

The Commission is referred in particular to Part 3 of Heathrow's Submission

| No. | Commission Objective | NATS Question | Reference in Heathrow Submission / Comment | CAA Question | Reference in Heathrow Submission / Comment |
|-----|--|---|---|---|--|
| 1 | To ensure individual airport and airports system efficiency (Operational Efficiency) | How the additional runways would be used (eg. Mixed Mode, Arrivals, Departures configurations) and whether such a configuration would be a permanent feature or whether it would be applied on either a tactical or a strategic basis depending upon prevalent traffic flows and operation conditions | 3.5.1.2 Runway operating procedures (P.176); 5.2.4.3 Quieter airspace operations - Runway use (mode) rotation (P.257) | What requirement is there for aircraft movements to and from the new runway(s) to cross other runways – at any stage as traffic builds towards maximum capacity? | No requirement to cross the existing northern runway to reach the new runway is envisaged due to the around-the-end-taxiway provision. 3.4.1.1 A safe, resilient and efficient airfield operation (P.172) |
| 2 | | Whether the operation of current runways also change to compliment the new infrastructure | Insetting thresholds and steeper approaches are assumed on the current runways as well as the new. 3.5.1.2 Runway operating procedures (P.176) | To what extent can the proposal be developed as an evolution of the current ATC operation? | The addition of any airport infrastructure at Heathrow has to be managed as an evolution of the current system; NATS and Heathrow both have expertise in facilitating such a progression and would continue to work together to define processes and procedures that ensure a safe transition to a 3 runway environment; 3.5.1 Designing airspace for expansion (P.176); 6.8.1.4 Risk assessment for specific features (P.397) |
| 3 | | Whether runway alternation will be either: i) assured & planned or; ii) possible and delivered under certain predetermined circumstances; or, iii) not possible from the operational concept proposed. | 3.5.1.2 Runway operating procedures (P.176); 5.2.4.3 Quieter airspace operations - Runway use (mode) rotation (P.257) | To what extent can the proposal be delivered without significant effect on adjacent aerodromes and/or adjacent airspace structures, which would require procedures and processes to be developed to ensure safety was maintained? | 3.5.1.3 Airspace design principles (P.177); The current assessment by NATS indicates that other airports will not be affected by this expansion. Effects on the Northolt airfield have not been assessed in the proposal. |
| 4 | | The extent to which arrival and departure flows will be supported by Performance Based Navigation including the extent that curved approach operations may be required. | 3.5.1.3 Airspace design principles (P.177-8) | | |

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| 5 | | The extent to which additional or revised SIDs and STARs will be required or would be beneficial to maximise capacity and / or resilience of the additional runway | 6.6.1.3 Redefinition of departure routes (P.382). See also attached power point "3R Route Structure 0614.ppt" | | |
| 6 | | The type of ground and or space-based landing aids that will be used, where they will be located, and what obligations and avionics capabilities such operations may confer on the airport operator and the airline operators | 3.4.1.1 A safe, resilient and efficient airfield operation (P.173); The position of the ILS/MLS systems are highlighted on the masterplan in Volume 3, P.5. | | |
| 7 | | The extent to which displaced thresholds would be required or could be used to maximise beneficial outcomes, including options to provide visual guidance in VMC and instrument guidance if IMC operations of a displaced threshold is envisaged. | 3.4.1.1 A safe, resilient and efficient airfield operation (P.171); Map in Volume 3, P.5. | | |
| 8 | | The extent to which steeper approaches would be required or could be used to maximise beneficial outcomes, including options on runway lighting, visual guidance and multiple glide-paths | 3.5.1.3 Airspace design principles (P.178); 5.2.4.3 Quieter airspace operations (P.257) | | |
| 9 | | The increase in Air Transport Movements (ATMs) that the airport will be able to support and the expected demand at various points within the lifecycle (e.g. from the opening date, in 2035 and 2045). | 3.4.1 A safe, resilient and efficient airfield operation (P.174); 3.2.1.2 Long-term traffic forecast (P.156); 3.2.1.3 Two runway/three runway strategic test schedules (P.157) | | |
| 10 | | The prima facie impact on proximate airports to understand overall capacity changes. | 3.5.1.3 Airspace design principles (P.177) | | |

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| 11 | | How effective operations will be sustained during the development of and transition to the additional runway; what impact this could have on normal operations and what mitigating factors will be adopted to minimise the impact of ground infrastructure developments and revision to airspace structures. | We do not foresee any impact on the current runway operation when constructing the new runway. Bringing it into use will mean effecting the runway mode patterns described. The inseting of thresholds on the current runways is probably best executed after the new runway becomes available but a detailed implementation study would need to be completed to verify this. 6.3.4 Terminal Phasing Plan (P359) | | |
| 12 | | The expected traffic patterns with analysis on the primary route structures. | Indicative traffic patterns on departure routes: North (WOB, BPK) 30% West (CPT, SAM) 22% South West (MID) 23% South East (DVR) 26%. Indicative traffic patterns on arrival routes: North East (LAM) 40% North West (BNN) 14% South East (BIG) 25% South West (OCK) 20% | | |
| 13 | | The method of scheduling for the airport, with a particular emphasis on how schedule adherence will be monitored, compliance rates required and schedule planning constraints or measures. | 6.6.1 Short and medium term measures (P.381); 6.6.3 Slot release policy (P.386) | | |
| 14 | To build flexibility into scheme designs (Operational Efficiency) | The expected aircraft type mix into the future with a particular emphasis on the number of wide bodied and A380 type aircraft that will be accommodated, together with any ground infrastructure limitations on movements | 3.2.1.4 Detailed fleet assumptions (P.158) | | |

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| 15 | | The consultation requirements to implement such ATM changes needed to support the new infrastructure. | 6.6.1.3 Redefinition of departure routes (P.382); Airspace change would be consulted on and we assume this would run as closely as possible in parallel with the DCO process for airport development (in accordance with CAP 725) | | |
| 16 | To meet present industry safety and security standards (Operational Efficiency) | How the proposals adhere to ICAO Standards & Recommendations (SARPS) for runway operations including simultaneous independent operations. | 3.5.1.2 Runway operating procedures (P.176); 6.8.1.2 Compliance with CAP168 and EASA aerodrome regulation (P.396) 6.8.1.3 Compliance with engineering standards (P.397) | Does the aerodrome design meet established safety standards, requirements and criteria (ICAO, EASA, CAA)? (Or might it feasibly meet them by the point of entry into operation.) | 6.8.1.2 Compliance with CAP168 and EASA aerodrome regulation (P.396); 6.8.1.3 Compliance with engineering standards (P.397) |
| 17 | | The safety assurances required to achieve the predicted level of capacity. | 3.4.1.1 A safe, resilient and efficient airfield operation (P.173/4); There would need to be a safety case written for the operation of the airport in a 3 runway mode which would be signed off by the regulator (through procedures such as the Airspace Change Process as set out in CAP 725), but initial work with NATS indicates 740k ATMs is safely achievable | Can the method of operation be delivered using established safety standards, requirements and criteria (ICAO, EASA, CAA)? (Or might it feasibly be so by the point of entry into operation.) | 6.8.1.2 Compliance with CAP168 and EASA aerodrome regulation (P.396); 6.8.1.3 Compliance with engineering standards (P.397) |
| 18 | | | | Has the design proposal and method of operation explicitly taken account of and addressed the following aviation safety threats: - Runway incursion - Runway excursion - Airborne conflict - Ground handling - Controlled flight into terrain - including go around safety? | 3.5.1.2 Runway operating procedures (P.176) with reference to missed approach on P.177; 3.9.1.3 Airside roads (P.195); 6.8.1.2 Compliance with CAP168 and EASA aerodrome regulations (P.396); 6.8.1.3 Compliance with engineering standards (P.397); 3.4.1 Our vision for the airport (P.172) |

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| 19 | | | | Has the proposed design and methods of operation been considered as part of the proposer's Safety Management System for the current operation? | 6.6.1 Short and medium term measures (P.381); Steeper approaches have been considered. |
| 20 | To maintain and where possible enhance current safety performance with a view to future changes and potential improvements in standards (Operational Efficiency) | The extent to which the concept of service delivery will minimise/reduce operations over urban areas | 3.5.1.4 Three options for airspace design (P.179) | Can the proposal be delivered in the surrounding airspace in accordance with the Future Airspace Strategy principle to 'enhance safety by reducing controller and pilot workload and designing out risk factors'? | 6.6.1.4 Independent arrivals runways (P.382) ; 3.4.1.1 A safe, resilient and efficient airfield operation (P.171) |
| 21 | | | | To what extent can the proposed concept be progressed without the need for prior safety analysis of the concept to prove that it can be delivered safely without subsequent safety mitigations restricting traffic capacity and flow further than already assumed? | 6.8.1.2 Compliance with CAP168 and EASA aerodrome regulation (P.396); 6.8.1.3 Compliance with engineering standards (P.397); Our design is based on current rules with opportunities to enhance and improve as technology becomes available |
| 22 | To enhance individual airport and airports system resilience (Operational Risk) | The level of resilience that the airport will support and how it will be sustained (that is, how normal operations can be sustained or rapidly recovered under abnormal circumstances that may have an impact on the operational availability of the ground infrastructure). | 3.4 Airfield (P.174); 6.6.1 Short and medium term measures (P.381) | | |
| 23 | | The extent to which failure modes on the additional runway would affect the other runways, including failure modes on other runways, and how any such failure conditions could be minimised and effectively reduced | 3.4 Airfield (P.174); 6.6.1 Short and medium term measures (P.381) | | |