NATS

Performance
through Innovation

LAMP Phase 1A

Airspace Change Proposal

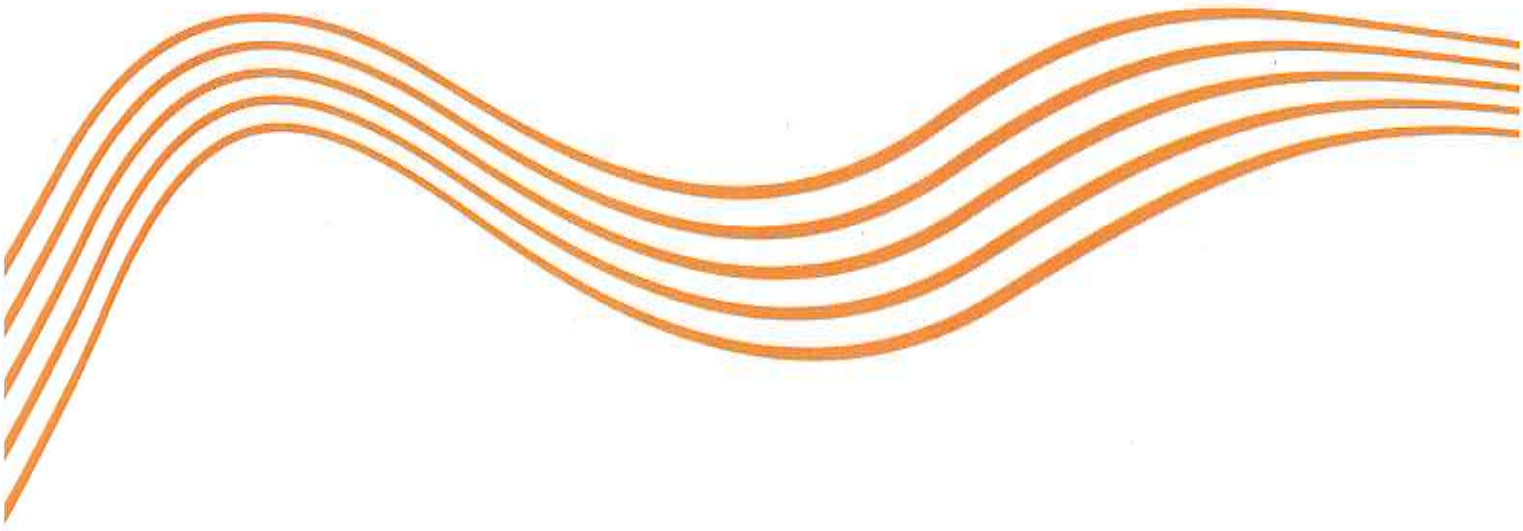
Bridging Module

Issue 1.0
February 2015
Doc ref. 4165/RPT/131 (Bridging Module)

Prepared by:

[redacted]

Airspace Change Assurance



Issue	Month/ Year	Changes in this issue
Issue 1	February 2015	Initial issue submitted to CAA SARG.

Table of Contents

1 Introduction

The LAMP Phase 1A proposal is sponsored by NATS. It also encompasses London City RNAV1 Replications which is a separate module sponsored by London City Airport Limited.

LAMP Phase 1A is the first phase of the LAMP which will modernise the airspace structures supporting airports in South East England. . Phase 1A includes changes to some routes for London City, Gatwick, Stansted, Biggin Hill, Southampton, Bournemouth, Farnborough and Southend.

2 How to Read this Airspace Change Proposal

This document is the Bridging ACP for the LAMP Phase 1 ACP package. The structure of the ACP is shown in Figure 1 below.

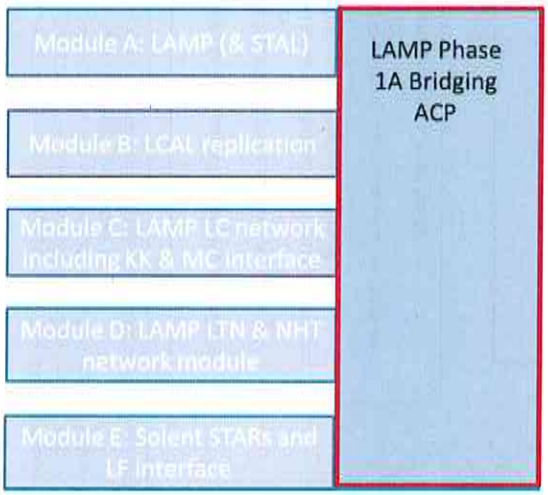


Figure 1: LAMP Phase 1 ACP structure

The airspace changes for LAMP Phase 1A are provided in the Modules listed above. The bridging ACP is the vessel for information that is common to all the modules.

A complete map of the LAMP1A ACP documentation is provided overleaf

This document is designed to be a reference document to demonstrate compliance with CAP725 requirements. As such it provides cross references to relevant evidence where it exists elsewhere, as well as presenting some additional detail where required.

Note that in this ACP document, where an 'Appendix' is referenced without a Prefix, it relates to an Appendix of this ACP and is therefore found appended to the end.

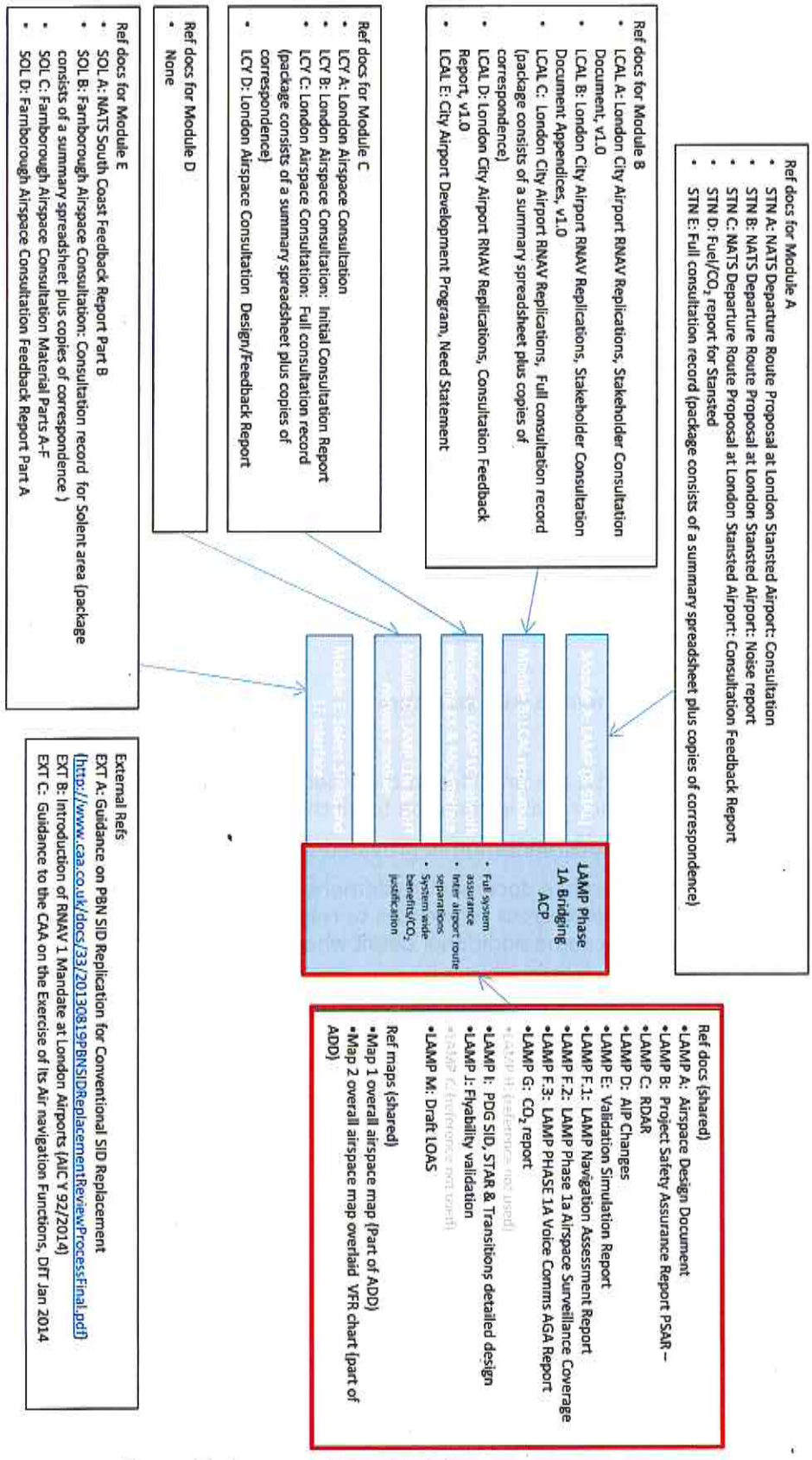


Figure 2: Document Map & References

3 Justification

Each module of the ACP has its own justification.

The justification for the LAMP Phase 1A as a whole is that it will:

Modernise airspace structures in line with the CAA mandates and expected European legislation

Improve the operational efficiency of the airspace providing capacity for the future and thereby minimising future delay

Improve the environmental performance of the airspace, reducing average CO_2 per flight and reducing the incidence of low level overflight of populated areas.

4 Current Airspace Description

4.1 Existing Airspace & Traffic Routings

The current day operation of airspace is covered in the equivalent section of each of the ACP modules.

4.2 Traffic Figures

This proposal would not have any influence on the rate of growth of traffic operating within the airspace. For the purposes of the system wide CO_2 analysis a level of growth has been assumed on each of the effected routes– these predicted traffic numbers are presented below.

These figures are from the latest available NATS 'grid' forecast. The grid forecast is a system wide view on traffic growth broken down by city pairs. The forecast apportions growth between city pairs based on economic data and market information. They do not represent airport master plans.

NATS does not use airport master plans as the basis for system wide forecasting because master plans are developed by airports in isolation, often with a view to justifying investment. As a consequence they may have different underlying assumptions and reporting periods that mean aggregating may not be valid. In particular experience has shown that aggregating airport forecasts which are based on growth and investment aspirations can lead to overestimation of the total number of flights as each airport assumes it will successfully out-compete its neighbours.

NATS therefore uses its own grid forecasts as the basis of system wide analysis of CO_2 impacts. These forecasts are however commercially sensitive and therefore not provided with this ACP, except in the form of the table 1 overleaf.

Consultation variations

When consulting in collaboration with airports NATS has to consider the local airport view on growth so that local communication is consistent. This also ensures that potential local impacts are not underestimated as the airport growth figures are generally higher than the NATS forecasts for the reasons described above.

For example, for the consultation undertaken for Module A in collaboration with Stansted Airport, they requested growth rates of 20% and 40% are used for the period 2016 and 2020, which are a higher than the NATS grid forecast inferred from the Table below and used in the system wide analysis of CO_2..

There are also differences in the forecast data because the consultations were generated in 2014 based on 2013 (or earlier base data). The table below uses a 2014 base year.

In general the consequence of this difference is that we have consulted using higher numbers for potential local impacts than we believe to be likely in reality. We do not believe that overestimating negative impacts undermines the efficiency consultation process – if anything it would encourage more response.

London City forecast

No fuel/CO_2 analysis was performed for Module B as it is for replication (ref EXT1 details the requirements for replication), therefore specific forecast data has not been produced for these routes except where they are also covered by Module C. Current day traffic information for replicated routes not covered by the Table below can be found in the London City replication consultation document (ref LCAL A) and Section 4 in module B presents a reference to the Airports own forecast.

London City local forecasts take into account projected growth taking into account the local CADP development of stands and taxiways (www.londoncityairport.com/cadp). This development is still awaiting final approval. Should the development be approved, and the local growth forecasts be realised, the consequence will be an increase in the CO2 benefit from LAMP Phase 1A as they are in proportion to the number of flights.

				Total affected movements			
				2016		2020	
Module			via	base	high	base	high
A	EGSS– DVR SID	DEPS	DVR	25,135	27,874	27,867	30,226
C	EGLC-DVR SID	DEPS	DVR	10,624	12,246	12,933	13,767
C	EGLC-LYD SID	DEPS	LYD	8,427	9,714	10,259	10,921
C	EGLC- ALKIN3D	Arr	DET	13,686	15,775	16,661	17,735
C	EGLC- ALKIN3F	Arr					
C	EGLC- SPEAR1b	Arr	TRIPO	13,695	15,786	16,672	17,747
C	EGLC- SPEAR1A	Arr	BKY	8,738	10,072	10,637	11,323
C	EGLC- SPEAR1L	Arr					
C	EGLC- SPEAR1M	Arr					
C	EGKK - TIMBA2E	Arr	DET	24,922	28,069	27,031	30,029
C	EGKK - TIMBA3B	Arr	KUNAV	41,525	46,769	45,039	50,034
C	EGMC Arrivals via NEVIL	Arr	NEVIL	2,248	2,328	2,600	2,724
C	EGMC via RATUK	Arr	RATUK	745	772	862	903
C	EGMC via SUMUM	Arr	SUMUM	785	813	908	952
C	EGMC via XAMAN	Arr	XAMAN	1,740	1,801	2,012	2,108
D	EGGW – DVR SID	DEPS	DVR	9,955	10,292	11,276	11,691
D	EGWU– DVR SID	DEPS	DVR	868	899	1,004	1,052
E	EGLF arrivals via KUNAV	Arr	KUNAV	4,287	4,439	4,958	5,194
E	EGLF arrivals via KATHY	Arr	KATHY	1,422	1,472	1,644	1,723
E	EGLF arrivals via GIBSO	Arr	GIBSO	172	178	199	208
E	EGHI S-E arrivals via GWC	Arr	GWC	1,720	1,882	2,093	2,262
E	EGHH S-E arrivals via GWC	Arr	GWC	1,057	1,111	1,213	1,280
E	EGHH DVR departures	DEPS	DVR	242	254	278	293
E	EGHI DVR departures	DEPS	DVR	142	155	172	186
E	LF deps via DVR	DEPS	DVR	1,446	1,497	1,672	1,752

Table 1: Forecast usage of routes effected by proposed LAMP Phase 1A airspace changes (excluding replication)

Intentionally Blank

4.3 Aircraft Types

The table below shows the aircraft types on the routes analysed for CO_2 purposes taken from 2014 UK flight database flight plan data.

module				2 Engine Airbus Heavy	2 Engine Boeing Heavy	3 Engine Medium	3/4 Engine Heavy	4 Engine Airbus Heavy	4 Engine Boeing Heavy	4 Engine Medium	Heavy Turboprop	Helicopter	Med MDs	Medium Airbus	Medium Boeing	Medium Turboprop	Military Jets	Small Heavy	Small Jets	Small Turboprop	Super Heavy	Upper Medium		
A	EGSS– DVR SID	DEPS	DVR	0.1%	0.4%	0.0%	0.6%	0.1%	2.6%	0.2%	0.1%	0.0%	0.0%	16.7%	73.7%	0.0%	0.0%	1.7%	3.3%	0.1%	0.0%	0.4%		
C	EGLC-DVR SID	DEPS	DVR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	27.7%	25.8%	0.0%	0.0%	0.0%	0.0%	4.7%	0.0%	0.0%	41.7%	0.1%	0.0%	0.0%		
C	EGLC-LYD SID	DEPS	LYD	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	16.9%	26.5%	0.0%	0.0%	0.1%	0.0%	6.3%	0.0%	0.0%	50.2%	0.0%	0.0%	0.0%		
C	EGLC- ALKIN3D	Arr	DET	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	30.3%	16.3%	0.0%	0.0%	0.3%	0.0%	7.5%	0.0%	0.0%	45.5%	0.1%	0.0%	0.0%		
C	EGLC- ALKIN3F	Arr																						
C	EGLC- SPEAR1b	Arr	TRIPO	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	22.9%	27.7%	0.0%	0.0%	0.0%	0.0%	9.2%	0.0%	0.0%	40.1%	0.0%	0.0%	0.0%		
C	EGLC- SPEAR1A	Arr	BKY	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	8.2%	3.5%	0.0%	0.0%	2.1%	0.0%	4.7%	0.0%	0.0%	21.7%	0.0%	0.0%	0.0%		
C	EGLC- SPEAR1L	Arr																						
C	EGLC- SPEAR1M	Arr																						
C	EGKK - TIMBA2E	Arr	DET	1.3%	4.5%	0.0%	0.0%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	49.1%	40.7%	0.0%	0.0%	0.2%	1.6%	0.0%	1.1%	1.3%		
C	EGKK - TIMBA3B	Arr	KUNAV	0.9%	0.7%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	71.6%	18.3%	0.0%	0.0%	0.6%	0.7%	0.0%	0.0%	7.0%		
C	EGMC Arrivals via NEVIL	Arr	NEVIL	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	18.0%	0.0%	0.0%	77.3%	0.4%	0.4%	0.0%	0.0%	1.4%	2.5%	0.0%	0.0%		
C	EGMC via RATUK	Arr	RATUK	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.3%	0.0%	0.0%	0.1%	60.8%	2.5%	11.9%	0.0%	0.0%	9.9%	14.5%	0.0%	0.0%		
C	EGMC via SUMUM	Arr	SUMUM	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	49.3%	0.0%	0.0%	26.3%	0.4%	1.0%	0.0%	0.0%	4.7%	18.1%	0.0%	0.0%		
C	EGMC via XAMAN	Arr	XAMAN	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	23.2%	0.0%	0.0%	71.4%	0.0%	0.1%	0.0%	0.0%	0.8%	4.0%	0.0%	0.3%		
D	EGGW – DVR SID	DEPS	DVR	0.2%	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	48.0%	14.8%	0.0%	0.0%	3.5%	31.6%	0.3%	0.0%	1.2%		
D	EGWU– DVR SID	DEPS	DVR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.8%	0.3%	0.3%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	97.2%	1.4%	0.0%	0.0%		
E	EGLF arrivals via KUNAV	Arr	KUNAV	0.1%	0.0%	0.0%	0.1%	0.0%	0.0%	0.1%	0.1%	0.0%	0.0%	1.5%	1.4%	0.4%	0.1%	0.0%	94.3%	2.2%	0.0%	0.0%		
E	EGLF arrivals via KATHY	Arr	KATHY	0.1%	0.0%	0.0%	0.0%	0.0%	0.0%	0.2%	0.3%	0.0%	0.0%	0.8%	1.2%	0.0%	0.1%	0.0%	92.0%	5.2%	0.1%	0.0%		
E	EGLF arrivals via GIBSO	Arr	GIBSO	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	3.3%	4.0%	0.0%	0.0%	0.0%	91.3%	1.3%	0.0%	0.0%		
E	EGHI S-E arrivals via GWC	Arr	GWC	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.1%	75.0%	0.0%	0.0%	0.1%	0.0%	0.4%	0.0%	0.0%	19.9%	4.5%	0.0%	0.0%		
E	EGHH S-E arrivals via GWC	Arr	GWC	0.0%	0.0%	0.0%	0.0%	0.0%	1.1%	0.0%	0.5%	0.1%	0.0%	10.5%	23.5%	0.1%	0.0%	0.3%	52.1%	11.7%	0.0%	0.0%		
E	EGHH DVR departures	DEPS	DVR	0.0%	0.0%	0.0%	0.0%	0.0%	5.4%	0.0%	0.5%	0.0%	0.0%	1.8%	44.3%	0.9%	0.0%	0.0%	36.2%	10.9%	0.0%	0.0%		
E	EGHI DVR departures	DEPS	DVR	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	1.6%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	70.1%	28.3%	0.0%	0.0%		

Intentionally Blank

4.4 Operational Efficiency, Complexity, Delays & Choke Points

See equivalent section for each of the ACP modules for descriptions of the specific routes covered by each module.

As a whole LTMA capacity is limited by the conventional route structure (in particular SIDs, STARs and holds at low levels) that aircraft flight plan via, but in practice rarely follow. To maintain efficiency air traffic controllers tactically intervene in many circumstances. This is particularly prevalent for London City arrivals for which low altitude vectoring to achieve final route spacing leads to highly variable traffic patterns. This leads to an unpredictable air traffic environment and one that is potentially highly complex. This is described from an environmental point of view in Part F of the London Airspace Consultation document (ref LCY A)

While Thames radar is a particular choke point the same issues apply to all LTC sectors to varying degrees, and therefore all suffer from operational inefficiency as a consequence of a route structure that does not match the operational need.

4.5 Environmental Issues

See equivalent section for each of the ACP modules.

5 Proposed Airspace Description

5.1 Objectives/Requirements for Proposed Design

See each ACP module (the equivalent paragraph number to this para).

See Section **Error! Reference source not found.** for an overview of LAMP Phase 1A ustification as a whole. Specific benefits and impacts are described in Section 6.

5.2 Proposed New Airspace/Route Definition & Usage

AIP data relating to the ENR section of the AIP (such as coordinates, true tracks, CAS bases etc) is available in the supplied reference document LAMP D.

Two maps of the proposed airspace structure are provided, one showing the current system, and a second showing the proposed changes overlaid on a VFR map.

These are labelled Map 1 and Map 2 and are found in the reference document directory of this ACP.

See equivalent section of each ACP module for details of specific changes.

6 Impacts & Consultation

6.1 Units Affected by the Proposal

See the equivalent section of each of the ACP modules, for details of specific units affected by each element of the proposal. However, since the focal point of the development is to improve the efficiency of the route network used by London Terminal Control (LTC) – the following analysis relates to LTC.

Capacity and delay analysis for LTC

Regulated delay avoidance analysis was carried out to give an indication of the scale of the capacity benefits delivered by Phase 1a. Consultation with the LAMP project and the design team identified that TC WILLO is key a sector impacted by the Phase 1a changes that is currently manifesting regulated delays that the airspace design will partially or wholly remove. Note that regulated delay avoidance does not pick up delays applied at an airport level such as Minimum Departure Intervals (MDIs).

An assessment of the extent of 'Do Nothing' delays over the period of the Phase 1a implementation, 2015 to 2019 inclusive, was undertaken for TC WILLO. These were estimated at around 30,000 minutes at a cost to airlines of £336k. Extending the analysis period to 2025 produces 95,000 minutes of delay at a cost to airlines of £1.6M, but as this overlaps with LAMP Phase 2 implementation the attribution of benefits to phase 1A becomes less clear.

The above calculation only considers the cost to airlines of delays. For ACP purposes a wider perspective should be taken which considers the knock-on costs to each individual traveller or commodity that is delayed in transit. We have no method for assessing these externalities, but it is clear that a holistic view of airspace change should recognise that they exist and will also be reduced by the proposed changes.

In addition to the quantitative analysis, the LAMP project has undertaken real time validation simulations for Phase 1A (ref LAMP E). This involved operating the proposed airspace with traffic samples grown to 2020 levels.

Whilst this does not produce definitive quantitative results, it does provided assurance that at increased traffic throughput, the airspace performs without generating excessive controller complexity or workload (the factors that contribute to delay) regulated or otherwise.

The qualitative assessment from the validation simulation was that the airspace provides sufficient capacity to manage the 2020 traffic flows without generating regulated delay.

6.2 Safety Issues/Analysis

Ensuring the safety of proposed changes is a NATS priority. As such the proposal has been developed, and will be implemented in accordance with NATS SMS, as documented in the Project Safety Assurance Report (PSAR) (ref LAMP B).

In addition this ACP includes a Route Design Analysis Report RDAR, (ref LAMP C).

Safety representatives from SARG have had oversight of the safety assurance process.

All proposed procedures have been designed in accordance with ICAO PANS-OPS RNAV procedure design criteria (ref LAMP I).

6.3 Military Implications & Consultation

See Appendix A for MOD acceptance of LAMP Phase 1A as a whole.

See equivalent section for each of the ACP modules for further details.

6.4 General Aviation Airspace Users Impact & Consultation

See equivalent section for each of the ACP modules for details.

6.5 Commercial Air Transport Impact & Consultation

The Commercial Air Transport (CAT) community is supportive of this change as it provides fuel benefits. Commercial air transport and the travelling public will benefit from the capacity, delay and safety benefits described in para 6.1 and 6.2.

See equivalent section for each of the ACP modules for further details.

6.6 CO_2 Environmental Analysis Impact & Consultation

Whilst this ACP has been developed in separate modules with stand-alone justifications, we have also performed a system wide CO_2 analysis to determine the overall effect on CO_2. This is found in a separate report (ref LAMP G).

This report is a full system analysis covering all the ACP modules. It was completed in January 2015 and is based on real time simulation modelling, taking into account the final proposed design both in terms of routes and procedural levels. It therefore represents the most up to date and complete analysis of the expected fuel and CO_2 impact of the ACP and supersedes analyses undertaken during the design process.

The report estimates that in 2016 the change would result in enabled fuel savings of 15,600 tonnes, rising to 18,200 tonnes by 2020. This is an 'enabled' fuel benefit, which is a measure of the difference that the proposal will make to the trip fuel that airlines will plan for. As such this provides a measure of the financial benefit to airlines when considering the efficiency of a particular planned route.

In the current operation aircraft are tactically vectored for reasons of safety and efficiency. This occurs in today's airspace and would also occur in the future (the amount of vectoring expected in the future is discussed later).

This vectoring means that not all trip fuel that airlines load onto a flight is spent, because the distance actually flown is usually less than that planned for. As CO_2 is only generated from fuel which is burnt, this can mean that the enabled fuel benefit may overestimate the CO_2 benefit if a straight conversion from the enabled fuel is undertaken. Therefore whilst the enabled fuel benefit may be an appropriate basis for reporting a financial benefit to airlines, the report describes and applies a method for adjusting the results to avoid, as far as is practicable, overestimating actual fuel burn and therefore CO_2.

While NATS has world leading fuel/CO_2 assessment tools in the AirTOp fast time model and KERMIT fuel-burn/emissions assessment software, we recognise that there are elements of the fuel and CO_2 assessment methodologies that remain subject to assumptions, in particular when translating enabled fuel reduction into actual CO_2 reduction. We have taken account of these factors as far as possible, and have therefore reduced the CO_2 benefits on the basis of a comparison of modelled and actual fuel for today's traffic.

The adjusted CO_2 estimate is a 39,400 tonne saving in 2016; rising to 46,000 by 2020 (this is adjusted down by 21% from the equivalent 'enabled' benefit).

However, the dynamic nature of the air traffic environment both in terms of day-to-day operation and the long term effects of increasing traffic and technological advancement, mean that a degree of uncertainty remains (these factors are discussed further in LAMP G).

To account for this uncertainty we are applying a range to the reported results in the ACP (to meet CAP725 requirements).

Declared CO_2 saving for 2016: 19,000 – 40,000 tonne pa

Declared CO_2 saving for 2020: 23,000 – 46,000 tonne pa

The lower end of the range has not been scientifically derived; it is simply 50% of the calculated value. However, it is the opinion of our operational and analytical experts that, as the calculated value represents as close an approximation to the required adjustment as can be achieved, and then the lower end of the range more than covers the remaining uncertainty, and presents a sufficient benefit contributing to the overall justification for change.

It should also be noted that within the overall result there are some specific routes for which there is a negative fuel/CO_2 impact. However, because these are the less-frequently-used routes, the net negative CO_2 impact is negligible when taken in the context of the overall system benefit.

6.7 Local Environmental Impacts & Consultation

See equivalent section for each of the ACP modules for details.

The DFT guidance (EXT C) states that due to the effects of mixing and dispersion, emissions from aircraft above 1,000ft are unlikely to have any impact on local air quality. None of the modules in this ACP will significantly affect the position of flights below 1,000ft and therefore no local air quality analysis has been undertaken. .

6.8 Economic Valuation of Environmental Impact

NATS is not aware of any established methodology that is widely accepted as providing a complete and robust economic valuation of the environmental impacts of changes to airspace structure. Furthermore, NATS will not base the case for change on an economic valuation of environmental impact and therefore does not propose to attempt to provide or develop such analysis for this ACP.

7 Analysis of Options

See equivalent section for each of the ACP modules for details

8 Airspace Description Requirement

CAP 725, Appendix A Paragraph 5, provides a list of requirements for a proposed airspace description. These are listed below:

	CAA CAP725, Appendix A paragraph 5 Requirement. "The proposal should provide a full description of the proposed change including the following:"	**Description for this Proposal**
a	The type of route or structure; e.g. Airway, UAR, Conditional Route, Advisory Route, CTR, SIDs/STARs, Holding Patterns, etc;	See equivalent section for each of the ACP modules for details
b	The hours of operation of the airspace and any seasonal variations;	See equivalent section for each of the ACP modules for details
c	Interaction with domestic and international en-route structures, TMAs or CTAs with an explanation of how connectivity is to be achieved. Connectivity to aerodromes not connected to CAS should be covered;	See equivalent section for each of the ACP modules for details
d	Airspace buffer requirements (if any);	See equivalent section for each of the ACP modules for details
e	Supporting information on traffic data including statistics and forecasts for the various categories of aircraft movements (Passenger, Freight, Test and Training, Aero Club, Other) and Terminal Passenger numbers;	See Section 4
f	Analysis of the impact of the traffic mix on complexity and workload of operations;	Not applicable (no impact)
g	Evidence of relevant draft Letters of Agreement, including any arising out of consultation and/or Airspace Management requirements;	Draft LOAs are provided at LAMP M

h	Evidence that the Airspace Design is compliant with ICAO Standards and Recommended Practices (SARPs) and any other UK Policy or filed differences, and UK policy on the Flexible Use of Airspace (or evidence of mitigation where it is not);	All proposed procedures have been designed in accordance with ICAO PANS-OPS RNAV procedure design criteria (ref LAMP I).
i	The proposed airspace classification with justification for that classification;	See equivalent section for each of the ACP modules for details
j	Demonstration of commitment to provide airspace users equitable access to the airspace as per the classification and where necessary indicate resources to be applied or a commitment to provide them in-line with forecast traffic growth. 'Management by exclusion' would not be acceptable;	See equivalent section for each of the ACP modules for details
k	Details of and justification for any delegation of ATS.	There are no proposed changes to delegation of ATS relating to this module of the LAMP Phase 1A ACP

9 Operational Impact

CAA CAP725, Appendix A Paragraph 7, provides a list of requirements for operational impact. These are listed below:

	CAA CAP725, Appendix A paragraph 7 requirements. "An analysis of the impact of the change on all airspace users, airfields and traffic levels must be provided, and include an outline concept of operations describing how operations within the new airspace will be managed. Specifically, consideration should be given to:"	**Evidence of Compliance/Proposed Mitigation**
a	Impact on IFR General Air Traffic and Operational Air Traffic or on VFR General Aviation (GA) traffic flow in or through the area;	See equivalent section for each of the ACP modules for details
b	Impact on VFR operations (including VFR Routes where applicable);	See equivalent section for each of the ACP modules for details
c	Consequential effects on procedures and capacity, i.e. on SIDS, STARS, and/or holding patterns. Details of existing or planned routes and holds;	See equivalent section for each of the ACP modules for details
d	Impact on aerodromes and other specific activities within or adjacent to the proposed airspace;	See equivalent section for each of the ACP modules for details
e	Any flight planning restrictions and/or route requirements.	See equivalent section for each of the ACP modules for details

10 Supporting Infrastructure & Resources

CAA CAP725, Appendix A Paragraph 6, provides a list of requirements for supporting infrastructure/resources. These are listed below:

	CAA CAP725, Appendix A Paragraph 6, general Requirements	**Evidence of Compliance/Proposed Mitigation**
a	Evidence to support RNAV and conventional navigation as appropriate with details of planned availability and contingency procedures.	The proposed SIDs, STARs and airway/UAR are contained within airspace where the CNS infrastructure is well proven and appropriate contingency procedures already exist. See LAMP F
b	Evidence to support primary and secondary surveillance radar (SSR) with details of planned availability and contingency procedures.	As per item **a**
c	Evidence of communications infrastructure including R/T coverage, with availability and contingency procedures.	As per item **a**
d	The effects of failure of equipment, procedures and/or personnel with respect to the overall management of the airspace must be considered.	As per item **a**
e	The Proposal must provide effective responses to the failure modes that will enable the functions associated with airspace to be carried out including details of navigation aid coverage, unit personnel levels, separation standards and the design of the airspace in respect of existing international standards or guidance material.	As per item **a**
f	A clear statement on SSR code assignment requirements is also required.	No changes to the extant methods of SSR code allocation to traffic using these routes is required.
g	Evidence of sufficient numbers of suitably qualified staff required to provide air traffic services following the implementation of a change.	The proposed routes would be contained within airspace managed by Swanwick ATC. The procedures do not require any changes to staffing requirements at this unit who would be trained appropriately before implementation. There would be no impact on staffing requirements at any airport.

11 Airspace & Infrastructure Requirements

CAA CAP725, Appendix A Paragraphs 11-14, provides a list of requirements for airspace and infrastructure. These are listed below:

	CAA CAP725, Appendix A paragraph 11: General Requirements	**Evidence of Compliance/Proposed Mitigation**
a	The airspace structure must be of sufficient dimensions with regard to expected aircraft navigation performance and manoeuvrability to fully contain horizontal and vertical flight activity in both radar and non-radar environments;.	See equivalent section for each of the ACP modules for details
b	Where an additional airspace structure is required for radar control purposes, the dimensions shall be such that radar control manoeuvres can be contained within the structure, allowing a safety buffer. This safety buffer shall be in accordance with agreed parameters as set down in DAP Policy Statement 'Safety Buffer Policy for Airspace Design Purposes Segregated Airspace';	See equivalent section for each of the ACP modules for details
c	The Air Traffic Management (ATM) system must be adequate to ensure that prescribed separation can be maintained between aircraft within the airspace structure and safe management of interfaces with other airspace structures;	The proposed changes have been tested through real time simulation see LAMP E.
d	Air Traffic Control (ATC) procedures are to ensure required separation between traffic inside a new airspace structure and traffic within existing adjacent or other new airspace structures;	See RDAR (LAMP C) and real time simulation (LAMP E)
e	Within the constraints of safety and efficiency, the airspace classification should permit access to as many classes of user as practicable;	See equivalent section for each of the ACP modules for details
f	There must be assurance, as far as practicable, against unauthorised incursions. This is usually done through the classification and promulgation.	Details of the airspace changes associated with this proposal will be published two AIRAC cycles in advance.
g	Pilots shall be notified of any failure of navigational facilities and of any suitable alternative facilities available and the method of identifying failure and notification should be specified;	Failure of navigational facilities will be promulgated by NOTAM and ATC will provide navigational assistance using radar when necessary.

h	The notification of the implementation of new airspace structures or withdrawal of redundant airspace structures shall be adequate to allow interested parties sufficient time to comply with user requirements. This is normally done through the AIRAC cycle;	Changes will be published via the normal AIRAC cycles. Two AIRAC cycles notice will be given.
i	There must be sufficient R/T coverage to support the ATM system within the totality of proposed controlled airspace.	See CNS reports at LAMP F
j	If the new structure lies close to another airspace structure or overlaps an associated airspace structure, the need for operating agreements shall be considered;	See RDAR (LAMP C) and real time simulation (LAMP E)
k	Should there be any other aviation activity (low flying, gliding, parachuting, microlight site, etc.) in the vicinity of the new airspace structure and no suitable operating agreements or ATC Procedures can be devised, the Change Sponsor shall act to resolve any conflicting interests;	If such a conflict occurred then we would act accordingly

	CAA CAP725, Appendix A paragraph 12: ATS Route Requirements	**Evidence of Compliance/Proposed Mitigation**
a	There must be sufficient accurate navigational guidance based on in-line VOR/DME or NDB or by approved RNAV derived sources, to contain the aircraft within the route to the published RNP value in accordance with ICAO/EuroControl Standards;	The proposed SIDs and airway/UAR are contained within airspace where the CNS infrastructure is well proven and appropriate contingency procedures already exist. See CNS reports at LAMP F
b	Where ATS routes adjoin Terminal Airspace there shall be suitable link routes as necessary for the ATM task;	See Airspace Design Description (LAMP A)
c	All new routes should be designed to accommodate P-RNAV navigational requirements.	All proposed procedures have been designed in accordance with ICAO PANS-OPS RNAV procedure design criteria (ref LAMP I).

	CAA CAP725, Appendix A paragraph 13: Terminal Airspace Requirements	Evidence of Compliance/Proposed Mitigation
a	The airspace structure shall be of sufficient dimensions to contain appropriate procedures, holding patterns and their associated protected areas;	See equivalent section for each of the ACP modules for details
b	There shall be effective integration of departure and arrival routes associated with the airspace structure and linking to designated runways and published IAPs;	See equivalent section for each of the ACP modules for details
c	Where possible, there shall be suitable linking routes between the proposed terminal airspace and existing en-route airspace structure;	See equivalent section for each of the ACP modules for details
d	The airspace structure shall be designed to ensure that adequate and appropriate terrain clearance can be readily applied within and adjacent to the proposed airspace;	All procedures and routes are compliant with PANS Ops standards
e	Suitable arrangements for the control of all classes of aircraft (including transits) operating within or adjacent to the airspace in question, in all meteorological conditions and under all flight rules, shall be in place or will be put into effect by Change Sponsors upon implementation of the change in question (if these do not already exist);.	See equivalent section for each of the ACP modules for details
f	Change Sponsors shall ensure that sufficient VRPs are established within or adjacent to the subject airspace to facilitate the effective integration of VFR arrivals, departures and transits of the airspace with IFR traffic;	No change to extant VRPs
g	There shall be suitable availability of radar control facilities;	No change to extant availability
h	Change Sponsors shall, upon implementation of any airspace change, devise the means of gathering (if these do not already exist) and of maintaining statistics on the number of aircraft transiting the airspace in question. Similarly, Change Sponsors shall maintain records on the numbers of aircraft refused permission to transit the airspace in question, and the reasons why. Change Sponsors should note that such records would enable ATS Managers to plan staffing requirements necessary to effectively manage the airspace under their control;	Current methods of record-keeping will continue under this proposal.

i	All new procedures should, wherever possible, incorporate Continuous Descent Approach (CDA) profiles after aircraft leave the holding facility associated with that procedure.	The point merge system has been designed to facilitate CDA

	CAA CAP725, Appendix A paragraph 14: Off Route Airspace Requirements	**Evidence of Compliance/Proposed Mitigation**
	There are no proposed changes to off route airspace structures as part of this proposal.	

12 Environmental Requirements

This section details the required elements of an Environmental Assessment for the Phase 2 ACP development, based upon CAP 725 Appendix B.

The requirements in this section are grouped by the degree of compliance expected from airspace change sponsors. In following this guidance:

- **Must** – change sponsors are to meet the requirements in full when this term is used.
- **Should** – change sponsors are to meet these requirements unless there is sufficient reason which must be agreed in writing with the DAP case officer and the circumstances recorded in the formal airspace change documentation.
- **May** – change sponsors decide whether this guidance is appropriate to the circumstances of the airspace change.

	Requirement		Ref.	Page	Evidence
1	In order to ensure that the various areas for environmental assessment by DAP are addressed, Change Sponsors should submit the documentation with the following clearly defined sections: Description of the airspace change; Traffic forecasts ; An assessment of the effects on noise An assessment of the change in fuel burn/CO2; An assessment of the effect on local air quality and An economic valuation of environmental impact, if appropriate .	General	Para 2	B-1	For traffic forecast see Sections 4 For noise assessments see equivalent section for each of the ACP modules for details. For fuel see section 6. For local air quality see para 6.7. For economic evaluation see para 6.8
2	It is considered unlikely that airspace changes will have a direct impact on animals, livestock and biodiversity. However, Change Sponsors should remain alert to the possibility and may be required to include these topics in their environmental assessment.	General	Para 18	B-4	The CAA guidance for airspace change states that "it is considered unlikely that airspace changes will have a direct impact on animals, livestock and biodiversity". We have no reason to believe that this statement does not hold for the LAMP phase 1A proposal.
3	Environmental assessment should set out the base case or current situation so that changes can be clearly identified.	General	Para 19	B-4	See Section 4 of this ACP and the ACP modules
4	Environmental assessment should follow the Basic Principles listed in CAP 725.	General	Para 20	B-4	See Section 5 and 6 of this ACP and the ACP modules
5	A technical document containing a comprehensive and complete description of the airspace change including the environmental impact will be required and must be produced for all airspace changes.	General	Para 25	B-6	See Section 5 and 6 of this ACP and the ACP modules

	Requirement		Ref.	Page	Evidence
6	It may be appropriate for Change Sponsors to produce a more general description of the airspace change and the rationale for its proposal in an easy-to-read style for public consumption. If such an additional separate document is produced, it must contain details of the environmental impact of the proposal.	General	Para 25	B-6	Consultation has been undertaken for Modules A, B, C and E, see ACP modules for details
7	The environmental assessment must include a high quality paper diagram of the airspace change in its entirety as well as supplementary diagrams illustrating different parts of the change. This diagram must show the extent of the airspace change in relation to known geographical features and centres of population	Airspace Design	Para 28	B-7	See ACP modules and related consultation material
8	The proposal should consider and assess more than one option, then demonstrate why the selected option meets safety and operational requirements and will generate an overall environmental benefit or, if not, why it is being proposed.	Airspace Design	Para 29	B-7	See Section 7 of the ACP modules
9	The Change Sponsor must provide DAP with a complete set of coordinates describing the proposed change in electronic format using World Geodetic System 1984 (WGS 84). In addition, the Sponsor must supply these locations in the form of Ordnance Survey (OS) national grid coordinates.	Airspace Design	Para 30	B-7	Lat longs are provided in the draft AIP pages See LAMP D
10	This electronic version must provide a full description of the horizontal and vertical extent of the zones and areas contained within the airspace change. It must also include coordinates in both WGS 84 and OS national grid formats that define the centre lines of routes including airways, standard instrument departures (SID), standard arrival routes (STAR), noise preferential routes (NPR) or any other arrangement that has the effect of concentrating traffic over a particular geographical area.	Airspace Design	Para 30	B-7	See Section 5 of the ACP modules and LAMP D
11	Change Sponsors should provide indications of the likely lateral dispersion of traffic about the centre line of each route. This should take the form of a statistical measure of variation such as the standard deviation of lateral distance from the centre line for given distances along track in circumstances where the dispersion is variable.	Airspace Design	Para 31	B-7	See Section 5 of the ACP modules

12	Sponsors may supply the outputs from simulation to demonstrate the lateral dispersion of traffic within the proposed airspace change or bring forward evidence based on actual performance on a similar kind of route. It may be appropriate for Sponsors to explain different aspects of dispersion e.g. dispersion within NPRs when following a departure routeing and when vectoring – where the aircraft will go and their likely frequency	Airspace Design	Para 31	B-7	See Section 5 of the ACP modules
13	Change Sponsors must provide a description of the vertical distribution of traffic in airways, SIDs, STARs, NPRs and other arrangements that have the effect of concentrating traffic over a particular geographical area	Airspace Design	Para 32	B-7	See Section 5 of the ACP modules
14	For departing traffic, sponsors should produce profiles of the most frequent type(s) of aircraft operating within the airspace. They should show vertical profiles for the maximum, typical and minimum climb rates achievable by those aircraft.	Airspace Design	Para 32	B-7	See Section 5 of the ACP modules
15	A vertical profile for the slowest climbing aircraft likely to use the airspace should also be produced.	Airspace Design	Para 32	B-8	See Section 5 of the ACP modules
16	All profiles should be shown graphically and the underlying data provided in a spread sheet with all planning assumptions clearly documented.	Airspace Design	Para 32	B-8	See Section 5 of the ACP modules
17	Change Sponsors should explain how consideration of CDA and LPLD is taken into account within their proposals	Airspace Design	Para 33	B-8	The proposal has aimed to facilitate CDA
18	In planning changes to airspace arrangements, sponsors may have conducted real and/or fast time simulations of air traffic for a number of options.	Traffic Forecasts	Para 34	B-8	A Real time simulation has been undertaken for LAMP Phase 1A as a whole - see LAMP E For Fast Time Simulation see para 6.6
19	Change Sponsors must include traffic forecasts in their environmental assessment.	Traffic Forecasts	Para 35	B-8	See Section 4
20	Information on air traffic must include the current level of traffic using the present airspace arrangement and a forecast. The forecast will need to indicate the traffic growth on the different routes contained within the airspace change volume.	Traffic Forecasts	Para 35	B-8	See Section 4
21	The sources used for the forecast must be documented.	Traffic Forecasts	Para 35	B-8	See Section 4

22	Typically, forecasts should be for five years from the planned implementation date of the airspace change. There may be good reasons for varying this – for example, to use data that has already been made available to the general public at planning inquiries, in airport master plans or other business plans	Traffic Forecasts	Para 36	B-8	Because LAMP Phase 2 is expected to come into being by 2020 it was agreed with ERCD that a 2020 forecast (ie implementation + 4 years) was more appropriate than 2021 (+5 years).
23	It may also be appropriate to provide forecasts further into the future than five years: examples are extensive airspace changes or where traffic is forecast to grow slowly in the five-year period but faster thereafter.	Traffic Forecasts	Para 36	B-8	See above
24	It may be appropriate for Change Sponsors to outline the key factors [affecting traffic forecasts] and their likely impact. In these circumstances, Sponsors should consider generating a range of forecasts based on several scenarios that reflect those uncertainties – this would help prevent iterations in the assessment process.	Traffic Forecasts	Para 37	B-8	A range of forecasts has not been produced. The justification for change is not sensitive to the degree to which traffic grows (all the benefits and impacts increase or decrease proportionately).
25	Traffic forecasts should contain not only numbers but also types of aircraft. Change Sponsors should provide this information by runway (for arrivals/departures) and/or by route with information on vertical distribution by height/altitude/flight level as appropriate.	Traffic Forecasts	Para 38	B-9	See section 4
26	Types of aircraft may be given by aircraft type/engine fit using ICAO type designators. If this is not a straightforward exercise, then designation by the UK Aircraft Noise Contour Model (ANCON) types or by seat size categories would be acceptable	Traffic Forecasts	Para 38	B-9	See section 4
27	Change Sponsors must produce Leq, 16 hours noise exposure contours for airports where the proposed option entails changes to departure and arrival routes for traffic below 4,000 feet agl based on the published minimum departure and arrival gradients. Under these circumstances, at least three sets of contours must be produced: Current situation – these may already be available as part of the airport's regular environmental reporting or as part of the airport master plan; Situation immediately following the airspace change; and Situation after traffic has increased under the new arrangements (typically five years after implementation although this should be discussed with the DAP Project Leader).	Noise	Para 44	B-11	See Section 6 of the ACP modules

28	The contours should be produced using either the UK Aircraft Noise Contour Model (ANCON) or the US Integrated Noise Model (INM) but ANCON must be used when it is currently in use at the airport for other purposes.	Noise	Para 46	B-12	See Section 6 of the ACP modules
29	Terrain adjustments should be included in the calculation process (i.e. the height of the air routes relative to the ground are accounted for).	Noise	Para 47	B-12	See Section 6 of the ACP modules
30	Contours must be portrayed from 57 dBA Leq, 16 hours at 3 dB intervals.	Noise	Para 48	B-12	See Section 6 of the ACP modules
31	Contours should not be produced at levels below 54 dBA Leq, 16 hours because this corresponds to generally low disturbance to most people.	Noise	Para 48	B-12	See Section 6 of the ACP modules E
32	Change Sponsors may include the 54 dBA Leq, 16 hours contour as a sensitivity analysis but this level has no particular relevance in policy making.	Noise	Para 48	B-12	See Section 6 of the ACP modules
33	A table should be produced showing the following data for each 3 dB contour interval: Area (km2); and Population (thousands) – rounded to the nearest hundred.	Noise	Para 49	B-12	See Section 6 of the ACP modules
34	It is sometimes useful to include the number of households within each contour, especially if issues of mitigation and compensation are relevant: This table should show cumulative totals for areas/populations/households. For example, the population for 57 dBA will include residents living in all higher contours. The source and date of population data used should be noted adjacent to the table. Population data should be based on the latest available national census as a minimum but more recent updated population data is preferred. The areas calculated should be cumulative and specify total area within each contour including that within the airport perimeter.	Noise	Para 50	B-12	See Section 6 of the ACP modules

35	Contours for assessment should be provided to DAP in both of the following formats: Electronic files in the form of a comma delimited ASC2 text file containing three fields as an ordered set (i.e. coordinates should be in the order that describes the closed curve) defining the contours in Ordnance Survey National Grid in metres: Field Name Units 1 Level dB 2 Easting six figure easting OS national grid reference (metres) 3 Northing six figure northing OS national grid reference (metres) Paper version overlaid on a good quality 1:50 000 Ordnance Survey map. However, it may be more appropriate to present contours on 1:25 000 or 1:10 000 Ordnance Survey maps.	Noise	Para 51	B-13	This is not provided
36	Contours for a general audience may be provided overlaid on a more convenient map (e.g. an ordinary road map with a more suitable scale for publication in documents). The underlying map and contours should be sufficiently clear for an affected resident to be able to identify the extent of the contours in relation to their home and other geographical features. Hence, the underlying map must show key geographical features, e.g. street, rail lines and rivers.	Noise	Para 53	B-13	See Section 6 of the ACP modules
37	SEL footprints must be used when the proposed airspace includes changes to the distribution of flights at night below 7,000 feet agl and within 25 km of a runway. Night is defined here as the period between 2300 and 0700 local time. If the noisiest and most frequent night operations are different, then footprints should be calculated for both of them. A separate footprint for each of these types should be calculated for each arrival and departure route. If SEL footprints are provided, they should be calculated at both 90 dBA SEL and 80 dBA SEL.	Noise	Para 56	B-13	See Section 6 of the ACP modules
38	SEL footprints may be used when the airspace change is relevant to daytime only operations. If SEL footprints are provided, they should be calculated at both 90 dBA SEL and 80 dBA SEL.	Noise	Para 56	B-14	See Section 6 of the ACP modules
39	SEL footprints for assessment should be provided to DAP in both of the following formats: Electronic files in the form of a comma delimited ASC2 text file containing three fields as an ordered set (i.e. coordinates should be in the order that describes the closed curve) defining the footprints in Ordnance Survey National Grid in metres: Field Field Name Units 1 Level dB 2 Easting six figure easting OS national grid reference (metres)	Noise	Para 57	B-14	See Section 6 of the ACP modules

	3 Northing six figure northing OS national grid reference (metres) Paper version overlaid on a good quality 1:50 000 Ordnance Survey map. However, it may be more appropriate to present footprints on 1:25 000 or 1:10 000 Ordnance Survey maps.				
40	SEL footprints for a general audience may be provided overlaid on a more convenient map (e.g. an ordinary road map with a more suitable scale for publication in documents). The underlying map and footprints should be sufficiently clear for an affected resident to identify the extent of the footprints in relation to their home or other geographical features. Hence, this underlying map must show key geographical features, e.g. streets, rail lines and rivers. Calculations should include terrain adjustments as described in the section on Leq contours	Noise	Para 58	B-14	See Section 6 of the ACP modules
41	Change Sponsors may use the percentage highly annoyed measure in the assessment of options in terminal airspace to supplement Leq. If they choose to use this method, then the guidance on population data for noise exposure contours set out should be followed. Sponsors should use the expression and associated results in calculating the number of those highly annoyed. If they wish to use a variant method, then this would need to be supported by appropriate research references.	Noise	Para 65	B-15	This method has not been used
42	Change Sponsors may use the LDEN metric but, if they choose to do so, they must still produce the standard Leq, 16 hours contours as previously described. If airspace change sponsors wish to use the LDEN metric they must do so in a way that is compliant with the technical aspects of the Directive and any supplementary instructions issued by DEFRA. Sponsors should note the requirement for noise levels to be calculated as received at 4 metres above ground level. In particular, the guidance on how contours are to be portrayed, as described in the section dealing with Leq contours applies. Calculations should include terrain adjustments as described in the section on Leq contours. An exception regarding LDEN contours is the production of a table showing numerical data on area, population and households which should be presented by band (e.g. 55 dBA to 60 dBA) rather than cumulatively as for UK Leq contours (e.g. >55 dBA). Change Sponsors should make it clear where areas/counts are by band or cumulative.	Noise	Para 67 & 69 & 70	B-15 & B-16	This method has not been used
43	Change Sponsors may use the LNight metric within their environmental assessment and consultation. If they do so, SEL footprints must also be produced. Calculations should include terrain adjustments as described in the section on Leq contours.	Noise	Para 73	B-16	This method has not been used

44	Change Sponsors may use difference contours if it is considered that redistribution of noise impact is a potentially important issue.	Noise	Para 78	B-17	This method has not been used
45	Change Sponsors may use PEI as a supplementary assessment metric.	Noise	Para 85	B-19	This method has not been used
46	Change Sponsors may use the AIE metric as a supplementary assessment metric. If the sponsor uses PEI as a supplementary metric then AIE should also be calculated as both metrics are complementary.	Noise	Para 87	B-19	This method has not been used
47	Change Sponsors may vary the information displayed in Operations Diagrams providing that the diagram is a fair and accurate representation of the situation portrayed.	Noise	Para 88	B-20	See relevant sections of the ACP modules
48	Change Sponsors may use maximum sound levels (Lmax) in presenting aircraft noise footprints for public consumption if they think that this would be helpful. This does not replace the obligation to comply with the requirement to produce sound exposure level (SEL) footprints, where applicable.	Noise	Para 95	B-21	See relevant sections of the ACP modules
49	Change Sponsors may produce diagrams portraying maximum sound event levels (Lmax) for specific aircraft types at a number of locations at ground level beneath the airspace under consideration. This may be helpful in describing the impact on individuals. It is usual to include a table showing the sound levels of typical phenomenon e.g. a motor vehicle travelling at 30 mph at a distance of 50 metres.	Noise	Para 96	B-21	This method has not been used
50	Change Sponsors must demonstrate how the design and operation of airspace will impact on emissions. The kinds of questions that need to be answered by the sponsor are: Are there options which reduce fuel burn in the vertical dimension, particularly when fuel burn is high e.g. initial climb? Are there options that produce more direct routeing of aircraft, so that fuel burn is minimised? Are there arrangements that ensure that aircraft in cruise operate at their most fuel-efficient altitude, possibly with step-climbs or cruise climbs?	Climate Change	Para 102	B-22	See Section 6 of this bridging ACP and Section 7 of the ACP modules
51	Change Sponsors should estimate the total annual fuel burn/mass of carbon dioxide in metric tonnes emitted for the current situation, the situation immediately following the airspace change and the situation after traffic has increased under the new arrangements – typically five years after implementation. Sponsors should produce estimates for each airspace option considered.	Climate Change	Para 106	B-23	See Section 6
52	Change Sponsors should provide the input data for their calculations including any modelling assumptions made. They should state details of	Climate Change	Para 107	B-23	See Section 6

	the aircraft performance model used including the version numbers of software employed.				
53	Where the need to provide additional airspace capacity, reduce delays or mitigate other environmental impact results in an increase in the total annual fuel burn/ mass of carbon dioxide in metric tonnes between the current situation and the situation following the airspace change, Sponsors should provide justification.	Climate Change	Para 108	B-23	Not applicable
54	Change Sponsors must produce information on local air quality only where there is the possibility of pollutants breaching legal limits following the implementation of an airspace change. The requirement for local air quality modelling will be determined on a case by case basis as discussed with the DAP Project Leader and ERCD. This discussion will include recommendations of the appropriate local air quality model to be used. Concentrations should be portrayed in micrograms per cubic metre (µg.m-3). They should include concentrations from all sources whether related to aviation and the airport or not. Three sets of concentration contours should be produced: Current situation – these may already be available as part of the airport's regular environmental reporting or as part of the airport master plan; Situation immediately following the airspace change; and Situation after traffic has increased under the new arrangements – typically five years after implementation although this should be discussed with the DAP Project Leader.	Local Air Quality	Para 115	B-25	Not Applicable. No changes below 1,000ft
55	Contours for assessment should be provided to DAP in similar formats to those used for noise exposure contours. Where Change Sponsors are required to produce concentration contours they should also produce a table showing the following data for concentrations at 10 µ.m-3 intervals: Area (km2); and Population (thousands) – rounded to the nearest hundred.	Local Air Quality	Para 116	B-25	Not Applicable
56	The source and date of population data used should be noted adjacent to the table. Population data should be based on the latest available national census as a minimum but more recent updated population data is preferred.	Local Air Quality	Para 117	B-25	Not Applicable

57	Change Sponsors may wish to conduct an economic appraisal of the environmental impact of the airspace change, assessing the economic benefits generated by the change. If undertaken, this should be conducted in accordance with the guidance from HM Treasury in the Green Book (HM Treasury, 2003). If Change Sponsors include a calculation of NPV then they must show financial discount rates, cash flows and their timings and any other assumptions employed. The discount rate must include that recommended in the Green Book currently set at 3.5%. Additionally, other discount rates may be used in a sensitivity analysis or because they are representative of realistic commercial considerations	Economic Valuation	Para 124 & 126	B-27	No such appraisal has been undertaken

Appendix A: MoD response to Phase 1A as a whole

From: DAATM-[redacted]
Sent: 13 February 2015 11:58
To: [redacted]
Cc: [redacted]
Subject: 20150209-LAMP Ph1 MOD response update
Importance: High

[redacted]

The MOD has no issues or concerns with LAMP Phase 1.

Although not necessarily related to the imminent ACP, RAF Northolt would be grateful for as much data as possible to assist their operators to determine the impact that the LAMP Phase 2 proposals may have on their flying time/track distance. Until this data is received, RAF Northolt will be unable to provide a comprehensive response which may ultimately delay our next consultation response. Are you able to prioritise this data at all to enable them to develop their impact assessment?

If you have any questions, then please get in touch.

Regards,

[redacted]