

Report of the CAA's Post Implementation Review of the London Airspace Management Programme (LAMP) Phase 1A Module D Airspace Change Proposal – London Luton Airport: Standard Instrument Departure (SID) Switch Proposal

CAP 1692 D

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Executive Summary

1. The CAA's airspace change process is a seven-stage mechanism that is set out in detail in CAP 725. Under this process in February 2015, NATS submitted an Airspace Change Proposal (ACP) titled the London Airspace Management Programme (LAMP) Phase 1A proposal to the Civil Aviation Authority (CAA), to propose changes to airspace in the south-east of England including to a number of arrival and departure procedures at a number of aerodromes. LAMP Phase 1A was a major airspace change designed to deliver modifications to airspace arrangements affecting a broad swathe of south-east England from Stansted to the Isle of Wight in order to provide, primarily, capacity and efficiency benefits. Stage 7 of this process is a Post Implementation Review (PIR) that normally begins one year after introduction of the revised procedures. There are five individual elements (referred to as Modules) of the LAMP Phase 1A proposal.
2. NATS submitted a proposal to the CAA to switch aircraft using the Standard Instrument Departure (SID) route via Detling to Dover, onto the existing MATCH SIDs routeing towards Clacton until aircraft could be radar vectored by Air Traffic Control towards Kent to exit UK airspace at KONAN (approximately 24 NM to the east of Dover), or via a low used route via RINTI (approximately 12NM southeast of Dover).
3. The sponsor provided PIR data to the CAA in June 2017; on 18 October 2017, the CAA commenced the PIR of the impact of its decision and the implemented change on 18 October 2017. The content and outcome of this review process by the CAA is discussed in detail in this report including its annexes.
4. On 2 January 2018, the CAA introduced a new process for making a decision whether or not to approve proposals to change airspace design (CAP 1616). However, as this ACP was fully implemented prior to the introduction of that document, and the PIR data received by the CAA prior to its introduction, this review has been undertaken in accordance with CAP725 and the Department for Transport's Guidance to the Civil Aviation Authority on Environmental Objectives Relating to the Exercise of its Air Navigation Functions (2014).
5. During the review process, the CAA considered data provided by the sponsor, NATS. As a result, the CAA has reached the following conclusions:

Operational Conclusion:

6. From an efficient use of airspace viewpoint, the SID switch has been successful in that it has taken the main core of Detling departures away from the London City EKNIV departure flight paths onto the flight path of the extant MATCH SIDs and then subsequent routing to KONAN via airway M85 (albeit aircraft are vectored by ATC and integrated with other traffic). Thus, this has enabled the change proposed by the network changes in Module C in which the London City departures using the EKNIV SIDs to the south/southeast are now able to climb above the new London City arrival flight paths. Without the Luton and Northolt SID switch taking place, this would not have been achievable.
7. The re-routed Detling departures now using the MATCH SIDs are achieving a better continuous climb than they previously did using the Detling SIDs.
8. The re-routing of the Detling departures have been integrated into the London Terminal Control and Area Control operations without causing disruptions to other traffic flows, thus from an ATC airspace management viewpoint, the SID switching has achieved the aims and objectives of the change proposal.

Environmental Conclusion

9. The noise impact is not as anticipated. Our decision was taken on the basis that there would be no change to traffic patterns below 7000ft and therefore no noise impact anticipated or taken into account. However, the impact that is revealed by the PIR is benefit; a general improvement in climb profile has resulted in fewer aircraft being held at altitudes below 7000ft which in turn has resulted in a reduction in the area regularly overflowed below 7000ft and a related reduction in noise impact.
10. This Module has achieved a reduction in annual CO₂ emissions that is consistent with the anticipated reduction.

Confirmation of LAMP Phase 1A Module D Implementation

11. In respect of Module D of LAMP Phase 1A the CAA confirms that this change is now confirmed. Therefore, the CAA's airspace change process in respect of NATS' airspace change request dated 16 February 2015 has now concluded.

12. This report, and its annexes and attachments, provide a summary of the information the CAA has reviewed and taken into account before reaching these conclusions. All the information the CAA has taken into account is published on our website/interim portal.

Scope and Background of the PIR

What is a Post Implementation Review

13. The CAA's approach to decision-making in relation to proposals to approve changes to airspace is explained in its Guidance on the Application of the Airspace Change Process, CAP 725. This detailed Guidance provides that the seventh and last stage of the process is a review of the implementation of the decision, particularly from an operational perspective, known as a Post Implementation Review (PIR).
14. The Guidance states that the purpose of a PIR is to determine whether the anticipated impacts and benefits in the original proposal and published decision are as expected, and where there are differences, what steps (if any) are required to be taken.
15. If the impacts are not as predicted, the CAA will require the change sponsor to investigate why, and consider possible mitigations or modifications for impacts that vary from those which were anticipated to meet the terms of the original decision.
16. A PIR is therefore focused on the effects of a particular airspace change proposal. It is not a review of the decision on the airspace change proposal, and neither is it a re-run of the original decision process.

Background to our conclusions in this PIR Decision

17. On 13 October 2015, the CAA approved LAMP Phase 1A change proposals to change traffic patterns for Stansted and Luton SIDs, London City arrival and departure routes, route network changes for London City, Gatwick, Farnborough, Southampton and Bournemouth; these changes involved a variety of changes which included RNAV1 procedures for London City arrivals and departures and a number of new ATS routes providing connectivity to the route network in adjacent States' airspace. The changes for Luton airport SIDs were proposed as Module D which is the subject of this report. In our Decision document dated 22 December 2015 (as corrected on 4 March 2016), we provided information and background to the change. We recommend readers of this report read that [Decision](#) in conjunction with this document.

Conditions attached to the CAA's decision to approve the change

18. The following conditions were placed on the sponsor:

- When D138A is activated by NOTAM above the normal upper limit of 6000ft, NATS is to radar monitor all aircraft using (U)M84 to ensure that aircraft are kept clear of D138A.

No Mandatory Occurrence Reports were raised concerning inadvertent penetration of D138A, therefore the CAA is satisfied this condition has been met.

Relevant events since change

19. Since the implementation of this ACP, aircraft movements at Luton which have flight planned to use the Detling and MATCH have increased as follows:

Table 1 – Luton SID usage comparison.

Pre-implementation SID usage 4 Feb 15 – 3 Feb 16			Post Implementation SID Usage 4 Feb 16 – 3 Feb 17		
DET	12,742	(42.8%)	DET	123	(0.4%)
MATCH	17,446	(57.8%)	MATCH	34,483	(99.6%)
Total	30,188		Total	34,606	

Data provided by sponsor

The Luton data illustrates that from 4th February 2016 the overall departures on both Detling and MATCH SIDs has increased considerably from 30,188 to 34,406 an increase of 4218 movements (approximately 14%) through Detling and Dover although the number of Detling SIDs is extremely low.

Since the implementation of this ACP, aircraft movements at Northolt which have flight planned to use the Detling and MATCH have reduced as follows:

Table 2 – Northolt SID usage comparison.

Pre-implementation SID usage 4 Feb 15 – 3 Feb 16			Post Implementation SID Usage 4 Feb 16 – 3 Feb 17		
DET	1,256	(62.2%)	DET	4	(0.2%)
MATCH	763	(37.8%)	MATCH	1,844	(99.8%)
Total	2,019		Total	1,848	

Data provided by sponsor

Data collected for the purpose of the PIR

Sources of Information

Change Sponsor

20. By letter of 20 May 2016, the CAA requested from the change sponsor the data sets/analysis attached at Annex A by 4 May 2017. This summary of the evidence provided is also published on the CAA website.

Due to the volume of data required, the collation process and sponsor review of the data prior to submission to the CAA, the data was actually provided to the CAA on 2 June 2017.

21. During the review process, the CAA considered:

- Route utilisation data.
- Radar track data samples pre, and post change.
- NATS analysis of the impacts of the change.
- Mandatory Occurrence Report (MOR) data.

22. We have noted that the change sponsor provided all of the data requested. Where we have asked for subsequent explanatory detail, we have made reference to this in our report.

Operators and Airlines

23. No specific data was required from operators and airlines as the proposal moved aircraft from flying the Detling SIDs onto the extant MATCH SIDs, and

therefore we have seen no specific feedback from aircraft operators relating to Module D.

Air Navigation Service Provider

24. NATS is the air navigation service provider (ANSP) currently providing air traffic control services for arrivals and departures at the Airport. On 20 May 2016, the CAA confirmed with NATS the PIR data submission requirements to enable the PIR to be analysed. This request was published on the CAA's website and the response is included at Annex A and on the CAA website together with all the data provided.

Groups and residents local to Luton and Northolt Airport

25. The CAA did not receive any particular feedback relating to impacts of this change.

Other data we have considered

26. No other data was received for this Module.

Objectives and Anticipated Impacts

The original proposal and its objectives

27. NATS explained in its change proposal that:

- The change was sponsored by NATS.
- Flights that currently depart Luton and Northolt Airports towards Kent (south east) were becoming more inefficient as the airspace they flew through became more congested. This proposal sought to place most of these flights onto the extant eastbound departure flight paths, so that they may avoid the congestion; this was to reduce the risk of delay, reduce fuel consumption and the amount of CO₂ generated.
- There would also be overall noise benefits since the aircraft would be able to climb more quickly and people beneath the current departure route would be overflown less; however, people beneath the eastbound departure route would be overflown more often.
- This change would also ensure that the Luton and Northolt operation fits into a wider LAMP Phase 1A programme of change to the use of airspace structures supporting airports in South East England. NATS believed that this part of the proposal was justified on the basis of the direct fuel and CO₂ benefits; however, it was also an enabler for the implementation of Point Merge at London City Airport. This was because the removal of extant SIDs which are procedurally capped at 5000ft would enable the London City departures to climb above the London City arrivals which the proposal would reposition over the Thames Estuary (see Module C for details).

28. In our decision we explained that:

- The re-routing of Luton and Northolt SIDs via MATCH would enable an improvement in the efficiency of integrating traffic through the busy controlled airspace in the south-east of England, in particular, through the

very busy and congested area in the vicinity of and above Detling. Prior to the change, the Luton departures were routinely held below arriving traffic inbound to Heathrow. (Other traffic departing from Stansted and London City also follow similar routeings as the Luton and Northolt traffic towards Detling, and like the Luton and Northolt SIDs, were subject to similar restrictions in climb profiles.) This would no longer be necessary if the changes proposed in Module A, B and C were approved.

- Moreover, it was anticipated that by removing the Luton and Northolt departures from this busy flow, this would alleviate the traffic congestion and enable better departure profiles to be achieved by the London City departures to the south-east which is described in Module C. In turn, these changes to routeings would not only enable better climb profiles for Luton and Northolt departures, they would also enable better climb profiles for London City departures. This was because the London City departures would be able to climb earlier without having to be integrated with the Luton and Northolt departures; this enabled more efficient and semi-systemised arrival routes for London City. When Module D and the changes outlined in Module A for Stansted departures are combined with the proposals for London City network changes in Module C, the end result was anticipated to be that the whole LAMP Phase 1A design package produces an overall more efficient route network: not just for traffic departing from Luton and Northolt (outlined in this Module), but also for Stansted departures (proposed in Module A), and the new network arrival system for London City as proposed in Module C.

Anticipated Impacts

29. In our decision, the CAA Environmental Assessment concluded that despite the extra lateral track miles there would be an overall reduction in CO₂ emissions resultant from a reduction in fuel burn due to an improvement in vertical profile of the affected departing aircraft. In particular, the CAA's Environmental Research and Consultancy Department (ERCD) Environmental Assessment Report concluded that:

- The re-routed SIDs could be managed safely on the MATCH SID routing and integrated with all other routes in the south-east. Whilst this was expected to result in up to an extra 8NM in track mileage compared with the distance to Dover using the Detling SID, the extra track miles were offset by the benefits realised with the improved climb performance. The CAA Environmental Assessment concluded that despite the extra track miles, there was expected to be an overall reduction in CO₂ emissions resulting from a reduction in fuel burn. In particular, the CAA's Environmental Research and Consultancy Department (ERCD) Environmental Assessment report concluded that:

Based upon the assessment presented in the ACP (the overarching Environmental Benefits Section – see Reference B), and the subsequent adjustment by the CAA, the annual estimate for the CO₂ reduction as a result of this Module (once the enabled fuel figures have been adjusted to account for tactical vectoring, a reduction of 21%) is a range from 2,280 – 4,560 tonnes in 2016 (1,439 tonnes of fuel x 3.18) and a range from 2,726 – 5,451 tonnes in 2020 (1,714 tonnes of fuel x 3.18).

30. In terms of anticipated noise impact, the CAA concluded that because all affected aircraft (that is aircraft displaced or located differently as a consequence of the proposed change) would be above 7000ft AMSL, there would be no significant noise impact. Nevertheless, we acknowledged that there would be a difference in traffic flows above 7000ft AMSL, and as a consequence of that, there was also likely to be a change in the noise impact from aircraft above 7000ft AMSL, but because of the altitude of the flights any such noise impact would be minor even if the noise is perceptible by some.