

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

CAP 1692 A

Published by the Civil Aviation Authority, 2018

Civil Aviation Authority,
Aviation House,
Gatwick Airport South,
West Sussex,
RH6 0YR.

This report is part of a series of PIR reports for LAMP Phase 1A Airspace change proposal implemented on 4 February 2016.

Enquiries regarding the content of this publication should be addressed to:
Airspace and ATM Aerodromes, Safety and Airspace Regulation Group, CAA House,
45-59 Kingsway, London, WC2B 6TE

The latest version of this document is available in electronic format at www.caa.co.uk

Contents

Contents	3
Executive Summary	5
Operational Conclusion:	6
Complaints conclusion	6
Environmental conclusions	6
Confirmation of LAMP Phase 1A Module A Implementation	7
Scope and Background of the PIR	8
What is a Post Implementation Review	8
Background to our conclusions in this PIR Decision	8
Use of Stansted RNP1 SIDs	9
Conditions attached to the CAA's decision to approve the change	9
Relevant events since change	9
Data collected for the purpose of the PIR	11
Sources of Information	11
Change Sponsor	11
Operators and Airlines	11
Air Navigation Service Provider	12
Groups and residents local to Stansted Airport	12
Other data we have considered	12
Objectives and Anticipated Impacts	13
The original proposal and its objectives	13
Anticipated Impacts	14
CAA Assessment	16
Operational Assessment	16
Safety	16
Operational Feedback	17
Air Navigation Service Provision	17
Letters of Agreement	18
Utilisation and Track Keeping	19
Traffic	19

Environmental Assessment.....	20
Noise	21
Overflights	22
Summary of “overflight” impacts, as presented in the PIR data from the sponsor	22
CO ₂ Emissions	23
Environmental Conclusion.....	23
Community Stakeholder observations.....	24
Ministry of Defence Operations	26
Conclusion.....	27
Operational Conclusions.	27
Environmental Conclusions.....	27
Overall Conclusion.	28
Note on plain language.....	29
Annexes	30
Annex A - LAMP Phase 1A PIR data provision requirements - evidence provided.....	31
Annex B - Stansted SID switch - CAA track plot analysis of change and SID usage.....	35
Annex C: “LAMP PIR Bridging Module Analysis – Changes to population overflowed by Modules A, B and C” (Version 2)	44
Annex D - CO₂ Emissions Summary.....	45
Annex E - CAA complaints analysis by location.	47
Annex F - CAA Gate Analysis.	67

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. There are five individual elements (referred to as Modules) of the LAMP Phase 1A proposal.
2. NATS, supported by Stansted Airport Limited (STAL), submitted a proposal to the CAA to switch aircraft using the Standard Instrument Departure (SID) route via Detling to Dover, onto the existing Clacton SIDs routeing towards Clacton until aircraft could be radar vectored by Air Traffic Control towards the northeast coast of Kent to exit UK airspace at KONAN (approximately 24 NM to the east of Dover); the switching of traffic was planned to occur between 0600 and 2300 local time each day. Stage 7 of this process is a Post Implementation Review (PIR) that normally begins one year after implementation of the change.
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. 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 (CAP1616). 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 the data provided by the sponsor NATS and STAL. As a result, the CAA has reached the following conclusions:

Operational Conclusion:

6. The re-routing of the Stansted Detling departures onto the Clacton SID flight paths have been integrated into the London Terminal Control and Area Control operations without causing disruptions to other traffic flows. Aircraft previously flying the Detling SIDs which now use the re-route via Clacton and airway (U)M84, now benefit from improved continuous climb profiles on the Clacton SIDs compared with what was achieved using the Detling SIDs. Thus, from an ATC airspace management viewpoint, the SID switching has achieved the aims and objectives of the change proposal. This has enabled the change proposed 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. The change has also maintained a high level of safety. Without the Stansted SID switch taking place, this would not have been achievable.

Complaints conclusion

7. We have analysed the enquiries/complaints received by the Change Sponsor, NATS and the CAA as part of this Review. As a result of our analysis, we have concluded that the themes associated with a significant proportion of the total received are consistent with the traffic patterns we were expecting and observed when carrying out our aircraft track analysis.

Environmental conclusions

8. The noise impacts, as defined by the Leq contours, are consistent with the impact anticipated in the airspace change proposal. Although the population count within the actual 2016 57 dBA contour is greater than the sponsor's forecast population count, this is most likely due to the nature of forecasts as a best estimate. Actual traffic volumes and runway usage etc will usually differ to some degree to the forecast estimate. Therefore, some impacts that occur post-implementation are as a result of differences between the forecast and actual traffic volumes etc. rather than an unanticipated impact of the airspace change itself.
9. On that basis, we consider that there has been no increase in the number of people significantly affected by noise as a direct result of the airspace change.

10. As anticipated, there has been a net reduction in the number of people overflowed, whilst there is also a proportion of the population that are being overflowed more often.
11. This Module has achieved a reduction in annual CO₂ emissions that is consistent with the anticipated reduction.

Confirmation of LAMP Phase 1A Module A Implementation

12. The CAA's airspace change process in respect of the NATS / Stansted Airport airspace change request dated 16 February 2015 has now concluded.
13. 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

14. 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).
15. 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.
16. 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.
17. 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

18. 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 Stansted airport SIDs were proposed as Module A 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.

Use of Stansted RNP1 SIDs

19. In the August 2016 traffic sample, we have noted that the Runway 22 Clacton SID has also been flown by aircraft using the Trial RNP 1 SIDs in addition to those aircraft using the conventional SID. For the period of August 2016, we have ascertained from STAL that approximately 17% of runway 22 Clacton departures were RNP 1 departures. We believe the use of the RNP1 SIDs may have contributed to a slight change in the concentration as depicted in the density plots which has resulted in a slight shift of the traffic pattern towards Hatfield Broad Oak. It should be noted that the Trial RNP 1 SID was subject to a separate airspace change submission to the CAA which was subsequently approved for permanent operation in August 2017. The link to that airspace change approval is [here](#).

Note: the RNP1 SID implementation will also be the subject of a separate Post Implementation Review.

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

20. 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

21. Since the implementation of this ACP, Stansted airport reported an increase of 7% in general aircraft movements between 2015 and 2016. The aircraft movements at Stansted have increased on the CLN SIDs shown below in Table 1. The data shows the impact of the number of flights being switched from the Detling route onto the Clacton route during the period 0600 – 2300 local time.

Table 1 – Stansted aircraft movements – Detling and Clacton SIDs.

This table is reproduced from the sponsor's own PIR Report (Section 6) and it shows the change in usage between the pre- and post-implementation operations.

NPR	2015/16 Daytime	2015/16 Night Time	2015/16 Total	2016/17 Daytime	2016/17 Night Time	2016/17 Total
22 DET	17,975	666	18,641	1,331	551	1,882
04 DET	6681	271	6,952	345	282	627
22 CLN	14,592	199	14,791	30,205	322	30,527
04 CLN	5,192	63	5,255	16,008	173	16,181
Total	44,440	1,199	45,639	47,889	1,328	49,217

22. The table shows that:

- Traffic on the CLN SIDs during the day more than doubled. Runway 22 CLN SIDs increased by 107% and Runway 04 CLN SIDs increased by 208%. This compares to a total increase in traffic represented in the table of 7.8% between 2015/16 and 2016/17.
- Note: Whilst the Runway 04 usage was not clarified in the PIR data, following clarification with the airport, this increase may be attributed to by the increased use of Runway 04 during the first year of operations.
- Usage of 22 DET at night has fallen despite an overall increase in traffic.
- Usage of the CLN SIDs at night has increased, over and above the general increase in traffic. As this may have indicated that instead of the switch from DET to CLN only occurring during daytime (0600-2300) as was intended, there might have been a failure to switch back to using the DET SIDs at night. This has been queried with the sponsor (Stansted) who investigated and determined that this was not the case. Instead the reason for the increased usage at night is changes to operator

preferences for routeings and timing of flights. It is not as a result of a general continuance of using CLN in preference to DET after 2300.

Data collected for the purpose of the PIR

Sources of Information

Change Sponsor

23. 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. The data was provided to the CAA as requested.

24. During the review process, the CAA considered:

- Route utilisation data.
- Track plots of departure 'whisker plots' illustrating the route flown by aircraft before and after the change.
- Track density plots to illustrate the concentration of aircraft before and after the change.
- Radar track data samples pre and post change.
- Noise monitoring reports.
- Noise contours before and after the change.
- The airports analysis of the impacts of the change.
- Complaints delivered to STAL and NATS and the CAA.
- Stansted airport community outreach engagement feedback.
- Mandatory Occurrence Report (MOR) data.

25. 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

26. No specific data was required from operators and airlines as the proposal moved aircraft from flying the Detling SIDs onto the extant Clacton SIDs during the period 0600-2300 local time.

27. STAL has advised that LAMP Phase 1A change is a topic within the Stansted Flight Evaluation Unit report presented quarterly to the Stansted Flight Operations Operational Performance and Safety Committee (FLOPSC). Implementation data collected is presented at this meeting, in terms of track keeping compliance and continuous climb statistics up to FL100 (i.e. 10,000ft). There have been no adverse comments from the airline community represented; STAL has commented that in fact this change has been welcomed in terms of the fuel and emissions savings for Stansted operators.

Air Navigation Service Provider

28. 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 Stansted Airport

29. The CA, change sponsor, and NATS have all received feedback on the change from groups and residents much of which was directly related to the issues that the CAA required to be considered under the terms, scope and objective of this PIR.

Other data we have considered

30. We also received feedback from community outreach events conducted by STAL.
31. Complaints to the CAA were received and considered as discussed later in this report.

Objectives and Anticipated Impacts

The original proposal and its objectives

32. NATS explained in its change proposal that:

- the change was sponsored by NATS and supported by STAL. Prior to the change, flights that departed Stansted Airport 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 routes towards Clacton, so that they may avoid the congestion; this would reduce the risk of delay, reduce fuel consumption and the amount of CO₂ generated.
- the objective is to improve environmental and operational efficiency for Stansted DET departures. The proposed solution is to switch traffic from the constrained DET SIDs onto the less constrained CLN SIDs, and link the CLN SID to the original routeing at KONAN on (U)L607 at a higher flight level.
- there would be a CO₂ saving per annum upon implementation.
- 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 was also to ensure that the Stansted Airport operation fits into a wider programme of change to the use of airspace structures supporting airports in South East England. It was an enabler for the implementation of Point Merge arrival procedures at London City Airport.

33. In our decision we explained that:

- the CAA was content that the proposal would deliver environmental benefits to aircraft operators in terms of fuel burn and CO₂ emissions for re-routed Stansted departures, and the change would enable a significant

improvement in the efficiency of integrating traffic through the very busy and congested area in the south east of England, in particular through the Detling area, and that the change would enable better departure profiles to be achieved by London City departures routeing to the south east as proposed in Module C of the proposal.

- there would not be a significant impact on noise emissions (within the meaning of Paragraph 9 of the Secretary of State's 2001 directions to the CAA).
- we had taken into account that fuel and CO₂ savings would be achieved as a consequence of noise being displaced from one SID to another (the Clacton SIDs) and therefore the population overflowed beneath that SID. We have also noted that we did not anticipate there will be a net increase in the numbers of people exposed to noise of aircraft flying below 4000ft AMSL, although there will be a redistribution. We took into consideration the noise levels and the magnitude of those changes.

Anticipated Impacts

34. In our decision, the CAA Environmental Assessment concluded that despite the extra track miles there would be an overall reduction in CO₂ emissions resultant 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 D), NATS estimate that the fuel savings per flight will be in the range of 120-205 kg, the variation being principally dependent on the size and type of aircraft, the runway direction used. Flights departing Runway 22 on the CLN SID having a 2 NM longer track distance that reduces some of the fuel savings associated with the more efficient climb profile although the actual track distance increase may be mitigated by tactical vectoring. In contrast, departures from Runway 04 benefit from both a reduction in track distance flown of approximately 6 NM and a more efficient departure climb profile, giving larger fuel savings.*

- *In aggregating the savings, NATS adopted conservative values of 100-200 kg, and has taken account of the approximately 10 percent of flights on the DET SID that are given an efficient departure climb profile on a tactical basis. The aggregated annual fuel savings are estimated to be in the range of 2,000-4,000 tonnes (2012 +20% traffic) and 2,300-4,700 tonnes (2012 +40% traffic), which are consistent with the per flight savings and the number of flights on DET SID that would benefit from the change of SID. These equate to CO₂ savings of 6,400-12,700 tonnes (2012 +20%) and 7,400-14,900 tonnes (2012 +40%) respectively.*

CAA Assessment

Operational Assessment

35. The CAA examined the track data plots presented by the sponsor and reviewed the evidence provided by the sponsor with regard to the set of PIR reporting requirements as highlighted at Annex A. The CAA completed a detailed analysis of procedures now being flown and compiled a report which is at Annex B. The following is a summary of the CAA's conclusions.

Safety

36. Statistics concerning MOR, AIRPROX and Air Safety Reports events were examined to assess whether the revised airspace design was a contributory factor in those incidents or in reducing the number of incidents. Regarding the Annex A requirements, NATS provided evidence to satisfy all the PIR requirements.
37. Annex A reporting requirements:
- 1) Regarding inadvertent penetration of D138A, there were no MORs relating to this scenario.
 - 2) A1 – sector overload occurrences - there were no MORs relating to sector overloads in respect of departures, although we noted two MORs were attributed to arrivals – one in March and the other in May. Whilst these occurrences were early on during the first year of operations, they could be associated with controller familiarity with the new procedures. There were no further reports in the first year of operations.
 - 3) A3 – Release of traffic to adjacent Area Control Centres. There were two MORs relating to either late transfer of traffic to Maastricht Area Control centre (MUAC), or presentation of traffic to MUAC. Although in these MORs, presentation of traffic to MUAC appears to have been an issue, it was unclear if this was associated with the Stansted or Luton departures (the latter associated with Module D changes). Whilst these occurrences were either in March and April (early on during the first year of

operations), they were most likely associated with controller familiarity with the new procedures. There were no further reports in the first year of operations.

38. NATS concluded that the removal of the Stansted traffic from the previous traffic towards Detling during daily operations, and thus taking it away from the inbound Heathrow flow from the east as they approach the holding pattern at Lambourne, has been logically a reduction in complexity, and therefore there has been a positive safety impact arising from this change.
39. With the re-routeing of Stansted departures, the CAA therefore concludes that the change proposal continues to maintain a high level of safety.

Operational Feedback

40. There has been no feedback to the sponsor from the operators other than via the Stansted Flight Operations Safety Committee (FLOPSC). Through the FLOPSC, it was reported that the operators considered that the result of the impacts arising from the change proposal has meant that the improved climb profiles which the proposal brought about, have been beneficial in that, continuous climb operations are now a positive feature compared with the previous restricted climb profile imposed via the Detling routeing due to the arrival flow mainly inbound to Heathrow from the east.
41. Feedback received from other airports regarding the impacts this ACP has had on their operations is covered in the other LAMP PIR Modules.

Air Navigation Service Provision

42. As noted in paragraph 38, traffic complexity has seen a reduction in the number of interacting flightpaths in the congested area to east of Lambourne where the previous day time routeing to Detling created a number of interacting traffic flows from Stansted, Luton and Northolt, all heading towards Detling below the high intensity westbound flow inbound to Heathrow, This has had a positive impact on Safety, and whilst traffic growth at a number of London airports has risen significantly since 2016, NATS has had adequate resource to manage the traffic re-routeing.
43. With regard to continuous climb operations (CCO), STAL provided a summary of an analysis in their PIR Report. STAL reported that the overall improvement

- in CCO has increased at the airport during the first year by 20 percentage points.
44. Both Clacton departure routes CCO have increased slightly - from 93.36% to 95.09% on Runway 22, and from 81.85% to 85.3% on Runway 04, despite the increase in departure traffic on those routes.
 45. The CCO compliance on the 22 Detling SID has increased from 12.5% to 27.2%, however for those aircraft switched onto the Runway 22 Clacton SID now flying on the re-route, the CCO compliance is 95.09%; for the 04 Detling SID the CCO compliance has increased from 9% to 41.89%, however for those aircraft switched onto the Runway 04 Clacton SID now flying on the re-route, the CCO compliance is 85.3%.
 46. Aircraft still using the Detling route after the change are, mainly daytime departures routeing via LYDD to northern France, or positioning flights for aircraft that position back to other London Airports because they are restricted in climb profile due to other arriving traffic into the London area. This was anticipated in the change proposal.
 47. From the review of the data provided, the CAA considers that the switching over to the Clacton SID has thus enabled better climb profiles for departures which was an anticipated impact of the change. The re-routeing of traffic onto the Detling SID has taken the Stansted (together with the Luton and Northolt departures as proposed in Module D) away from the EKNIV SID departure routes proposed in Modules B and C, and therefore this re-routeing of the Detling SIDs has had the desired effect of enabling the Thames Radar sector controllers to climb the London City EKNIV departures above the arriving flows inbound to London City which would not have been possible without the changes proposed in Module A.

Letters of Agreement

48. With airway M84 being aligned east of the danger area D138A but within 5NM of the danger area boundary, NATS controllers were to ensure aircraft were kept clear of D138A when activation was notified above its normal upper limit of 6000ft (as per condition of the approval). This has not been an issue during the few occasions when activity has been raised above the normal upper limit. Therefore, the arrangements for airspace sharing with the MOD, and the utilisation of the danger areas by the MOD, which are detailed in an MoU

between NATS and the MOD danger area authority have not been affected by the changes introduced with this change proposal.

Utilisation and Track Keeping

49. The CAA carried out an in-depth analysis of the traffic patterns achieved by viewing traffic samples for selected periods during 4 seasonal months throughout the first year of operation. The analysis report is detailed in Annex B. The traffic samples are included on the CAA website. To understand the impacts, interested parties should read the guidance in Annex B before reading the track analysis and associating the comments with the relevant diagrams.
50. In broad terms, the CAA considers that utilisation and track keeping is as anticipated other than on the Clacton Runway 22 SID which shows a slight shift in the concentration below 4000ft towards Hatfield Broad Oak. We have ascertained that 17% of Runway 22 Clacton departures in August 2016 were aircraft using the trial RNP1 SID (see further detail in paragraph 19 of this Report) at that time. The evidence indicates that aircraft using that trial SID flew a tighter initial turn which results in a track that is further from Hatfield Heath but closer to Hatfield Broad Oak. On that basis, we believe that this aspect of the change in traffic pattern is likely to be due in large part to the proportion of departures that were using the trial RNP1 SID rather than as an effect of the airspace change.

Traffic

51. The CAA examined the traffic statistics during the period from 2012 to 2017 in order to assist us in the analysis of the impact of the change proposal. Annual traffic figures are shown in Table 2.

Table 2 - Comparison of annual traffic figures with traffic forecast from the airspace change proposal

	Actual						Forecast (2012+20%)
	2012	2013	2014	2015	2016	2017	2016
Total traffic*	141,400	142,800	157,100	167,500	178,700	188,000	169,600
R04 (East) Usage	30%	38%	34%	29%	33%	23%	30%
R22 (West) Usage	70%	62%	66%	61%	67%	77%	70%

52. The traffic forecast that was provided in the original airspace change proposal for 2016 was 2012 volume +20%. Using 2012 traffic volumes as the baseline, this equals a forecast of 169,600 flights for 2016. The actual traffic volume for 2016 was approx. 178,700. This is 5.3% greater than the forecast for 2016, and represents growth of 26.4% since 2012; this shows that traffic growth has exceeded the sponsor's forecast.
53. As previously commented on (Table 2), we noted that traffic has increased on the relevant SIDs such that traffic on the CLN SIDs during the day has more than doubled. On Runway 22, CLN departures increased by 107% and Runway 04 CLN departures increased by 208%. This compares to a total increase in traffic represented in the Table 2 of 7.8% between 2015/16 and 2016/17. This was queried with the sponsor, who indicated that this apparent inconsistency was due to a combination of the general increase in traffic plus the change in runway usage which would have resulted in an increase in the proportion of departures on Runway 04.

Environmental Assessment

54. The sponsor provided its analysis of the environmental impacts (see Annex A of this report for a list of information provided) for the airspace change post implementation review. The CAA has assessed that data and the details of that assessment are set out below.

Noise

55. STAL has provided 57 dBA L_{eq} contours for 2015 (pre-implementation) and 2016 (post-implementation). It notes that the size of the contours has increased slightly which it reasonably attributes to the growth in traffic volumes. However, it also makes the statement that the shape of the contours has not changed as a result of the SID switch. This statement required closer examination; the southern extremity of the contours clearly shows a difference in shape in comparison to 2015, with a more pronounced south-easterly bulge on the outer contour which therefore begins to include an area of Little Halingbury/Wright's Green/Gaston Green that was not within 2015's 57 dBA L_{eq} contour. This change in shape is likely to be due in part to the switch in traffic from the 22 DET SID to the 22 CLN SID. However, a comparison with the forecast 2016 noise contours as presented in the consultation material shows that the difference in shape is much less pronounced. The shape and size of the forecast contours for 2016 and the actual contours for 2016 are very similar.
56. In terms of population count the 2016 forecast noise contours estimated a figure of 1,700 within the 57 dBA contour. The actual population count within the 57 dBA contour for 2016 was 2,050. (There were no differences between forecast and actual population numbers for any of the greater dBA contours.) The difference of 350 represents a larger population within the 57 dBA contour than was anticipated.
57. Based on the fact that the shape of the forecast and actual contours for 2016 are sufficiently similar, this difference in population is most likely due to:
- the growth in traffic over and above what was forecast for 2016; and
 - a difference in runway usage. The data used for the contours shown for 2016 were actually based on 2012 actual contours (the latest available before consultation); the 2012 contours reflected an 85% west / 15% east split whereas the actual split for 2016 was 67% west / 33% east;
- rather than as an unexpected impact of the airspace change itself.
58. On this basis, we conclude that the airspace change is has not resulted in an unexpected increase in people significantly affected by noise, as defined in our original decision.

Overflights

Summary of “overflight” impacts, as presented in the PIR data from the sponsor

59. The table and accompanying text should be read in conjunction with the further information at Annex C of this report. Population counts in the table have been rounded to the nearest 100, and therefore differences will be due to rounding.

Module A - Stansted	Pre-implementation (2013)	Post-implementation (2016)	Increase / decrease
Easterly departures			
Direct overflight - Ground to below 4,000ft	500	800	300
Direct overflight - 4,000ft to below 7,000ft	1,500	1,700	200
Direct overflight - Ground to below 7,000ft	2,000	2,500	500
“CAP1498 swathe” ¹	22,400	21,600	-900
Westerly departures			
Direct overflight - Ground to below 4,000ft	2,200	1,900	-300
Direct overflight - 4,000ft to below 7,000ft	2,400	100	-2,200
Direct overflight - Ground to below 7,000ft	4,500	2,000	-2,500
“CAP1498 swathe”	23,100	9,000	-14,000

Note: The Easterly and Westerly population counts cannot be combined to show a total because some of the geographic areas are common to both Easterly and Westerly, especially for the pre-implementation traffic pattern.

¹ See [CAP 1498](#) – paragraph 2.9 – 3.0 refers to overflight and swathes.

60. NATS has not used the full CAP1498 “overflight” methodology to produce a set of contours which would have given a clearer picture the proportion of the population that are being overflowed more often as a result of the airspace change. Therefore, in the case of Module A, where in broad terms traffic on two routes was increased by switching from two other routes, a possible proxy for gauging the population being overflowed more often would be the headcount for those within the direct overflight totals (the shaded cells in the table above) though due to routes sharing a common initial segment (and therefore some residents already experiencing the same number of flights both before and after the change) the numbers in the shaded cells may reflect an over-statement.
61. Therefore, whilst it is apparent that using the simplified CAP1498 swathe shows that there has been a net reduction in the population overflowed (and also a net reduction in the population directly overflowed) below 7,000ft, the shaded cells show that there is a portion of the population that is likely to be experiencing an increase in being overflowed as a direct result of this airspace change, regardless of the increase in traffic volumes that has occurred despite the airspace change. This impact – a net reduction in the population being overflowed, but with a proportion of the population being overflowed more often – was anticipated as a result of implementing the airspace change.

CO₂ Emissions

62. Further detail of the PIR assessment of the change in fuel burn and CO₂ emissions can be found in Annex D of this report which summarises the impacts across all of the LAMP Phase 1A Modules.
63. Module A has achieved a CO₂ reduction in-line with the estimated change in emission that was proposed and considered when the CAA made its decision to approve the proposed airspace change.

Environmental Conclusion

64. The CAA’s conclusion in this PIR is that environmental impacts consequential on the implementation of any of the changes are largely as expected and are consistent with the impacts we took into consideration in making our original decision.

Community Stakeholder observations

65. As part of the data collection process, the change sponsor was required to accept, process and collate noise enquiries/complaints and feedback relating to the implementation of this airspace change. This data was subsequently analysed by the change sponsor and the associated report has been reviewed and assessed by the CAA.
66. Whilst the analysis completed by the change sponsor confirms that there has been a significant increase in the number of enquiries/complaints received following the implementation of this airspace change, it also notes that there are other factors that need to be considered; these are increased utilisation of the westerly runway (22) and a general increase in the number of aircraft movements.
67. A total of 4,170 enquiries/complaints were analysed by the change sponsor for the purpose of this PIR and this total was generated by 670 individuals from 117 geographic locations (the change sponsor requires individuals to provide a full postal address when registering an enquiry/complaint and a full breakdown of locations was included in their report). The CAA notes that 10 individuals were accountable for more than half (2,468) of the total number of enquiries/complaints received by the change sponsor.
68. Focussing on the geographic location of the enquiries/complaints, the CAA plotted the location of those towns/villages from which more than 10 individual complainants submitted enquiries/complaints. Having discounted those locations which clearly fall outside of the scope of this Review (i.e. those locations that have not been directly affected by the implementation of this airspace change), the CAA notes that a total of 2,811 enquiries/complaints were generated by 283 individual complainants residing in 9 towns/villages that lie directly under or within close proximity of the SID centrelines associated with this airspace change proposal. The main themes that were identified when analysing these enquiries/complaints concerned the increase number of aircraft movements, noise and low flying aircraft.
69. In addition to the feedback noted and considered above, the CAA has analysed the 127 enquiries/complaints that were addressed to NATS concerning the implementation of this airspace change proposal. Of that total, the majority (84) were generated by individuals residing in the same 9 towns/villages referenced above. Although the raw data has been provided, it has been anonymised and consequently it has not been possible for the CAA to determine whether or not