: Greenhouse gas emissions</td><td>£3.7</td></tr><tr><td>General aviation / commercial airlines: Fuel burn</td><td>£2.6</td></tr><tr><td>Level 1 Impacts Sub-Total NPV</td><td>£38.4</td></tr><tr><td colspan="2">Level 2 Impacts</td></tr><tr><td>General aviation / commercial airlines: Passenger surface access time savings</td><td>£59.1</td></tr><tr><td>Level 2 Impacts Sub-Total NPV</td><td>£59.1</td></tr><tr><td>Total Quantified NPV (including Level 2 impacts)</td><td>£97.4</td></tr><tr><td>Total Quantified NPV (excluding Level 2 impacts)</td><td>£38.4</td></tr></table>The largest monetised benefit arises from passenger surface access time savings. These reflect the improved ability of passengers within LCY's catchment to access air services from LCY following the airspace change, rather than travelling to other London system airports. For transparency, the CBA reports results both excluding and including passenger surface access time savings, recognising that this Level 2 benefit stream is more uncertain than the other monetised impacts.</td><td>☒ ☐ ☐ ☐</td></tr>
<tr><td>4.4</td><td>Has the change sponsor used the economic assessment to progress/discontinue design options and/or support the choice</td><td>The change sponsor has used the economic appraisal to value changes in impacts as part of the design option / with change scenario by evaluating changes in fleet mix</td><td>☒ ☐ ☐ ☐</td></tr>
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	of the preferred design option? If the preferred design option does not have the highest NPV or benefit cost ratio (BCR), then has the change sponsor justified the reasons to progress this design option?	that are enabled by the ACP. The sponsor has not used the appraisal to discount any options, indicative routing / swathes were discounted based upon technical feasibility and airspace constraints. The appraisal is generally robust with suitable justification as to why and how impacts have been quantified.	

5. Other Aspects	
5.1	N/A.

6. Conclusions	
6.1	The sponsor has undertaken a robust and succinct Full Options Appraisal for an RNP (AR) approach to LCY for landing aircraft. The sponsor presents one design "option" but for the purposes of the appraisal, can be considered a scenario that results in changes to the fleet mix of air traffic. The with and without change fleet mix is a core part of the assumptions that feed into the economic appraisal, and the sponsor has provided suitable justification, explanation and transparency of the approach adopted. All key metrics that are expected at a Stage 3 ACP have been assessed and justified appropriately. With this said, there are still areas that require improvement, and the largest barrier is the Passenger Surface Access Time assessment. The sponsor has claimed that there would be economic benefits of greater travel to LCY, arising from increased route choice due to greater aircraft types serving the airport. Whilst in theory this is plausible, there is little commentary on why this may not be the case. Passenger choice of airports is influenced by many external factors such as total travel time and other transport and non-transport costs (including the airline ticket). Therefore, it can be considered that there is a large degree of analytical uncertainty as to why the benefits may not come to fruition - there is little commentary on this front nor the recognition of wider externalities associated with traffic (PT and Highway) re-routing on the surface network. Clarification questions sent to the sponsor have allayed these concerns somewhat, but for transparency, weaknesses or uncertainty in methodology should also be highlighted where possible. The application of the discounting calculation also needs review as the sponsor has used Excel's inbuilt NPV function for the fuel and passenger access time assessment. When undertaking a manual cross-check as per the example outlined in TAG there is a divergence in values. Where possible, a manual calculation in line with TAG would ensure transparency and accuracy. Requirements and recommendations are noted below: **Requirements:** - For transparency and clarity include information on the options development from Stage 2 to 3 within the FoA.

	- Sponsor must include further information on the analytical risks of the passenger surface time access assessment, detailing any weaknesses and uncertainty of the current methodology as appropriate and justifying the inclusion of this benefit stream. - Sponsor to add further information about the use of the VoT assumption for surface access assessment – following clarification questions the response is acceptable but should be explained in the FoA. - Sponsor to cross-check the discounting calculation against TAG for both Fuel burn and surface access assessment appraisal – this will ensure that the assessments are in line with the TAG workbooks in terms of calculation steps. The sponsor should use manual calculations (Rather than in-built Excel functions, NPV function) where appropriate so that these can be verified in the interests of transparency and error checking. **Recommendation:** - Sponsor should undertake a sensitivity test on the passenger surface access time as required per TAG, given that there is inherent uncertainty in the assumptions or likelihood of impacts occurring. - Sponsor should consider presenting the passenger surface access time benefit stream as a "Level 2" or "adjusted" present value of benefit / NPV, given that the impact is uncertain or make qualitative reference to impacts. **Update as of 15/02/2026:** The change sponsor's resubmission of V1.2 addresses all requirements satisfactorily. A new recommendation is made below based on the additions of the sensitivity test. **Recommendation: The change sponsor should include reference to the sensitivity testing in the main FoA by presenting a table that shows the impact of the sensitivity test on the NPV derived. The standalone sensitivity test is within the appendix but is not used to draw out any conclusions, therefore it appears to be slightly redundant when read in isolation.**

CAA Full Options Appraisal Completed by	Name	Signature	Date
Airspace Regulator (Economist)	[redacted]	[redacted]	26/01/2026