



**Civil Aviation Authority**

**CAP 786**

**Safety Plan 2009/11**



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**Safety Plan 2009/11**

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## Foreword

It is my pleasure to introduce this new CAA Safety Plan. This Plan represents our long-term agenda for safety. The first Safety Plan was published by the CAA's Safety Regulation Group as a stand alone document in 2003. It was then issued in 2006 with Updates in 2007 and 2008. This year we have further developed the format and contents of the document and continue to include safety issues involving the CAA's Directorate of Airspace Policy. We have structured this document based on new International Civil Aviation Organisation (ICAO) guidance and now present a more holistic evidential and risk-based approach to the management of safety.

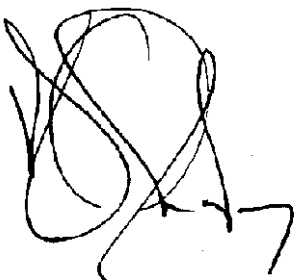
The earlier Safety Plans outlined in detail the specific projects being undertaken by the CAA to improve safety. In this new version, we have increased our focus on the safety performance of the UK aviation system. This rebalancing is in response to guidance associated with a new national obligation to ICAO to develop a State Safety Programme (SSP). This task was co-ordinated by the CAA on behalf of Government.

In promoting the concept of an SSP, ICAO requires that the traditional 'compliance-based' regulatory approach needs to be complemented with a clear 'performance-based' approach. Hence the greater emphasis in our new Plan on safety performance and how we intend to maintain a continuous improvement.

I must stress that the CAA remains as committed as ever to meeting its long-term agenda for safety and its diverse team of safety experts carry out substantial routine day-to-day work to maintain the current high UK safety standards. However, this new Safety Plan does not describe this work but captures how the CAA, in partnership with all our stakeholders, goes beyond the routine work to promote the delivery of a continuous improvement in safety, both at home and within the developing European regulatory framework.

The management of safety, by both the regulator and the industry, is now taking place in a rapidly changing environment because of the transition towards a Europe-centric safety framework for aviation. We have already presented an outline of this Safety Plan to the UK commercial operating industry and to the European Aviation Safety Agency. However, we are keen to continue to develop and refine this 2009/11 Plan and we will involve other stakeholders over the next two years. From 2011, we will issue a revised edition every year.

I hope you find this important document of interest and value, and if you should like to contribute any comments these would be most welcome.



Captain David Chapman  
Group Director Safety Regulation

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## Glossary

AAG	Accident Analysis Group (CAA)
AAIB	Air Accidents Investigation Branch (UK DfT)
ACAS	Airborne Collision Avoidance System
ANO	Air Navigation Order
ASI	Airspace and Safety Initiative
ATM	Air Traffic Management
ATSOCAS	Air Traffic Services Outside Controlled Airspace
BCAR	British Civil Airworthiness Requirements
CAA	Civil Aviation Authority (UK)
CAP	Civil Aviation Publication (CAA)
CFIT	Controlled Flight into Terrain
DfT	Department for Transport (UK)
EASA	European Aviation Safety Agency
ECCAIRS	European Co-ordination Centre for Accident and Incident Reporting Systems
ESSI	European Strategic Safety Initiative
EU	European Union
FAA	Federal Aviation Administration
FDM	Flight Data Monitoring
GNSS	Global Navigation Satellite System
GPS	Global Positioning System
HUMS	Health and Usage Monitoring System
ICAO	International Civil Aviation Organisation
IR	Implementing Rule (EASA)
MoD	Ministry of Defence
MOR	Mandatory Occurrence Report
MORS	Mandatory Occurrence Reporting Scheme (CAA)
MTWA	Maximum Take off Weight Authorised
RNAV	Area Navigation
RNP	Required Navigation Performance
SAFA	Safety Assessment of Foreign Aircraft
SES	Single European Sky
SESAR	Single European Sky ATM Research
SMS	Safety Management System
SPI	Safety Performance Indicator

SRG	Safety Regulation Group (CAA)
SRMP	Safety Risk Management Process
SRT	Safety Risk Team (CAA)
SSP	State Safety Programme
THREAT	The High Risk Events Analysis Team (CAA)
UAS	Unmanned Aerial System
UAV	Unmanned Aerial Vehicle
USOAP	Universal Safety Oversight Audit Programme (ICAO)
UK	United Kingdom
VHM	Vibration Health Monitoring
VLJ	Very Light Jet

# Safety Plan 2009/11

## 1 Introduction

1.1 World-wide civil aviation is facing unprecedented economic and operational pressures that will impact future growth and development. These pressures will affect all parts of the civil aviation industry and could have an adverse impact on aviation safety. It is, therefore, of crucial importance to the whole civil aviation community that we all remain focused on aviation safety performance throughout this extremely difficult and turbulent time.

1.2 Over the years, the CAA has worked with the aviation community to maintain its focus on safety. The CAA's Objective for Safety in its Corporate Plan<sup>1</sup> is:

To develop our UK world-class aviation safety environment, in partnership with industry, by driving continuous improvements in aviation safety in the UK, and in partnership with EASA, across Europe.

The CAA Corporate Plan outlines the overall safety strategy and refers readers to this Safety Plan for details on how CAA aims to improve safety.

1.3 It is recognised that UK aviation safety is regulated by the CAA in partnership with European Aviation Safety Agency (EASA) and that an evidential and risk-based approach will be developed as a preferred means of ensuring that UK aviation complies with European and UK legislation and requirements.

1.4 The CAA first published a Safety Plan in 2003. It was then published in 2006 with two Updates in 2007 and 2008. The Plan identified the principal safety risk areas and outlined what CAA intended to do to achieve its goal of continuous improvement.

1.5 This year the Safety Plan structure has further evolved and expanded to include a broader safety context. One internal driver for change has been the need to connect the Plan more directly to the CAA Corporate Plan's safety objective cited above. Another notable driver for change has been the new requirement from the International Civil Aviation Organisation (ICAO) for contracting States to produce a State Safety Programme (SSP).

1.6 The CAA, in conjunction with Department for Transport (DfT) and other UK organisations, has produced the UK SSP<sup>2</sup> and this outlines the safety oversight arrangements in the UK. However, ICAO expects more than just a document. ICAO requires the State to have a programme of actions to support the SSP so that the SSP is a dynamic 'living' process that monitors a State's safety performance and continues to seek improvements in aviation safety. Hence the need to revise the Safety Plan.

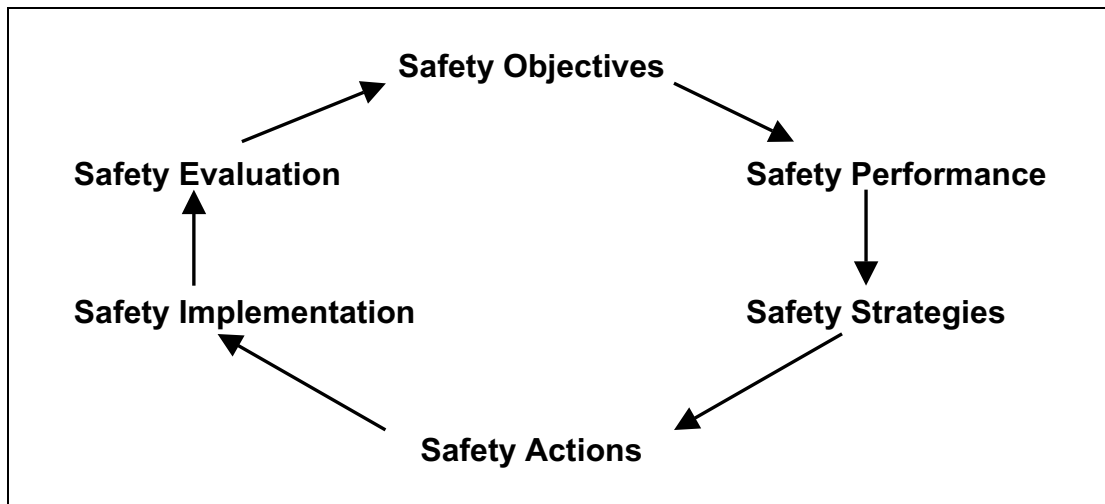
1.7 This new Plan supplements both the CAA Corporate Plan and the UK SSP. It describes more fully the current safety performance of the UK aviation system and outlines the specific strategies and actions the CAA will be taking to achieve a continuous improvement in safety. This Plan is, therefore, substantially different from the previous Safety Plan and the subsequent annual Updates.

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1. CAA Corporate Plan 2009/10 - 2013/14.

2. State Safety Programme for the United Kingdom, CAP 784.

- 1.8 It should be noted that this new Safety Plan has a reinforced focus on safety performance as a driver for safety improvement. The monitoring of safety performance is an essential element in managing safety because it both reflects current performance and provides an indicator to monitor the success of any safety strategy. It underpins a safety management process where safety objectives are informed by safety performance to define safety strategies which, in turn, define safety actions. The implementation of these safety actions should result in safety improvements that meet safety targets and achieve safety objectives. This is best illustrated in the Figure below.



**Figure 1 CAA Safety Risk Management Process**

- 1.9 It should be noted that this Safety Plan addresses four key elements of the CAA Safety Risk Management Process (SRMP) shown in Figure 1. The key elements addressed in this Safety Plan are:

**Safety Objectives**  
**Safety Performance**  
**Safety Strategies**  
**Safety Actions**

- 1.10 Although this Safety Plan focuses on the safety actions to be taken by the CAA to achieve continuous improvement, it does not describe the substantial routine day-to-day work undertaken by the majority of CAA staff. This routine work has already played its part in establishing a very high level of safety in the UK and, although not embraced by this Plan, its contribution should not be underestimated.
- 1.11 The main body of this Safety Plan outlines a number of high-level safety actions in the areas of safety oversight, safety management, safety improvement and safety promotion. Details of specific safety improvement projects, either ongoing or closed, are listed in Annexes 1 and 2 respectively.
- 1.12 Finally, this new Safety Plan has not been developed in isolation. An outline of the Plan was presented to the UK operating industry at a Safety Conference held at Gatwick on 29th January 2009. However, we are keen to continue to develop and refine this 2009/11 Safety Plan and we will involve other stakeholders over the next two years. From 2011, we will issue a revised edition every year as part of a dynamic 'living' process that responds to both short and long term safety needs.

## 2 Safety Objectives

- 2.1 The CAA Corporate Plan defines the key CAA objective to be 'to develop our UK world-class aviation safety environment, in partnership with industry, by driving continuous improvements in aviation safety in the UK, and in partnership with EASA, across Europe'.
- 2.2 This supplements the general objectives of the CAA 'to secure that British airlines provide air transport services...with a high standard of safety in operating the services...' <sup>3</sup>. Also, the Transport Act 2000 places objectives <sup>4</sup> on both the Secretary of State and the CAA to exercise their functions so as to maintain a high standard of safety in the provision of air navigation services.
- 2.3 It also supplements the principal European aviation safety objective 'to establish and maintain a high uniform level of civil aviation safety in Europe' <sup>5</sup>. In addition, under the Single European Sky (SES) legislation, there is an objective 'to enhance current safety standards and overall efficiency for general air traffic in Europe' <sup>6</sup>.
- 2.4 To achieve these safety objectives, the CAA employs the traditional compliance-based regulatory approach as well as carrying out risk-based safety oversight functions in which monitoring safety and organisational performance is an essential part. It is, therefore, possible to define the two elements of safety as compliance and operator performance.
- 2.5 The concept of assuring safety by combining compliance-based regulation with performance-based regulation is a significant change in the management of safety. The compliance-based approach is well established, whereas the performance-based approach is relatively new. This Plan therefore focuses on the performance element of the safety equation.
- 2.6 In summary, the primary safety objective of the CAA is to aim for a continuous improvement in safety, particularly in commercial air transport, regardless of the levels of growth in aviation activity.

## 3 Safety Performance

There are many different ways of measuring and monitoring aviation safety. This Section discusses measures of safety used by the CAA involving fatal accidents and high-risk occurrences and draws conclusions.

### 3.1 Fatal Accidents

- 3.1.1 The UK has one of the best aviation safety records in the world. This is confirmed by the Aviation Safety Review <sup>7</sup> which reviews UK safety over a ten-year period 1998-2007. This document illustrates the many different methods and metrics in monitoring aviation safety.
- 3.1.2 For Global aviation <sup>8</sup>, and for some parts of European aviation, the lack of consistent and sufficient safety data seriously limits the safety analysis of those accidents involving fatalities, where more information is usually available. For Europe, this problem is being addressed by the European Commission through the development of the European Co-ordination Centre for Accident and Incident Reporting Systems (ECCAIRS) and the European Union (EU) Directive on Occurrence Reporting (2003/42/EC).

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3. Civil Aviation Act 1982, Section 4(1)(a).

4. Transport Act 2000, Sections 1(1), 2(1) and 70(1).

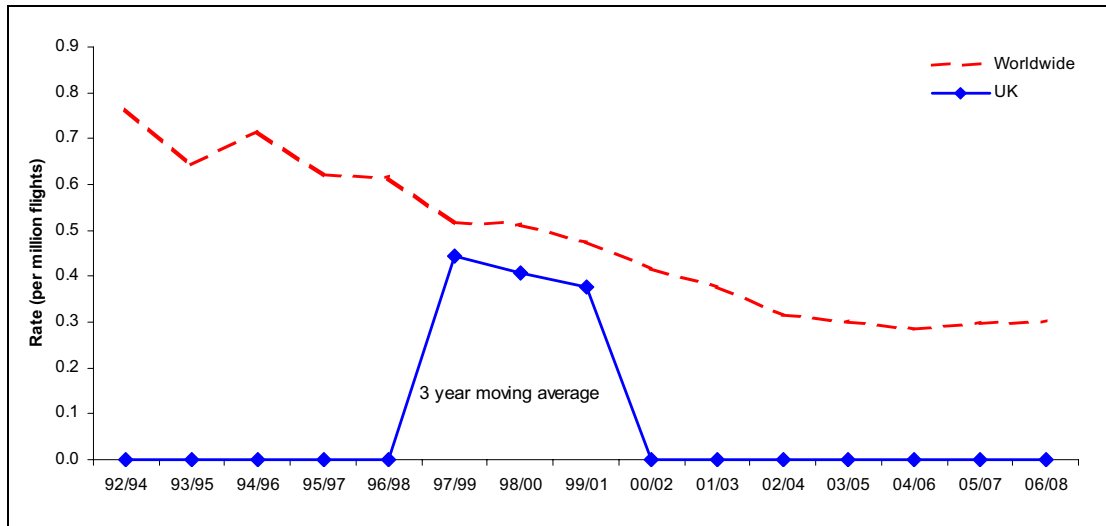
5. EC Regulation No 216/2008, Article 2(1).

6. EC Regulation No 549/2004, Article 1(1).

7. Aviation Safety Review 2008, CAP 780, Figure 21.

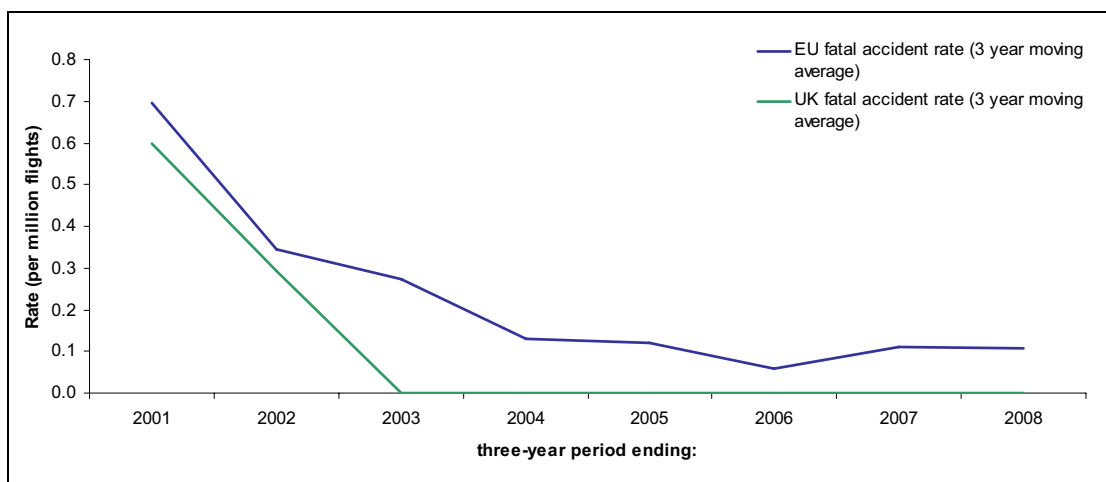
8. Global Fatal Accident Review 1997 - 2006, CAP 776.

3.1.3 In the last fifteen years, UK operated western built jets (above 5,700kg MTWA) have suffered one fatal accident in a total of 13.2 million flights. This compares with a worldwide total of 130 fatal accidents in 306 million flights. Therefore, the UK fatal accident rate for large transport jet aircraft in the last fifteen years is 0.08 fatal accidents per million flights which is nearly six times better than the world average. The safety performance for fatal accidents is presented in the CAA Corporate Plan and repeated in Figure 2.



**Figure 2 Fatal accidents per million flights for western built jets above 5700 kg MTWA**

3.1.4 The UK generates only 4% of the global civil aviation activity and the number of accidents is too small to observe significant safety trends. However, as EU Member States generate about 20% of global civil aviation activity, it is possible to draw conclusions using European safety performance. EU Member States safety performance is shown in Figure 3.



**Figure 3 Fatal accidents per million flights for EU and UK passenger flights, aeroplanes above 5,700kg MTWA**

3.1.5 Figure 3 shows the fatal accident rate for large passenger aeroplanes operated by EU member states between 1999 and 2008. As a three-year moving average this rate has reduced from 0.7 per million flights in the period 1999-2001 to 0.1 per million flights in the period 2006-2008. Figures 2 and 3 indicate that the current safety performance

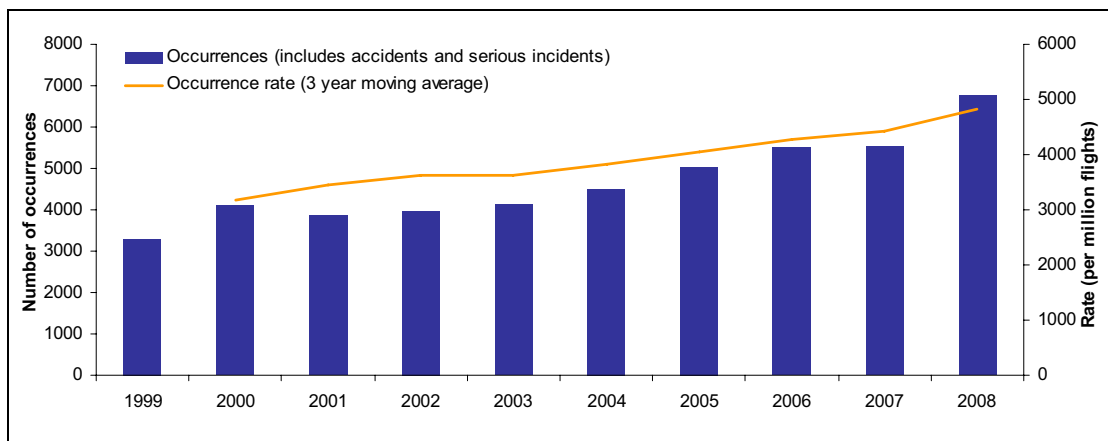
in both the UK and EU Member States is good. However, although the safety performance is good, to maintain continuous improvement in the future will become increasingly difficult for the CAA and industry.

**3.2 High-Risk Occurrences**

3.2.1 Since 1976, CAA has been operating the UK Mandatory Occurrence Reporting Scheme (MORS). The MORS database is the UK's centralised safety database and in the past 10 years, the CAA has developed the MORS process to enable it to be used to identify high-risk occurrences.

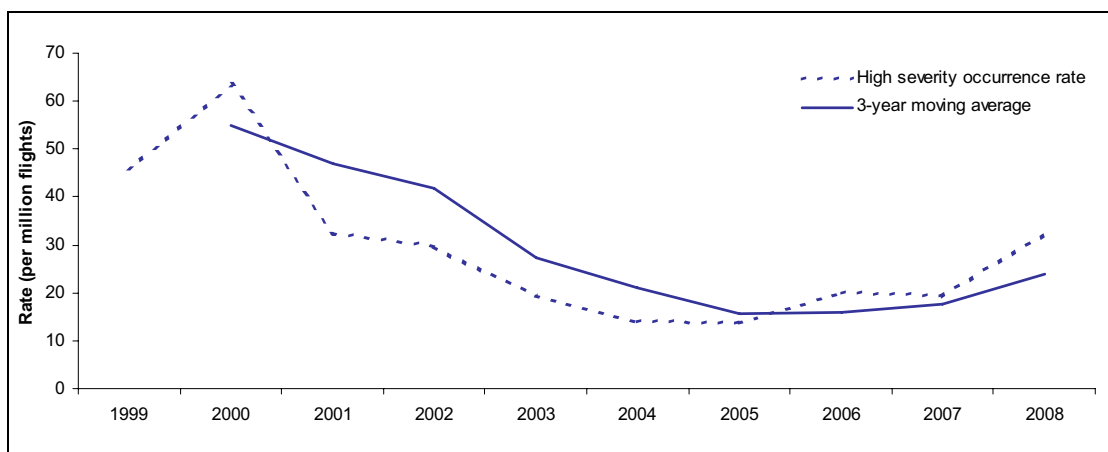
3.2.2 This MORS development has been necessary to enable better use of the occurrence database. Using well-established risk assessment techniques, each occurrence is assessed and graded by CAA specialists. Those that are graded as 'A' or 'B' are considered to be high-risk occurrences. These can include accidents and serious incidents as well as other events where the risk was assessed to be significant.

3.2.3 For the past six years, the grading process has been applied consistently resulting in a stable source of essential safety information that permits the CAA to monitor safety in a systematic way.



**Figure 4 Number and rate of occurrences involving large public transport aeroplanes**

3.2.4 Figure 4 shows the gradual increase over the past ten years in the number of occurrence reports received by the CAA for large public transport aeroplanes. In 2008, CAA received approximately 14,000 MORs, nearly half of which were related to large public transport aeroplanes. It is probable that the increase in MORs reflects both growth in UK air transport activity and an improvement in the UK reporting culture. However, a more meaningful safety indicator is shown in Figure 5.



**Figure 5 High-risk occurrence rate for large public transport aeroplanes**

3.2.5 The CAA believes that the high-risk occurrence rate for large public transport aeroplanes, shown in Figure 5, is a reliable safety indicator for the UK air transport system. This safety indicator is one of a number of Safety Performance Indicators (SPIs) routinely used by the CAA to monitor safety and to identify safety trends. Based on these trends, the CAA can develop appropriate safety strategies.

3.2.6 Figure 5 is significant because it shows a downward trend over eight years up to 2005 when it levelled off and, more recently, has begun to gradually increase. This increasing trend illustrates how an SPI can alert CAA to a developing safety problem.

### 3.3 Safety Performance Indicators

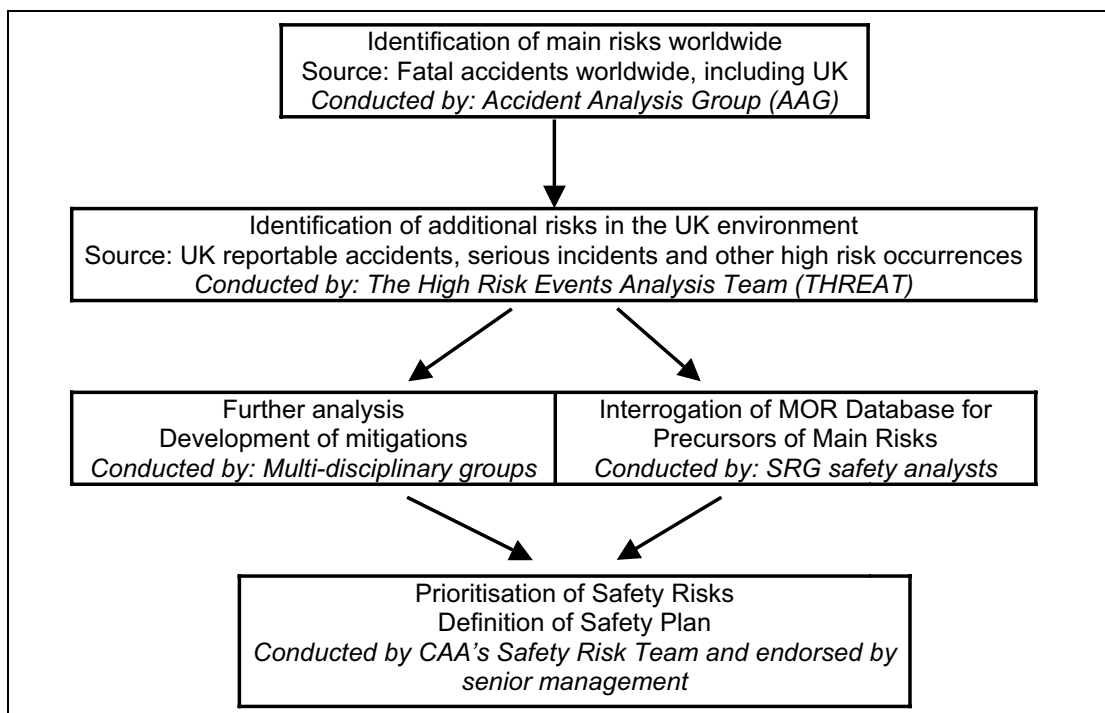
3.3.1 The CAA has a number of SPIs which are used to regularly inform senior managers of safety trends for high-risk occurrences and can provide an early warning of areas of safety concern. The SPIs currently used are:

- SPI 1 – High-Risk UK Total Occurrences
- SPI 2 – High-Risk UK Public Transport Occurrences
- SPI 3 – High-Risk UK Occurrences in Controlled Airspace
- SPI 4 – High-Risk UK Non-Public Transport Occurrences
- SPI 5 – High-Risk UK Runway Incursions
- SPI 6 – High-Risk UK Level Busts
- SPI 7 – High-Risk UK Airspace Infringements
- SPI 8 – High-Risk UK Public Transport Airprox Occurrences

3.3.2 With the move towards greater use of safety performance to determine safety strategies, the CAA plans to develop a wider range of SPIs.

### 3.4 Safety Risk Analysis Process

3.4.1 The CAA makes use of two analysis processes to identify the evidence for the most significant safety risks for UK aviation. These processes are the Accident Analysis Group (AAG) and The High Risk Events Analysis Team (THREAT). The way in which these two processes are combined into a single CAA safety risk analysis process is shown in Figure 6.



**Figure 6 CAA safety risk analysis project**

- 3.4.2 The AAG process has been employed by the CAA for over ten years. The AAG team comprises experts from the CAA, the Air Accidents Investigation Branch (AAIB) and Industry and they meet once a year to systematically review Global Fatal Accidents that occurred the previous year to identify causal and circumstantial factors and consequences. The data created by the review forms a valuable source of evidence for use in detailed analysis of safety risks and plays a significant role in the safety risk analysis process.
- 3.4.3 The recent Global Fatal Accident review has identified the following 'top ten' fatal accident consequences:
- Post crash fire
  - Loss of control in flight
  - Controlled flight into terrain (CFIT)
  - Runway excursion
  - Collision with terrain/water/obstacle
  - Ground collision with object/obstacle
  - Forced landing - land or water
  - Structural failure
  - Emergency evacuation difficulties
  - Fire/smoke/fumes during operations
- 3.4.4 In addition, the THREAT analysis process employs a methodical, systematic approach to analysing high-risk events to UK aircraft. THREAT covers UK reportable accidents and serious incidents, as deemed by the AAIB, and also high-risk MORs (i.e. those graded by the CAA as either A or B). THREAT only covers UK registered or operated passenger and cargo turbine powered aeroplanes above 5700kg and helicopters above 3175kg. The analysis process is used to quantify evidence of the number of generic event types and the primary error groups.
- 3.4.5 The THREAT review of UK high-risk events between 2005 to 2008 has identified the following 'top ten' high-risk events:
- Airborne conflict
  - Aircraft technical malfunction/failure
  - Loss of control non-technical (including turbulence)
  - Abnormal runway contact/runway excursion
  - Ground conflict (including runway incursions)
  - Ramp incidents
  - In-flight fire/smoke/fumes
  - Terrain conflict
  - Incorrect aircraft configuration (including loading error)
  - Pilot incapacitation
- 3.4.6 The safety risk analysis process combines the results from AAG and THREAT so that it can be of universal value to UK air operators that operate both domestic and international flights. Based on this analysis, the CAA has adopted the following seven significant safety issues as the focus of much of its safety improvement actions.

- Airborne Conflict
- Runway Overrun or Excursion
- Loss of Control
- CFIT
- Airborne and Post Crash Fire
- Ground Collision and Runway Incursion
- Ramp Incidents

3.4.7 Notwithstanding the above prioritisation process, the CAA will continue to monitor all safety risks and will take action on other significant safety risks that may emerge in the future.

3.4.8 Having established the significant safety issues through an evidential, risk-based analysis process, the CAA sets its priorities and safety strategies.

### 3.5 **Conclusions**

3.5.1 The CAA has established a range of metrics for monitoring safety at the Global, European and National level. By using these different metrics, it is possible to identify the most suitable safety strategy to adopt to improve safety performance. As UK civil aviation operates in the international arena it is necessary to develop and use safety strategies based on relevant data and to work in partnership with industry and other regulators.

## 4 **Safety Strategies**

4.1 The CAA Corporate Plan outlines three safety strategies that the CAA is adopting to satisfy the safety objective detailed in Section 2. The CAA is also adopting an additional safety strategy from the UK SSP, concerning Safety Promotion.

4.2 The four Safety Strategies are summarised below and the safety actions to be taken by the CAA for each of the strategies are detailed in later Sections. Taking these safety actions will drive the CAA towards achieving the objective of a continuous improvement in safety.

### **Strategy 1 – Safety Oversight**

The CAA regulates the safety of UK aviation, in partnership with EASA, by approving and overseeing the organisations and individuals involved in UK aviation that fall within its remit. The CAA will continue to use and develop a risk-based approach to ensure that UK aviation complies with European and UK legislation and requirements.<sup>9</sup>

### **Strategy 2 – Safety Management**

The CAA will work collaboratively with industry to continuously improve aviation safety and address safety issues. Where required, the CAA will take any necessary actions to ensure safety is not compromised and will ensure that the high safety standards within UK airspace, and its supporting infrastructure, are maintained, with potential risks identified and appropriate mitigating actions taken.<sup>10</sup>

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9. CAA Corporate Plan 2009/10 - 2013/14, Safety Section.

10. CAA Corporate Plan 2009/10 - 2013/14, Safety Section.

### **Strategy 3 – Safety Improvement**

The CAA will draw upon worldwide and UK data to identify safety trends applicable to UK aviation, prioritising this information to focus on the most significant safety issues. The resulting safety improvement initiatives will be captured in the Safety Plan, which will be used as a means of monitoring progress and effectiveness.<sup>11</sup>

### **Strategy 4 – Safety Promotion**

The CAA will promote safety more effectively through internal and external training, communications and the dissemination of safety information<sup>12</sup>.

## **5 Safety Actions – Safety Oversight**

### **5.1 Working with the European Aviation Safety Agency**

5.1.1 The CAA continues to work in partnership with EASA as the Agency's remit is extended, while overseeing the safety performance of the UK aviation industry and influencing European rulemaking so that a high level of safety is maintained across Europe, and particularly in the UK.

5.1.2 **Action** The CAA will monitor and where appropriate influence the management of the transfer of tasks to EASA and manage any issues that have the potential to compromise either UK safety or the achievements of the objectives stated in EASA Basic Regulation (EC) No 216/2008.

5.1.3 **Action** The CAA will focus on the development of policy implementation and the introduction of requirements in relation to operations and licensing.

### **5.2 State Safety Programme**

5.2.1 The CAA has published the SSP<sup>13</sup> in conjunction with DfT, the AAIB, Air Safety Support International and the Ministry of Defence (MoD). This document meets the UK's obligations under ICAO Standards for such a programme. However, given the changing regulatory environment to which the UK is subject, the CAA will update the SSP annually.

5.2.2 **Action** The CAA is working with EASA to develop a Community Safety Programme and a Community Safety Strategy.

### **5.3 Review of Oversight Methodology**

5.3.1 Initiatives from ICAO and the Better Regulation Executive require regulators to develop a robust evidential risk-based approach to oversight. The CAA is therefore reviewing its method of oversight of regulated organisations. The aim of this is to develop a CAA methodology that will ensure that resources are allocated using a formal risk-based assessment methodology.

5.3.2 **Action** The CAA will trial the new methodology for the oversight of Air Operator Certificate holders and associated maintenance providers.

### **5.4 ICAO Universal Safety Oversight Audit Programme (USOAP)**

5.4.1 Following the ICAO USOAP comprehensive systems audit of the UK, its Overseas Territories and Crown Dependencies in February 2009, CAA is committed to working with the DfT in addressing any findings and recommendations from the Audit

5.4.2 **Action** The CAA will contribute to and implement a comprehensive Corrective Action Plan.

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11. CAA Corporate Plan 2009/10 - 2013/14, Safety Section.

12. State Safety Programme for the UK, CAP 784, Chapter 6.

13. State Safety Programme for the UK, CAP 784.

## 5.5 **Safety Assessment of Foreign Aircraft (SAFA)**

5.5.1 The CAA continues to carry out inspections, on behalf of the DfT, as part of the European Commission's SAFA programme<sup>14</sup>.

5.5.2 **Action** The CAA will carry out SAFA inspections in accordance with DfT targets.

## 5.6 **Single European Sky**

5.6.1 The SES Air Traffic Management (ATM) Research (SESAR) programme's Definition Phase was completed in May 2008 with the delivery of the SESAR Master Plan and the Work Programme for 2008-2013. Work has started on the Development Phase, which will focus on the activities outlined in the Work Programme to develop equipment, systems and standards necessary to secure an improved European ATM system capable of managing the levels of traffic expected by 2020. The Development Phase will run until 2013, after which the Deployment Phase will focus on the implementation of changes in accordance with the ATM Master Plan.

5.6.2 **Action** The CAA will continue to participate in this work to ensure safety regulation aspects are considered.

# 6 **Safety Actions – Safety Management**

## 6.1 **Promotion of Safety Management Systems (SMS)**

6.1.1 The ICAO mandate for airline operators and approved maintenance organisations to have an SMS came into force on 1 January 2009. This is to be followed by EASA Implementing Rules (IRs), which will provide the legal basis for requiring all European operators and supporting maintenance organisations to implement SMS. The CAA continues to be strongly committed to promoting the safety benefits of SMS within the UK to encourage industry to implement SMS as fully as possible. Even after a company implements an SMS, it is likely to take a period of transition before the full safety benefits can be realised. During this transition, the CAA has to maintain appropriate oversight and ensure that its staff have the appropriate skills for SMS oversight.

6.1.2 **Action** The CAA will work with EASA to ensure that suitable requirements are implemented in this area.

6.1.3 **Action** The CAA will actively promote the benefits of SMS and ensure adequate guidance material is available for industry to develop successful SMS.

6.1.4 The CAA will develop a set of in-house training packages and guidance material to train all staff to an appropriate level.

## 6.2 **Airspace and Safety Initiative (ASI)**

6.2.1 The CAA continues to support ASI, which is a joint CAA, NATS, Airport Operators Association, General Aviation and MoD effort to investigate and tackle the major safety risks in UK airspace. The aim of ASI is to enhance safety outside controlled airspace, identify hazards associated with the use of UK airspace, identifying the needs of all airspace users, prioritising the hazards and developing a strategy to mitigate those risks while meeting the needs of all airspace users.

6.2.2 Under ASI, the Air Traffic Services Outside Controlled Airspace (ATSOCAS) Review concluded in 2008. The outcome, a standardisation of procedures across civil and military Air Traffic Service provision, was implemented in March 2009 across the UK aviation industry.

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14. Required under EC Directive 2004/36/EC and Community Regulation 768/2006.

6.2.3 **Action** The CAA will work to ensure that ATSOCAS also provides improvements to service provision in terms of volume of traffic managed and the consistency of service provided.

### 6.3 **Enforcement**

6.3.1 The CAA is responsible for issuing Certificates, Licences and Approvals for various aviation activities. Effective enforcement is achieved through taking proportionate action against the scope of any holder's permission by changes to the certificate, licence or approval.

6.3.2 Where the CAA has reasonable grounds to believe that a potential threat to flight safety exists such that it can no longer be satisfied that the holder can maintain a safe operation, formal enforcement action will be taken. However, before formal enforcement action is taken, the CAA will provide an opportunity to discuss the circumstances of the case and, if possible, resolve points of difference, unless immediate action is required in the interests of safety.

6.3.3 **Action** The CAA is developing processes to promote consistency and timeliness, to ensure that safety standards are not compromised.

6.3.4 **Action** The CAA will encourage an open exchange of safety information wherever possible and will promote a non-punitive 'just culture' by building relationships with those regulated.

## 7 **Safety Actions – Safety Improvement**

### 7.1 **Significant Safety Issues**

7.1.1 The CAA Safety Risk Analysis Process, described in paragraph 3.4, has identified the following seven significant safety issues.

- Airborne Conflict
- Runway Overrun or Excursion
- Loss of Control
- CFIT
- Airborne and Post Crash Fire
- Ground Collision and Runway Incursion
- Ramp Incidents

7.1.2 **Action** The CAA will address these significant safety issues by establishing specific Task Forces for each issue. Each Task Force will include industry involvement, will identify key SPIs and will develop an Action Plan to achieve safety improvement. The progress made by each Task Force towards achieving a safety improvement will be reported in a new Annex to the next Safety Plan.

### 7.2 **Safety Improvement Projects**

7.2.1 The CAA has an ongoing management responsibility for a number of Safety Improvement Projects, including research-based projects. These projects are detailed in Annexes 1 and 2 and are in addition to the safety actions detailed in the main body of this Safety Plan. These projects are typically managed by CAA or jointly managed with other regulators and industry. They address known safety problems, which have been identified using an evidential, risk-based analysis process, and aim to provide regulatory policy advice, in the form of reports and publications, or by direct safety improvements. The CAA constantly reviews its Safety Improvement Projects.

7.2.2 The high-level details of the ongoing projects are contained in Annex 1. Also, where projects have been completed since the last Safety Plan Update, these are recorded in Annex 2. Details on the status of these projects are available on the CAA website at [www.caa.co.uk/safetyplan](http://www.caa.co.uk/safetyplan).

7.2.3 **Action** The CAA will be transitioning its work programme from the old Safety Plan structure to the new Safety Plan during 2009. Also, from 2010, Safety Improvement Projects will be aligned with the new significant safety issues detailed in paragraph 7.1.1.

### 7.3 **EU Occurrence Reporting Regulations**

7.3.1 EU Member States are required<sup>15</sup> to establish occurrence reporting systems to ensure that 'all relevant safety information' is reported, stored, protected and disseminated. There are now IRs relating to the integration of occurrence reports into a central European repository and the dissemination of data to interested parties.

7.3.2 **Action** The CAA is working towards achieving full compliance with the EU implementing rules.

### 7.4 **Electronic Submission of Occurrence Reports**

7.4.1 To facilitate consistent reporting, storage and analysis of safety data, CAA provides industry with occurrence report forms either in paper form or via a download facility on the CAA website. However, significant efficiency gains can be achieved by developing the current system to permit the submission of electronic reports.

7.4.2 **Action** The CAA will develop the current system to permit the electronic submission of occurrence reports.

### 7.5 **Business Jet Safety**

7.5.1 A recently completed CAA Business Jet Safety Research Report made a number of recommendations. These recommendations have been endorsed by the Business Aviation Safety Partnership, a CAA-led initiative with NATS and other industry representation.

7.5.2 **Action** The CAA will address recommendations made and develop safety improvement projects as required. (See Annex 1, projects 7.14 and 7.16.)

### 7.6 **Safety Risk Management Process**

7.6.1 The CAA's formal SRMP incorporates the safety risk analysis method, described in paragraph 3.4, together with follow-up actions by specialised groups. Although this is a well established process, the CAA continuously seeks to review and improve the process. A high-level CAA group, the Safety Risk Team (SRT), is utilised by the CAA to oversee the process.

7.6.2 **Action** The CAA will continue the work of the AAG and THREAT. CAA will work to enhance the THREAT process so that it can provide information in a more timely manner and inform the SRT on safety risks and their possible mitigations.

7.6.3 **Action** The CAA has defined eight SPIs (see paragraph 3.3) but will continue to develop new SPIs as required. (See Annex 1, project 1.2.)

7.6.4 **Action** The CAA will work with industry to make better use of automatically collected safety data such as Flight Data Monitoring (FDM) data. The use of FDM data has the potential to identify significant safety problems in a consistent and systematic way. (See Annex 1, project 1.3.)

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15. EU Directive 2003/42/EC on Occurrence Reporting in Civil Aviation.

## 8 Safety Actions – Safety Promotion

### 8.1 CAA – Industry Safety Conference

8.1.1 A CAA – Industry safety conference took place on 29th January 2009 and focused on the key areas of the UK's safety performance and developments in European regulation.

8.1.2 **Action** As a result of this Safety Conference the CAA will:

- consider the effectiveness of holding separate Safety Conferences for General Aviation, Helicopters and Business Aircraft;
- conduct further analysis of SPI 2, high-risk public transport occurrences, with AAIB and industry;
- conduct further measurement of safety performance within the Industry;
- increase Industry involvement in the SRT and Safety Plan derivation;
- seek contribution to our top Safety Concerns;
- confer with EASA on our Safety Plan;
- investigate provision of more transparency of safety data to industry;
- hold a further Safety Conference for large public transport operations early in 2010;
- widen the scope of issues at the Safety Conference to include areas other than Operations, e.g., Maintenance.

### 8.2 Working with Stakeholders

8.2.1 In addition to the actions in 8.1.2, a strong relationship with industry and other Regulators is key to maintaining a high level of safety. The CAA participates in numerous consultative committees that involve representatives of specific sectors of the aviation industry. Two examples of these are the UK Flight Safety Committee and the General Aviation Safety Council.

8.2.2 **Action** The CAA will continue to work with these stakeholder bodies and will actively encourage them to become more involved in the CAA's Safety Planning process.

### 8.3 European Strategic Safety Initiative (ESSI)<sup>16</sup>

8.3.1 The CAA has committed to the ESSI and will continue to support this work using all reasonable resources and expertise.

8.3.2 **Action** The CAA will continue to contribute to the work of the three ESSI teams – European Commercial Aviation Safety Team, European Helicopter Safety Team and European General Aviation Safety Team. (See Annex 1, project 1.10.)

### 8.4 Aviation Safety Review

8.4.1 The CAA's Aviation Safety Review<sup>17</sup> provides the aviation community with safety information primarily relating to UK aviation. It provides a ready source of information to respond to safety related enquiries from both internal and external parties. The CAA has published the Review on a regular basis since 1997, with the latest version published in November 2008.

8.4.2 **Action** The CAA will continue to publish the Aviation Safety Review on a biennial basis, with the next Review due in 2010.

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16. CAA Corporate Plan 2009/10-2013/14.

17. Aviation Safety Review 2008, CAP 780.

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# Annex 1 Ongoing Safety Improvement Projects

This Annex contains a summary of ongoing Safety Improvement Projects. The majority of these were launched in the Safety Plan (SP) 2006/07, SP Update 2007 and SP Update 2008 with any new actions being denoted by an asterisk (\*). The actions are listed under the same subject areas used in previous SPs, using the same action numbers previously allocated. For ease of reference, the table uses shaded boxes to reflect, for each individual action, the SPs in which the action appeared.

For more details and progress on these projects, see [www.caa.co.uk/safetyplan](http://www.caa.co.uk/safetyplan).

It should be noted that the actions listed in this Annex are in addition to the Safety Actions detailed in the main body of this Safety Plan.

Action		Referenced in:			Deadline
		SP 06/07	SP Update 07	SP Update 08	
<b>THE CAA SAFETY RISK MANAGEMENT PROCESS</b>					
<b>Monitoring Industry Performance</b>					
1.2	Develop and progress pre-cursor measures to improve data collection and processing, for the monitoring of the 'safety health' of UK civil aviation				Ongoing
1.3	Investigate the use of aggregate Flight Data Monitoring (FDM) data as indicators of the overall safety performance of the UK aviation industry				Ongoing
1.10	*A detailed analysis of helicopter accidents, supporting the UK input to European Strategic Safety Initiative / European Helicopter Safety Team with data that will help identify and target safety actions.				Mar-10
<b>Technical Failure</b>					
1.8	PhD study on modelling risk in aircraft maintenance.				Jun-11
<b>LARGE PUBLIC TRANSPORT AEROPLANES</b>					
<b>Supporting Pilot Performance</b>					
2.5	Investigate the possibility of transferring manual flying skills assessment techniques from the simulator to line flying utilising the medium of FDM				Jun-10
2.49	*Production of a summary report covering output of the Flight Operations Research Centre of Excellence work including loss of manual flying skills and training for highly automated aircraft				Oct-09

Action		Referenced in:			Deadline
		SP 06/07	SP Update 07	SP Update 08	
2.16	The CAA will produce a functional upgrade of the Required Navigation Performance (RNP) database and continue to encourage wider participation in the database tool				Sep-09
2.17	The CAA will consider moving the RNP database tool into the control of industry				Dec-09
<b>Loss of Control</b>					
2.18	Monitor Mandatory Occurrence Reports to assess effectiveness of ongoing actions				Ongoing
<b>Controlled Flight Into Terrain</b>					
2.48	*Global Positioning System (GPS) performance monitoring				Aug-09
<b>Aircraft Fire</b>					
2.44	The CAA will work with other National Aviation Authorities in the development of a new International Civil Aviation Organisation specification for advanced extinguishing agents				Apr-09
<b>AIRSPACE</b>					
<b>Mid Air Collision – Public Transport Operations Outside Controlled Airspace</b>					
3.1	Publish guidance appropriate for general aviation resulting from the Conspicuity Working Group and the Regulatory Impact Assessment on the wider carriage of transponders				Dec-09
<b>Very Light Jets (VLJ) – VLJ Integration into European Airspace</b>					
3.9	The CAA will participate in a Eurocontrol initiative, the VLJ Implementation Platform				Ongoing
<b>AIRPORTS</b>					
<b>Runway Incursions</b>					
4.3	Monitor ongoing actions and analyse the resultant change in reported runway incursion rates				Ongoing

Action		Referenced in:			Deadline
		SP 06/07	SP Update 07	SP Update 08	
<b>LARGE PUBLIC TRANSPORT HELICOPTERS</b>					
<b>Helicopter Airworthiness</b>					
5.1	Publish the final report on the development and demonstration of enhanced Health & Usage Monitoring System (HUMS) Vibration Health Monitoring data analysis				Sep-09
5.5	Complete the investigation of the use of advanced analysis techniques to exploit existing rotor system vibration data collected by current HUMS				Dec-09
<b>Operational Safety</b>					
5.6	Publish the final report on the development of an artificial neural network based measure of helicopter low airspeed to extend helicopter operations monitoring to the low speed envelope				Dec-09
5.11	Produce a specification for emergency breathing systems and publish as a CAA Paper.				Sep-09
5.18	*GPS Offshore Trial – an extension of work completed in relation to European Geostationary Navigation Overlay Service data collection and analysis				Dec-10
<b>Helideck Safety</b>					
5.13	Publish the final report on the development and trials of the new helicopter moving deck landing criteria				Sep-09
5.14	Publish a report on Stage 1 and Stage 2 helideck lighting systems trials during winter 2006/7.				Jun-09
5.15	Publish a review of existing helideck friction criteria.				Sep-09
5.16	Develop a new criterion for aluminium helidecks				Mar-10
<b>GENERAL AVIATION</b>					
<b>General Aviation – Analysis of Accident Causal Factors</b>					
6.2	CAA's General Aviation Safety Review Working Group to conduct an analysis of every individual fatal accident to a General Aviation aircraft to identify causal factors				Ongoing

Action		Referenced in:			Deadline
		SP 06/07	SP Update 07	SP Update 08	
<b>General Aviation Aeroplanes</b>					
6.5	Define and produce training material to improve decision making on weather conditions and airspace infringements				Jul-10
<b>Gyroplanes</b>					
6.19	Revision of British Rotorcraft Association Private Pilot Licence (Gyroplane) syllabus, Assistant Flying Instructor (Gyroplane) syllabus and provision of Standards Document 44				Jul-09
<b>SUPPORTING APPROVED ORGANISATIONS</b>					
<b>Single European Skies</b>					
7.8	Continue to provide a broad range of information on the Single European Sky initiative, including briefing material, workshops and seminars for service providers.				Ongoing
7.9	Develop an objective model of the regulatory risk involved in assessing a change to part of an Air Traffic Management system				Jun-10
<b>Safety of 'Light' Jet Operations (Business Jets)</b>					
7.14	Work with NATS to explore collaborative approaches to safety improvement				Ongoing
7.16	Investigate methods to improve flight crew training on business jets (as recommended in Business Jet Safety Research report)				Dec-09
<b>ESARR 4 Compliance</b>					
7.17	Complete research into means of compliance for small Air Navigation Service Providers to meet Eurocontrol Safety Regulatory Requirement 4 (ESARR 4). <sup>1</sup>				Jul-09

1. ESARR 4 compliance is now transposed into Single European Sky legislation

**Other Safety Analysis Related Activities**

Accident Analysis Group	AAG
Airspace and Safety Initiative	ASI
Business Aviation Safety Partnership	BASP
European Commercial Aviation Safety Team	ECAST
European General Aviation Safety Team	EGAST
European Helicopters Safety Team	EHEST
General Aviation Safety Review Working Group	GASRWG
Ground Handling Operations Steering Group	GHOST
Level Busts Working Group	LBWG
Runway Incursions Steering Group	RISG
Small Helicopters Working Group	SHWG
The High Risk Events Analysis Team	THREAT
UK Operators Flight Data Monitoring Group	

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## Annex 2 Closed Actions From Previous Safety Plan

This Annex contains a summary table of those actions initiated in the Safety Plan (SP) 2006/07, SP Update 2007 and SP Update 2008, which have been closed since the SP Update 2008 was published. The actions are listed under the same subject areas used in previous SPs, using the same action numbers previously allocated. For ease of reference, the table uses shaded boxes to reflect, for each individual action, the SPs in which the action appeared.

For more details and progress on these projects, see [www.caa.co.uk/safetyplan](http://www.caa.co.uk/safetyplan).

The actions listed in this Annex are in addition to the Safety Actions detailed in the main body of this Safety Plan.

Action	Referenced in:			Deadline
	SP 06/07	SPUpdate 07	SPUpdate 08	
<b>THE CAA SAFETY RISK MANAGEMENT PROCESS</b>				
<b>Monitoring Industry Performance</b>				
1.6	Update the Aviation Safety Review to disseminate current safety data to the UK industry.			Nov-08
<i>The updated Aviation Safety Review was published on the CAA website as CAP 780 in November 2008.</i>				
1.5	Complete a ten year update on the analysis of fatal accidents to large public transport aeroplanes worldwide.			Jul-08
<i>An updated version of the Global Fatal Accident Review was published on the CAA website as CAP 776 in July 2008.</i>				
<b>Technical Failure</b>				
1.9	Sponsor a PhD study on reliability of inspections of composite structures.			Dec-09
<i>This work has been completed and has provided evidence that composite structures cannot be treated in the same way as metal structures for inspection purposes. The CAA is currently considering how to take this work forward.</i>				
<b>LARGE PUBLIC TRANSPORT AEROPLANES</b>				
<b>Supporting Pilot Performance</b>				
<i>Improved Pilot Training</i>				
2.1	Conduct research trial on improved training for highly automated aircraft.			Mar-09
<i>The research trial has been completed and the CAA is reviewing the resulting report. Further details are shown under action 2.2 below.</i>				
2.2	The CAA will publish the core 'highly automated aircraft' syllabus as a CAA paper.			Mar-09
<i>The research in this area (see action 2.1) has concluded that the proposed training syllabus for 'highly automated aircraft' could not be implemented in practice within industry.</i>				

Action	Referenced in:			Deadline
	SP 06/07	SPUpdate 07	SPUpdate 08	
2.3	The CAA will investigate the possibility of expanding the 'highly automated aircraft' trial to a second aircraft type or operator.			Mar-09
<i>This action has not been pursued given the outcomes of actions 2.1 and 2.2 (see above).</i>				
2.4	Conduct research into loss of manual flying skills.			Jun-08
<i>The research has established a method to objectively measure manual flying skills, using algorithms on simulator outputs. This method has been trialled with a UK operator and the results show that manual flying skills do degrade with time since qualification on highly automated aircraft. The research on this subject continues under Safety Plan action 2.5 (see Annex 1).</i>				
<i>Pilot Physical Capabilities</i>				
2.10	Complete a medical study into the most appropriate requirement for medical fitness to fly, to ensure that the aeromedical standards reflect the modern cockpit environment.			Sep-08
<i>A pilot study was launched to collect data relating to the risk of failed handover of control following feigned medical incapacitation during simulator details (this is one of the core elements on which acceptable medical incapacitation risks of pilots are defined). However, the relatively small number of returns lacked sufficient statistical power to enable robust conclusions to be drawn. The CAA will continue to collect relevant data as it becomes available and will take this work forward on an international level in the future.</i>				
2.11	Complete the research on Long Term Exposure to the Flying Environment.			Mar-10
<i>The research has been completed and the first of a series of peer-reviewed papers was published in the October 2008 edition of the Aviation, Space, and Environmental Medicine journal. Further papers are expected to be published throughout 2009.</i>				
2.12	The CAA will publish a paper detailing the full analysis [re: Long Term Exposure to the Flying Environment].			Oct-10
<i>The research results have been, and are continuing to be, published (see action 2.11 above).</i>				
2.14	The CAA will publish a paper detailing the methodology, results and conclusions [re: computerised colour vision tests].			May-08
<i>The CAA has worked with the Federal Aviation Administration (FAA) in this area and a single research report has resulted, which is due to be published by June 2009. The report details a new colour vision test that is based on a task analysis of the pilot's role. The CAA will promote the adoption of this test by the International Civil Aviation Organisation (ICAO) and European Aviation Safety Agency (EASA).</i>				

Action	Referenced in:			Deadline
	SP 06/07	SPUpdate 07	SPUpdate 08	
<b>Loss of Control</b>				
<i>Contaminated Runways</i>				
2.23	Facilitate research on measuring runway friction, linking Engineering Science and Data Unit expertise with performance specialists at Boeing and Airbus.			Nov-09
<i>Work on this has project been completed and demonstrated that technology exists that facilitate the measurement of friction on contaminated runways. More work is now needed to co-ordinate this with the airframe manufacturers (including Boeing and Airbus) and with airport operators in order to establish appropriate operational procedures. This work is being taken forward by EASA.</i>				
<i>Handling Engine Malfunctions</i>				
2.25	Submit recommendations for actions related to Propulsion System Malfunction and Inappropriate Crew Response to EASA.			May-09
<i>This task has been transferred to EASA.</i>				
<i>Continued Airworthiness of Composite Structures</i>				
2.27	Complete research into reliability of visual inspection on composite structures. Results will be reviewed for potential use in engineer training or industry guidance.			Feb-09
<i>This action has been completed as part of action 1.9 and the CAA is currently considering how to take this work forward.</i>				
<b>Controlled Flight Into Terrain</b>				
<i>Approach and Landing</i>				
2.34	Seek changes to the specification of the displayed information to reduce the potential CFIT risk during Area Navigation (RNAV) (Global Navigation Satellite System – GNSS) operations.			Mar-08
<i>See details under next action (2.35).</i>				
2.35	Raise awareness of the meaning and correct use of the information displayed [during RNAV (GNSS) operations].			Jun-08
<i>The CAA has initiated a publicity campaign on the issue of step down fixes and intermediate ranges displayed to pilots carrying out Global Positioning System (GPS) approaches. Action has also been taken with the GPS coding service providers, with positive result.</i>				
<b>Aircraft Fire</b>				
<i>Cabin Crew Fire Training</i>				
2.38	Carry out Training Needs Analysis.			Apr-08
<i>A review of cabin crew fire training has been undertaken and the resulting report will be published by Summer 2009. The CAA will present the recommendations of this review to cabin crew trainers in the first half of 2009.</i>				

Action	Referenced in:			Deadline	
	SP 06/07	SPUpdate 07	SPUpdate 08		
<i>Operational Implications of Integrated Fire Suppression Systems</i>					
2.41	Work with the International Fire Test Materials Group to establish operational policies to reduce flammability risks.				Dec-08
<i>The CAA has continued to work with the International Fire Test Materials Group and a number of reports have been produced, which are likely to be published by the FAA in the first half of 2009. The CAA will continue to participate on this Group.</i>					
2.42	Manage internationally funded research studies to develop the Integrated Fire Suppression System concepts, in particular operational aspects. Co-ordination through the Systems Fire Protection Working Group and the Cabin Safety Research Technical Group will result in research reports and concepts to reduce flammability risks.				Dec-08
<i>CAA continues to co-ordinate research with these Groups, in particular on the implications of nitrogen inerting systems being applied to fire suppression in areas other than fuel tanks. The funding for this research comes from external sources.</i>					
<i>Enhanced Ground Fire Fighting</i>					
2.43	Conduct studies of cabin fire fighting and post evacuation passenger management.				Jun-09
<i>A study of new technologies for use in cabin fire fighting has been completed. The study showed that whilst there are potential benefits in the use of high reach extendable monitors and positive pressure ventilation, more work would be required to quantify any such benefits. The CAA will keep this subject under review and will only commission further work if satisfied that it would offer tangible safety benefits. The research on post evacuation passenger management has been concluded. The results have been shared at many seminars and conferences. Post evacuation passenger management has been trialled at a number of airports and has now been bought into use at most major airports.</i>					
<i>Fire Data</i>					
2.47	Compilation of fire data research studies.				Sep-08
<i>A report has been produced which provides a summary of data analysis and research findings on the subject of aircraft fires, fire fighting and associated safety risks. Work is underway to present this information in a more user friendly manner. In the meantime, the compilation of research on this subject continues.</i>					
<b>AIRSPACE</b>					
<b>UK Operational Policy and Procedures for Unmanned Aerial System (UAS) – UAS Policy</b>					
3.7	The CAA continues to work with other Government agencies in developing and establishing Unmanned Aerial Vehicle (UAV) policy and regulation.				Apr-08
<i>A CAA / industry group has been established on this subject and the CAA supports EUROCAE Working Group 73, which is focussed on UAS.</i>					
3.8	Revise and re-issue CAP 722 UAV Operation in UK Airspace – Guidance.				Apr-08
<i>CAP 722 (renamed Unmanned Aircraft System Operations in UK Airspace – Guidance) was revised and published on the CAA website in April 2008.</i>					

Action	Referenced in:			Deadline	
	SP 06/07	SPUpdate 07	SPUpdate 08		
<b>AIRPORTS</b>					
<b>Runway Excursions and Overruns</b>					
4.7	Conduct a new fishbone analysis to explore opportunities to improve safety from the risk of excursions and overruns.				Jun-08
<p><i>A joint CAA / industry group was established to explore this risk, identify any existing vulnerabilities, and where possible, propose mitigating actions. At the conclusion of its work, the group made a number of recommendations for future work, which will be reviewed as resources become available.</i></p>					
<b>LARGE PUBLIC TRANSPORT HELICOPTERS</b>					
<b>Helicopter Airworthiness</b>					
5.2	Completion of six month extension of in-service trials [re: Health & Usage Monitoring System (HUMS) Vibration Health Monitoring (VHM) data analysis].				Jun-08
<p><i>The purpose of this extension was to test improvements to the VHM analysis system and the results were very encouraging. In particular, the new system has been system to generate a clear and timely warning for a significant main rotor gearbox defect that had previously been undetectable by HUMS.</i></p>					
5.3	Publish a review of the state of the art of the application of HUMS techniques to detect rotor system faults.				Dec-08
<p><i>CAA Paper 2008/05 HUMS Extension to Rotor Health Monitoring was published in January 2009.</i></p>					
<b>Operational Safety</b>					
5.7	Publish the final report on the three phase safety assessment of the use of GPS for helicopter operations in the North Sea.				Sep-08
<p><i>The research has been completed and the report is currently being reviewed. The work has underpinned the issue of CAA Specification No 22, which has formalised the use of GPS by offshore helicopters for enroute navigation. It has also resulted in the development of a GPS-assisted weather radar approach procedures as a short term improvement (see action 5.8 below).</i></p>					
5.8	Implement GPS-assisted weather radar approach procedure.				Dec-08
<p><i>Following the research outlined under action 5.7, offshore helicopter operators have been invited to review and amend their Operations Manual's procedures for Offshore Radar Approaches to include GPS assistance. In accordance with standard procedures, the Operations Manual entry and associated implementation plan will have to be accepted by the operator's assigned Flight Operations Inspector.</i></p>					
5.9	Publish European Geostationary Navigation Overlay Service data collection and analysis exercise.				Mar-09
<p><i>The work for this project has been complete and the research report is being finalised before it is published as a CAA Paper.</i></p>					

Action	Referenced in:			Deadline
	SP 06/07	SPUpdate 07	SPUpdate 08	
5.10	Publish final report detailing operational trials of Airborne Collision Avoidance System (ACAS) II on North Sea helicopters.			Sep-08
<p><i>The CAA established that a UK offshore helicopter operator had plans to undertake their own ACAS II trials. In order to prevent duplication in activity, the CAA will instead await the results of the operator's trials, which will be made available to the Helicopter Safety Research Management Committee.</i></p>				
<b>Helideck Safety</b>				
5.12	Publish a report detailing the development and validation of a wind shear criterion for inclusion in CAP 437.			Sep-08
<p><i>Following completion of the helideck environmental research, it was determined that a wind shear criterion was not required in CAP 437 Offshore Helicopter Landing Areas – Guidance on Standards. However, a turbulence criterion has been developed and is due to be published on the CAA website as CAA Paper 2008/02 Validation of the Helicopter Turbulence Criterion for Operations to Offshore Platforms. In the interim, a copy of the research report is available on request from the CAA. The turbulence criterion is also included within a revised version of CAP 437, which was published in December 2008.</i></p>				
5.17	Establish correct flashing light test procedure and update CAA Paper 2003/06.			Dec-08
<p><i>This work has been completed and CAA Paper 2008/01 Specification for an Offshore Helideck Status Light System was published in the CAA website in July 2008.</i></p>				
<b>GENERAL AVIATION</b>				
<b>Small Helicopters</b>				
6.3	Initiate a sub-group of the General Aviation Safety Review Working Group to specifically address issues related to small rotorcraft.			Apr-08
<p><i>The Small Helicopter Safety Group has been established under the co-chairmanship of the CAA and the British Helicopter Association.</i></p>				
<b>Gyroplanes</b>				
<i>Aerodynamic Characteristics</i>				
6.13	Complete the study of rotor elastic characteristics, review the validation of the gyroplane computer model on completion of the study, modify the model and revise the earlier studies as appropriate, considering any necessary changes to British Civil Airworthiness Requirements (BCAR) Section T.			Jul-09
<p><i>Work has focussed on the performance / flight handling associated with thrust line / centre of gravity limit of offset and rotor aeroelastic stability. Research in both areas is complete and it has been established that no changes to BCAR Section T are necessary.</i></p>				
6.14	Publish a report on the research into the aerodynamic characteristics of gyroplanes.			Dec-08
<p><i>The work on this project is complete and the report is being reviewed.</i></p>				

Action	Referenced in:			Deadline
	SP 06/07	SP Update 07	SP Update 08	
<i>Gyroplane Pilot Licensing</i>				
6.16	Provide online support for the widely geographically distributed gyroplane examiner and instructor community.			Dec-08
<i>Online support can be found at <a href="http://www.ukgyroplanes.com">www.ukgyroplanes.com</a>.</i>				
6.15	Make minor changes to Private Pilots Licence (Gyroplane) requirements, including detailed policies on flight tests, wheel balancing and differences training.			Dec-08
<i>In May 2008 a number of changes to Gyroplane flying training requirements were promulgated to industry via a Notice to Gyroplane Examiners and Instructors. The Notice was published on the CAA website and will be included in LASORS 2009.</i>				
<b>SUPPORTING APPROVED ORGANISATIONS</b>				
<b>Safety Management Systems</b>				
7.3	Publish a document describing the means by which the CAA complies with the ICAO requirement for a State Safety Programme.			Sep-08
<i>The State Safety Programme was published on the CAA website as CAP 784 in October 2008.</i>				
7.22	Complete roadshow events for safety managers.			Jun-08
<i>In July and September, the CAA held six SMS Roadshows around the UK. The SMS Guidance Material and Compliance Checklist, which were presented at the Roadshows are available on the CAA website.</i>				
7.6	Review current CAA guidance material for consistency, revise and re-publish as required.			May-08
<i>Following a review of guidance material, the CAA withdrew CAP 712 Safety Management Systems for Commercial Air Transport Operations, and published on its website a document titled Safety Management Systems – Guidance to Organisations. Further guidance is also available as shown under action 7.22 above and in the following publications, all of which are available on the CAA website: CAP 168 Licensing of Aerodromes, CAP 726 Guidance for Developing and Auditing a Formal Safety Management System, CAP 728 The Management of Safety Guidance to Aerodromes and Air Traffic Service Units on the Development of Safety Management Systems and CAP 730 Safety Management Systems for Air Traffic Management.</i>				
7.7	Engage with JAA/EASA/EC initiatives to implement SMS through changes to regulation.			Dec-08
<i>The CAA has continued to engage with international SMS initiatives. On 1 January 2009, the ICAO mandate for airline operators and associated maintenance organisations to have an SMS came into force. This will be followed by EASA Implementing Rules, which will provide the legal basis for requiring all European operators and supporting maintenance organisations to implement SMS. In addition, SMS for Air Traffic Services is complete under Single European Sky and an amendment to the Air Navigation Order (ANO) with regard to Aerodromes has been approved by the Department for Transport, and is expected to be incorporated into a general amendment to the ANO in Autumn 2009.</i>				

Action		Referenced in:			Deadline
		SP 06/07	SPUpdate 07	SPUpdate 08	
<b>Ground Handling Operations</b>					
7.21	Conduct a study of occurrence reporting culture among ground handlers.				Nov-08
<p><i>The study has been completed and it established that there is a low level of awareness among ground handlers of the Mandatory Occurrence Reporting (MOR) scheme. At the conclusion of its work, the group made a number of recommendations for future work, which will be reviewed as resources become available.</i></p>					

## Annex 3      Actions on Hold

This Annex contains a summary table of those actions that are currently on hold while resources are focused on the actions contained in Annex 1. These actions were initiated in the Safety Plan (SP) 2006/07, SP Update 2007 and SP Update 2008 and are listed under the same subject areas used in previous SPs, using the same action numbers previously allocated. For ease of reference, the table uses shaded boxes to reflect, for each individual action, the SPs in which the action appeared.

These actions will be reviewed as resources become available.

Action		Referenced in:		
		SP 06/07	SP Update 07	SP Update 08
<b>LARGE PUBLIC TRANSPORT AEROPLANES</b>				
<b>Loss of Control</b>				
<i>Freezing Residues</i>				
2.21	Investigate the causes of de-icing fluid residues that may freeze and methods for mitigating them, in conjunction with the relevant Society of Automotive Engineers group			
<b>Aircraft Fire</b>				
<i>Dangerous Good Information</i>				
2.45	Study of the effectiveness of dangerous goods information provided to passengers at airports			
<i>Fuel Cell Fire Safety</i>				
2.46	Co-operative study with FAA			
<i>Cabin Crew Evacuation Training</i>				
2.40	Production of training demonstration material			
<b>GENERAL AVIATION</b>				
<b>General Aviation Aeroplanes</b>				
<i>Carburettor Icing</i>				
6.4	Complete the research programme to identify possible solutions to carburettor icing and resultant handling problems, report on potential mitigations			
<b>General Aviation Helicopters - Degraded Visual Cueing</b>				
6.10	Investigate feasibility of supplementing the visual cueing available to pilots			
<b>SUPPORTING APPROVED ORGANISATIONS</b>				
<b>Single European Skies</b>				
7.10	Develop an objective model for component based modular safety arguments			

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