Disclaimer

In preparing this report, we have relied upon, and assumed the accuracy and completeness of, all the information made available to us from individuals and organisations that have provided information relevant to our report. We have evaluated that information through analysis, inquiry and review but have not sought to verify the accuracy or completeness of any such information. It should not be construed that we have conducted an audit of the information.

In preparing this report, we have relied on information that has not been independently verified. The statements and opinions expressed in this report have been made in good faith. Accordingly, neither PricewaterhouseCoopers nor its partners, employees or agents, accept any responsibility or liability for any such information being inaccurate, incomplete, unreliable or not soundly based, or for any errors in the analysis, statements and opinions provided in this report resulting directly or indirectly from any such circumstances, or from any assumptions upon which this work is based, proving unjustified.

We reserve the right, but are under no obligation, to revise or amend our report if any additional information which exists on the date of this report, subsequently comes to light.

Our report has been prepared solely for use by the Civil Aviation Authority. Our report is not intended for general publication or circulation. We accept no responsibility to any other party, unless specifically agreed by us in writing. Furthermore, we accept no responsibility for any reliance that may be placed on this report should it be used for any purpose other than that set out above.
21 December 2006

Dear Russell and Peter

Capability and Resources Review

We are pleased to present our final report. We would like to extend our thanks to you, the Authority and the CAA managers and staff for the assistance they have provided during the course of the Review. Reviews of this type rely on access to considerable volumes of information and this has been provided willingly to the Review.

We trust that the findings and recommendations in the report provide a useful point of reference for taking the CAA forward. If there is any aspect of our report that you would like to discuss further, please do not hesitate to contact us.

Yours sincerely

Bruce Wattie
Partner

Chris Gould
Director
## Glossary of Terms

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<thead>
<tr>
<th>Term</th>
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<tr>
<td>Authority</td>
<td>The five member governing Board of the CAA</td>
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<td>CAA</td>
<td>Civil Aviation Authority of New Zealand</td>
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<td>CA Act</td>
<td>Civil Aviation Authority Act 1990</td>
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<td>CAA Way</td>
<td>A leadership/management development programme used by the CAA</td>
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<td>CAR</td>
<td>Civil Aviation Rule</td>
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<td>FMIS</td>
<td>Financial Management Information System</td>
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<td>GOP</td>
<td>Group Operating Plan</td>
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<tr>
<td>ICAO</td>
<td>International Civil Aviation Organisation</td>
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<td>HASNO</td>
<td>Hazardous Substances and New Organisms (Act)</td>
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<td>HR</td>
<td>Human resource</td>
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<td>HSE</td>
<td>Health and Safety in Employment (Act)</td>
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<td>IS/IT</td>
<td>Information System/Information Technology</td>
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<tr>
<td>LOS</td>
<td>Level of Service</td>
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<td>NZTS</td>
<td>New Zealand Transport Strategy</td>
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<td>OAG</td>
<td>Office of the Auditor-General</td>
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<td>SOI</td>
<td>Statement of Intent</td>
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<td>TSSD</td>
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1 Executive Summary

1.1 The objective of the Civil Aviation Authority (CAA) is to undertake its safety, security and other functions in a way that contributes to the aim of achieving an integrated, safe, responsive and sustainable transport system. These functions include: establish and monitor civil aviation safety and security standards, investigate accidents and incidents and promote safety and personal security.

1.2 A number of issues and recent reports have led the Authority to determine that a review of the CAA capability and resource needs is required. These include changes in legislative mandate, the rapidly changing nature of the aviation sector, the safety record of some in the aviation sector is well below that which is desired, and concerns raised by internal and external reviews regarding the robustness of some of the CAA’s practices. The Authority is concerned to ensure that the CAA makes the best possible contribution to the safety and security of the civil aviation system.

1.3 The objective of the Review is to identify the capability and resources needed to enable the CAA to fulfil its statutory objectives and functions efficiently and effectively. Accordingly, the review has assessed:

- the extent to which the CAA is focused on its statutory responsibilities;
- whether the CAA has the right level and mix of capabilities and resources to discharge its responsibilities; and
- the investment in capability and resource that is required, if any, to enable the CAA to operate efficiently and effectively.

1.4 At this stage, the Review has not considered issues in relation to the funding of the CAA. The need for any work in this area is to be assessed following the completion of this Review.

1.5 To guide the Review, an assessment has been undertaken of the key dimensions of organisational capability and their relevance for resources as illustrated below.
1.6 It is apparent from the diagram that resources (in the form of people and systems technology) are only two parts of the overall picture of capabilities that influence organisational performance. The other aspects of capability, as shown in the diagram, need to be in place.

1.7 The Review has examined the nature of the CAA’s activities in light of its statutory mandate. In general, the Review concludes that there is good alignment between the activities undertaken by CAA and its statutory roles and responsibilities. However, several points should be noted.

- The CAA’s functions include promotion of safety and security. By way of general observation, the safety focus of the CAA has more prominence in planning and output documentation than does security. There is a need to assess whether the balance is appropriate.

- There are increasing demands upon CAA resources to be involved in security issues in the Pacific region and there is the potential for these to extend beyond a level that is justified in risk terms. Expectations regarding CAA’s involvement need to be clear and the CAA needs to ensure that its costs are fully recovered.

- There is also considerable resource allocated to investigating accidents. Not all accidents warrant investigation, but external pressure (e.g. arising from coronial inquiries) appears to be resulting in an expectation that all accidents will be investigated. This needs to be managed.

- The statutory objective for the CAA was modified in December 2004. There is some work yet to be completed, in conjunction with the Ministry of Transport and others, to assess the implications of the broader objective both in terms of the span of CAA’s activities and the organisation’s approach to those activities.

1.8 The points above do not, however, affect the conclusion that the functions undertaken by the CAA are aligned with its statutory mandate.

1.9 The CAA also has at its disposal all of the expected regulatory tools for assessing entry, monitoring compliance and managing the exit of operators from the civil aviation system. In some areas, the CAA has developed, and is developing, systems and processes that are leading edge for aviation regulation. In this regard, it should be recorded that in the view of external stakeholders interviewed as part of the Review, the CAA is held in high regard by the aviation sector both within New Zealand and internationally. Its technical competencies are, similarly, recognised and valued.

1.10 The CAA has a number of major projects underway which offer the opportunity to enhance service delivery for the benefit of the travelling public and aviation industry. These include:

- the Surveillance project which is aimed at enhancing the efficacy of the CAA’s monitoring and surveillance functions;

- the Risk and Intervention project which is developing systems and procedures for client-specific safety risk measuring methodologies used in support of the surveillance programme; and

- the Certification project which is designed to develop and implement systems and procedures to achieve a high level of entry certification standard.
1.11 There are also supporting initiatives around human resource management, business risk management, information management and work processes.

1.12 Notwithstanding these initiatives, there is a need to address other aspects of organisational capability (particularly those under the heading of directional capability as shown in the diagram on the previous page). The Review has a number of concerns regarding current capabilities within the CAA. The issues underlying the concerns are impeding overall organisational efficiency and effectiveness and, if not addressed, risk undermining public confidence in the organisation. The principal concerns of the Review are that the CAA:

- lacks an overarching statement of strategic direction. This is needed to guide activity and underpin management and operational decision-making. Currently, planning, at both strategic and business levels, is not a developed, mature process across the CAA;

- has strong technical competency, but is weak in terms of leadership competencies (these include communication, the ability to inspire, vision, empowering others) and does not embrace management capabilities to the extent required. The Executive and Operational Executive teams are not functioning as effective leadership teams. Senior managers within the organisation recognise and largely accept the capability issues but are less able in terms of implementing solutions;

- is very industry centric. This needs to be balanced with a strong focus on the safety and security of the (air) travelling public;

- operates in a largely reactive mode which means that resources are not always guided to their highest value use;

- has operational practices, particularly in relation to surveillance functions, that are not yet sufficiently guided by a risk-based framework. Such a framework has been developed and is being tested within the CAA. The framework is needed to underpin and prioritise regulatory interventions;

- has management practices and behaviours that are not adequate to support effective and efficient strategic and operational decision making. Managers are too involved in operational/technical matters and lack administrative support. Senior management roles demand management competencies. There is a lack of a consistently applied management framework of planning, monitoring, reporting and reviewing; and

- does not have sufficient consistency of attitudes, behaviours and approach to application of its regulatory mandate.

1.13 The concerns outlined above have much to do with the culture that exists within the CAA. The Review considers that there is a need to reorient the culture of the organisation as summarised in the diagram below. In brief, the pendulum has swung too far to the right. A concerted effort is required to swing to the left (which is why the pendulum is drawn slightly left of centre) so that there is more focus on the public, greater emphasis given to managing CAA in ways consistent with an overarching statement of strategic direction and no risk of crossing over from being a regulator into the role of adviser.
1.14 The culture of the organisation should oscillate in a narrow band in between the two extremes shown in the diagram.

1.15 There is an important role for the Authority in terms of providing the leadership, and setting the tone, for the change in culture that is required. This includes ensuring that an appropriate balance is maintained between promoting the interests of the public (and New Zealand generally) in having a safe and secure aviation system and ensuring appropriate focus on the aviation industry.

1.16 The main implication stemming from the issues identified in relation to capability is that there is a mis-allocation of resources within the CAA. The misallocation manifests itself in a range of operational practices.

- There is a need to continue work underway to develop and rigorously apply, at all levels of the organisation, a risk management framework to guide the nature, frequency and depth of regulatory interventions (i.e. audits, inspections and so on). Because such a framework has yet to be fully implemented, there is no systematic distinction being given between areas of low and high safety (or security) concern that influences CAA regulatory activity. As a result, some regulatory activity is directed to areas of low safety concern.

- There are examples of audits and inspections that are being carried out on a check-list basis without sufficient regard for the extent to which each item links to a significant safety concern.

- Annual audits are being undertaken irrespective of relative safety risk in the mistaken belief that this is what ICAO requires (it does not).

- Insufficient rigour is being applied to certification activities at the point of entry to the aviation system. To compensate, this has led to increased surveillance activity. Resources could be more efficiently deployed by devoting more effective regulatory attention at the point of entry.

- There is evidence of low rates of “Findings” during audits and inspections and insufficient follow-up.
• Operational groups do not have sufficient time to contribute to Rules developments.

• Training of CAA personnel is being crowded out by day-to-day regulatory duties.

1.17 The current issues around resource (mis) allocation mean that it is not sensible to invest further operational resource within the CAA at this stage. Rather, investment in capability is needed to address the issues and concerns noted above. Investment in capability will lead to enhanced efficiency and effectiveness and, in so doing, release resource from low value activities.

1.18 Section 14 of this report outlines the recommendations that the Review considers need to be addressed, as a matter of priority, in order to strengthen the CAA’s capabilities. The main elements of the recommendations are for the CAA to:

• strengthen strategic management capability through more engagement from the Authority and the senior management team in the process of planning and monitoring (recommendations (k) – (o) refer);

• strengthen management and leadership capability at all levels in the organisation, and particularly at senior management levels (recommendations (p) – (r) refer);

• shift the culture of the organisation so that there is an appropriate balance between maintaining focus on the industry and protecting the interests of the travelling public (recommendations (s) – (x) refer);

• strengthen management practices and competencies across a range of areas and through a range of initiatives (recommendations (aa) – (jj) refer);

• continue work toward adopting a risk-based approach to regulatory activities that is universally accepted and applied within the organisation at all levels, to assist with the prioritisation and targeting of resources (recommendations (kk) – (qq) refer); and

• review and update strategies in relation to information technology and systems and ensure that these are aligned with wider organisational strategy (recommendations (rr)- (uu) refer).

1.19 The recommended initiatives are wide ranging. They require focused management. The Review recommends that the CAA appoint, for a fixed term, additional resources in the areas of programme and change management to assist with implementing the various initiatives outlined in this report, prior to readdressing resource requirements.
2 Introduction

2.1 The Civil Aviation Authority (CAA) was established under the Civil Aviation Act (the CA Act) 1990 as a Crown entity on 10 August 1992. The objective of the CAA is to undertake its safety security and other functions in a way that contributes to the aim of achieving an integrated, safe, responsive and sustainable transport system. These aims reflect the four principles that underpin the New Zealand Transport Strategy.

2.2 Under the CA Act, the Authority comprises a five-member board. The Members are appointed by the Minister of Transport. In addition, the CA Act establishes the positions of the Director of Civil Aviation and the General Manager of Aviation Security.

2.3 The CAA has primary functions under the CA Act to regulate and promote safety and security in civil aviation and, at the same time, it has the authority delegated to it by the Minister of Transport to ensure certain international civil aviation practices are met and infrastructure provided. Overall, the CAA establishes and monitors civil aviation safety and security standards, investigates accidents and incidents, promotes safety and personal security and provides aviation security services for international and domestic air operations including airport security passenger and baggage screening.

2.4 The focus for this Review is on the regulatory functions of the CAA. The services provided by the Aviation Security Service are excluded from this Review.

Background

2.5 The Members of the Authority are concerned that the CAA does not appear to have the capability and resources needed by the organisation to fulfil its functions and responsibilities.

2.6 A number of issues and recent reports have led the Authority to determine that a review of the CAA capability and resource needs is required.

- CAA Objective and Functions. The 1 December 2004 Amendment to the CA Act and the Government’s expectations arising from the NZ Transport Strategy have increased the scope of CAA responsibilities.

- Changes in the Aviation Industry. The aviation industry is characterised by continuous changes in the composition of the aviation industry and rapid advances in technology. The CAA is faced with issues such as increased requirements for certification of a wider range of participants; increased international demand on security requirements; rapid and continuous growth in adventure aviation activities and sport and recreational aviation; and changes in industry and public expectations of the agency. To maintain a safe operating environment the CAA needs the capability and appropriate resources to maintain, develop and appropriately update the Civil Aviation Rules and to effectively monitor the industry’s activities.

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1 In this Review, the term CAA refers to the organisation and the term “the Authority” refers to the five-member board.

• Recommendations from the ICAO\textsuperscript{3} Universal Safety Audit, the OAG Report into the Surveillance and Certification Activities, and the Coroner’s report into the Air Adventures Accident, have raised recommendations that will require the CAA to review its capability and resources and to improve its resource allocation. They have identified marginal resource in a number of areas as a limiting factor in the CAA. The CAA may not have its resources appropriately allocated to enable it to provide for the increasing demands driven by the changes occurring in aviation, the required level of staff training and development, and for appropriate leave.

• The CAA Safety Targets will require a review of the CAA resources and the allocation of resources to enable it to place greater emphasis upon those target groups that are not meeting their safety targets.

• The CAA’s internal audit reports have identified areas of concern with respect to resources.

Terms of Reference

Objective

2.7 The primary objective of the Review is to identify the capability and resources needed to enable the CAA to fulfil its statutory objectives and functions efficiently and effectively.

Scope

2.8 In meeting the primary objective, the Review will identify what capability and resources the CAA needs now, and in the next 5 years, in order to deliver on its statutory objective and statutory functions. The Review will cover all matters that the reviewers may consider relevant, including:

• the statutory objective and functions for which CAA is responsible;

• government, industry and community expectations of CAA;

• the level of capability and resource necessary for CAA to fulfil its functions;

• existing CAA capability, resource, and outputs;

• the efficiency and effectiveness of the current activities and any options for improvement or reallocation of resources;

• gaps between CAA current capability and outputs and CAA functions, and activities that need to be added; and

• activities currently undertaken that are not required by the CAA functions and could be deleted.

2.9 The Review’s terms of reference does not, at this stage, extend to a consideration of funding issues. Following completion of the Review, The Authority and the Secretary

\textsuperscript{3} International Civil Aviation Organisation (ICAO)
for Transport will consider its contents, and the CAA, in consultation with the Secretary, will decide whether a second stage of the Review, which would focus on funding arrangements and levels, is required. Should Stage 1 result in recommendations that will considerably increase (or decrease) the scope of the CAA’s business, then the Secretary for Transport will advise the Minister of Transport and seek the Minister’s agreement to the change.
3 Approach to the Review

3.1 The Review has been undertaken by PricewaterhouseCoopers with specialist aviation sector assistance from Harvey Layden who has held a number of aviation regulatory positions with Transport Canada (together, referred to as the reviewer). The status of the reviewer is that of independent advisor. The reviewer has been engaged under the joint sponsorship of the CAA and the Secretary for Transport.

3.2 A Steering Group, led by the CAA, has been established to oversee the Review. It comprises senior officials from the Ministry of Transport, the Treasury and the CAA. Other Ministry of Transport, Treasury and CAA officials have supported the Steering Group as required and have provided day-to-day liaison with the independent reviewer.

Methodology

3.3 The Review has used a methodology for assessing performance, capability and resources which focuses on the key attributes of a high performing organisation. These attributes include clear and non-conflicting objectives, strong governance and accountability, well defined core business, best-practice systems and processes, and people and other resources that are fit-for-purpose. The methodology is designed to deliver a clear view of the capabilities and resources required to efficiently and effectively undertake core business.

3.4 The methodology guides analysis across three main dimensions of organisational activity:

- direction (strategy, planning, orientation);
- implementation (the means of achieving the results); and
- results (achievement and performance).

This methodology is summarised in the diagram below:

Performance Efficiency and Effectiveness Review (PEER)
3.5 The methodology is used internationally\(^4\) and has been used by PricewaterhouseCoopers for many comparable reviews including the independent review of Maritime New Zealand which was undertaken in 2005 and which had terms of reference comparable with those for this Review.

3.6 Reviews of this type involve a large amount of information gathering. The Review has interviewed, on a non-attribution basis, senior and middle managers within CAA, Authority Members and a cross section of external stakeholder organisations. The purpose of the external stakeholder interviews has been to obtain information and should not be interpreted as being anything in the nature of a consultation process.

3.7 The interviews utilised a series of structured questions and areas for discussion to obtain perspectives on:

- aims and objectives;
- issues, challenges and opportunities facing CAA;
- approaches taken by CAA to discharging its core regulatory functions; and
- the capability and resource requirements that stem from consideration of the points above.

3.8 In addition to interviews, the Review has:

- reviewed core accountability and planning documentation (e.g. Statement of Intent, Business Plan, CAA Safety Outcome Targets 2010, the Annual Report and monthly reports);
- assessed core policies and procedures;
- taken into account other reviews of, and relating to, the CAA including:
  - an internally commissioned review to determine the effectiveness and appropriateness of the CAA’s policies and operations and to advise on organisational structure;
  - a review (June 2005) by the Office of the Auditor General of the CAA’s certification and surveillance functions;
  - an ICAO interim report (June 2006) on the safety oversight audit of the civil aviation system;
  - the Coroner’s report into the Air Adventures accident near Christchurch airport in June 2003; and

---

\(^4\) Leclerc, G., W.D. Moynagh, J.P. Boisclair and H.R. Hanson (1996) "Accountability, Performance Reporting, Comprehensive Audit - An Integrated Perspective" Ottawa, CCAF. (Canadian Comprehensive Audit Foundation)
During the course of the Review, it has become evident that there are significant issues surrounding capabilities in a number of areas. As will be discussed further in this report, these issues mean that there are opportunities for improving upon the existing allocation and use of resources within the CAA. Currently, there is a significant misallocation of resources within the CAA. Accordingly, until the capability issues are addressed, and the use and allocation of resources improved, it is not possible to assess, or sensible to recommend, the level of additional operational resource, if any, required by the CAA.

Much of the report which follows focuses on the capability issues and the diagram below has been used as a guiding point of reference in this regard.

Several points should be noted regarding the capability framework illustrated above.

- Resources, in the sense of people, systems and technology, are only a part of the overall capability matrix.

- The diagram should be read from left to right. The CAA performs as required through deploying capability in response to the external environment. Capability has a number of dimensions and these can be categorised under the headings of directional/strategic capability and operational capability.

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5 PricewaterhouseCoopers led this review with assistance from independent aviation sector consultants.
• Directional capability encompasses strategy, planning, leadership culture and structure and these elements underpin all other aspects of capability and are key influencers of long term sustainability. Unless the elements of directional capability are in place and appropriate to the organisation, the organisation is unlikely to be sustainable in the longer term and resources are unlikely to be used to best effect.

• The operational elements of capability give effect to the directional elements. Resources (people, systems, physical assets) and the policies and processes governing their use lie at the heart of operational capability.

• Capability levels across all dimensions (directional and operational) have a direct bearing on the efficiency and effectiveness of resource allocation and management.

• By implication, an assessment of capability needs to be undertaken, and acted upon, before consideration is given to the need, if any, for additional resources. Approaching the resource question before the capability question risks concluding more resources are required when in fact strengthening capability would enhance the efficiency and effectiveness of resource use.

Report Structure

3.12 Consistent with the last of the bullet points above, and the capability framework illustrated on the previous page, this report is primarily structured around each of the elements of capability. Before discussing capability, this report begins with a brief overview of the aviation sector and the changes in the external environment that are impacting upon CAA. Following the analysis of capability, section 13 draws together the implications firstly in terms of aspects of capability that the CAA needs to strengthen and secondly in terms of resources.
4 External Environment

The Aviation Sector

4.1 Globally, the aviation sector accounts for 8% of global gross national product.\(^6\) Within New Zealand there are:

- approximately 4000 aircraft of which nearly half (45.8\%) are aeroplanes and 16\% are helicopters – the rest include microlights, gliders and various other, but much less common forms of flight such as balloons;

- over 18,000 pilot licences around half of which are private pilots licences, a quarter are commercial pilots licences and a further 15\% are airline transport pilot licences;

- four New Zealand-based international airlines (Air New Zealand, Freedom Air International, Jet Connect and Pacific Blue Airlines);

- 25 certificated aerodromes, seven of which operate as international airports;

- nearly 600 certificated organisations around 30\% of which are air operators (certificated under Part 119), 20\% are agricultural aircraft operators and the rest comprise a diverse mix of organisations including aviation security, training, maintenance, various supply organisations and others; and

- 145 maintenance providers and 52 approved maintenance organisations.

4.2 The diverse, dynamic and global nature of the industry means that the CAA faces an industry that is in constant change. Change brings with it demand for regulatory actions on the part of CAA.

Safety Performance

4.3 Traditionally, the safety performance of the industry has been measured in terms of number of accidents per 100,000 hours flown. On the basis of this type of measure the safety performance of the aviation sector has, in general, been improving in recent years. The graphs on the next page illustrate trends in accidents data broken down by various categories of aircraft and types of operation.

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\(^6\) CAA 2006/07 – 2008/09 Statement of Intent page19
External Environment
4.4 Several points are worth noting.

- The overall accident rate for public air transport\(^7\) is very low relative to the other categories of aviation and has been consistently low, and reducing, over recent years.

- In contrast, the accident rate for “other commercial” operators is significantly higher (several times higher). This includes, in particular, commercial helicopter operations (the incidence of accidents for this category is roughly ten times higher than it is for aeroplanes) and agricultural operations (both fixed and rotary winged). Moreover, the accident rate for other commercial operations (aeroplanes) has been highly variable over the last 10 years although since late 2002, there appears to have been a marked reduction in the accident rate for this group.

- The safety performance of non-commercial operations is inferior to that of the other categories albeit that there are some signs of reducing accident rates. Typically, however, the accident rate for this sector is at least twice the rate of the “other commercial” sector.

4.5 In 2000/01, PricewaterhouseCoopers undertook a triennial performance review of the CAA. At that time, we reported that safety levels across many categories [did] not compare favourably with those of other developed aviation states.\(^8\) We also reported that the general aviation sector of the industry seem[ed] to be in denial over accident rates.\(^9\) By way of general impression gained from discussions with industry representatives during the course of the Review, it would seem that the attitude of the aviation sector toward safety (especially general aviation) has improved. Data published by the CAA indicates that in many of the sub-sectors with relatively high accident rates, good progress has been made in reducing these rates over the last three or so years. In part at least, this trend is likely to be an outcome of concerted effort by the CAA to engage more effectively with industry as part of the discharging of its regulatory responsibilities.

\(^7\) CAA defines public transport operations as any passenger or freight operation where the public can purchase services “over the counter”. Commercial operations include non-public services provided on a hire or reward basis or as part of any commercial activity (an example is air training).

\(^8\) Civil Aviation Authority Performance Review May 2001 p. 28

\(^9\) Ibid; p 30
4.6 Comparisons of safety performance across jurisdictions are complicated because different jurisdictions categorise the types of aviation operation in different ways. Notwithstanding this, however, some interesting observations can be drawn from high-level comparisons with Australia and Canada. The safety performance in both countries is illustrated in the graphs below.

![Graph of Australia's safety performance across different types of aviation operation from 1996 to 2004.](image)

Source: Australian Transport Safety Bureau

![Graph of Canada's safety performance across different types of aviation operation from 1996 to 2004.](image)

Source: Transportation Safety Board of Canada

4.7 Several points can be made.

- The safety performance of the major airlines in Australia and Canada is significantly better than that of any of the other categories of aviation activity. Further, the safety performance for this group in New Zealand has been at least as good as that in Australia and Canada.

- At the other end of the spectrum, private operators in these overseas jurisdictions have a significantly inferior safety record. The rates of accidents for this group in New Zealand appear to be higher than those in Australia and Canada (although differing definitions of aircraft categories make direct comparisons difficult).
There is evidence across all three jurisdictions of declining accident rates in recent years. For some groups in New Zealand (e.g. other commercial helicopters and agriculture operations), the downward trend appears more marked than overall trends in Australia and Canada suggesting there has been an element of “catch-up” in the safety performance of these groups compared to rates elsewhere.

Safety Outcome Targets

4.8 In early 2005, 13 aviation safety outcome target groups were identified. For each of these groups safety targets have been established with reference to the social cost of accidents. These are shown on the next page.

4.9 The social cost of accidents is an economic measure of the cost of accidents to the nation. It includes an imputed value attached to avoiding a fatality as well as the costs associated with property damage and rehabilitation costs arising from injuries. The safety targets are expressed as an amount of social cost per unit of exposure (which is defined as seat hours or aircraft weight).

4.10 Because the social cost of accidents includes at least some of the economic impact of accidents, this statistic provides richer information than the more traditional measure of safety performance based on accidents/incidents/fatalities per 100,000 hours flown. In this regard, it presents a better indication of the benefits from enhancing safety performance through regulatory interventions. Subject to some important caveats, the social cost of accidents has the potential to be used to help guide the prioritisation of regulatory initiatives. The first of these caveats is that the data upon which the social cost information is based is backward looking. In particular, it uses historical (actual) accident rates. To guide the prioritisation of regulatory activity, forward looking estimates of potential risk of accidents occurring are required.

4.11 The second caveat is that the social cost data captures only part of the full economic cost associated with accidents. For example, a serious crash involving a major international aircraft could be expected to have major and long-term economic impacts over and above the value ascribed to the loss of a life.

4.12 Notwithstanding these caveats, the social cost measure should be preferred ahead of raw accident data. The new measure was developed to better inform the Government, public and other stakeholders while providing a dollar value on accidents from which the CAA can focus its activities and resources.10 In this regard, the Review encourages its continued use and refinement.

4.13 The table on the following page clearly highlights those parts of the aviation sector where current safety performance falls well short of the desired target and, by implication, where further regulatory focus is warranted. The economic and risk based framework which underpins the data in the table above has significant implications for the allocation of CAA’s resources and approach to resource management and is an issue that is discussed further in section 11 dealing with operational practices, policies and processes.

10 CAA Annual Report 2005-06 p.41
<table>
<thead>
<tr>
<th>Category</th>
<th>Aviation Safety Outcome Target Group</th>
<th>Social Cost of Accidents per Unit of Passenger Exposure (NZ$)</th>
<th>2010 Target</th>
<th>September 2006</th>
<th>Status against Target</th>
</tr>
</thead>
<tbody>
<tr>
<td>Public Air Transport</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1 Public Air Transport</td>
<td>1 Airline Operations - Large Aeroplanes</td>
<td></td>
<td>0.10</td>
<td>0.02</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>2 Airline Operations - Medium Aeroplanes</td>
<td></td>
<td>0.10</td>
<td>1.22</td>
<td>Not Achieved</td>
</tr>
<tr>
<td></td>
<td>3 Airline Operations - Small Aeroplanes</td>
<td></td>
<td>6.50</td>
<td>0.00</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>4 Airline Operations - Helicopters</td>
<td></td>
<td>6.50</td>
<td>0.00</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>5 Sport aviation transport operations</td>
<td></td>
<td>13.00</td>
<td>40.45</td>
<td></td>
</tr>
<tr>
<td>Other Commercial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Operations</td>
<td>6 Other commercial operations - Aero</td>
<td></td>
<td>6.50</td>
<td>36.88</td>
<td>Not Achieved</td>
</tr>
<tr>
<td></td>
<td>7 Other commercial operations - Helo</td>
<td></td>
<td>6.50</td>
<td>0.41</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>8 Agricultural operations - Aeroplane</td>
<td></td>
<td>14.00</td>
<td>209.11</td>
<td>Not Achieved</td>
</tr>
<tr>
<td></td>
<td>9 Agricultural operations - Helicopter</td>
<td></td>
<td>14.00</td>
<td>0.11</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>10 Agricultural operations - Sport aviation</td>
<td></td>
<td>28.00</td>
<td>No data</td>
<td>n/a</td>
</tr>
<tr>
<td>Non-commercial</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11 Non-commercial</td>
<td>11 Private operations - Aeroplane</td>
<td></td>
<td>10.00</td>
<td>0.00</td>
<td>Achieved</td>
</tr>
<tr>
<td></td>
<td>12 Private operations - Helicopter</td>
<td></td>
<td>10.00</td>
<td>31.28</td>
<td>Not Achieved</td>
</tr>
<tr>
<td></td>
<td>13 Private operations - Sport aviation</td>
<td></td>
<td>20.00</td>
<td>49.30</td>
<td>Not Achieved</td>
</tr>
</tbody>
</table>
Commercial Sector

4.14 Air New Zealand is part way through a major programme of investment in new aircraft and re-fitting of existing aircraft. This includes:

- retrofitting the existing 747 fleet;
- acquiring new Boeing 777, Airbus 320 and Bombardier Q300 aircraft;
- installing training simulators for B777 and Bombardier Q300 aircraft; and
- the intention to acquire new Boeing 787 aircraft.

4.15 CAA must provide regulatory approval for new aircraft.

4.16 In addition, Air New Zealand has been reviewing its maintenance operations and has announced changes to existing arrangements (including out-sourcing services from off-shore). Such changes have the potential to add temporary uncertainty to the assessment of safety risks and CAA must be responsive to this.

4.17 In addition to demand from the major carriers for regulatory approvals, the New Zealand aviation sector includes a growing aircraft manufacturing and aircraft components industry. Included among the manufactures is a maker of unmanned aerial vehicles which, by their very nature, pose new and different technology and other challenges from a regulatory perspective.

4.18 Technology changes relatively rapidly in the aviation sector. This carries several implications for the CAA:

- technological developments add to the demand for regulatory approvals;
- there is the potential for technology to move ahead of Rules. This is more of an issue in situations where Rules are prescriptive in nature; for example, where Rules prescribe the equipment needed for regulatory compliance. External stakeholders interviewed as part of the Review provided examples of situations where industry best practice was utilising equipment not recognised by existing Rules;
- new technology creates challenges for the CAA in terms of the need to keep abreast of new developments and in terms of determining the most cost effective way of maintaining technical knowledge; and
- the need to keep abreast of technology developments is one driver for ongoing training.

International Developments

4.19 The global nature of the aviation industry means that the CAA cannot operate independently of developments in the international arena. New Zealand is one of the 189 member states of ICAO. Global aviation changes (aircraft technology, travel behaviour, air services agreements, commercial agreements, terrorism/security, pandemics, environment) are reflected in ICAO standards and recommended practices. There is a never ending stream of new standards emanating from ICAO that CAA should consider and address. The Review notes that there is a significant number of ICAO standards
where New Zealand’s response has been to file a difference without there being a robust process to assess the standard and determine whether it should form a Rule. More generally, there are always opportunities for New Zealand to participate in ICAO committees and working groups but the scope of these will always exceed New Zealand’s available capacity. Priorities have to be established.

General Aviation

4.20 There is steady growth in the number of registered GA aircraft of around 5% per annum (slightly higher for the sport and adventure aviation sector and around 10% per annum for helicopters).11

4.21 There is the potential for significant increase in activity for the Sport and Recreation Unit arising from the introduction of Rule Part 115 which relates to regulation of the adventure aviation sector. Over the last two decades, several sport and recreation aviation activities have grown into significant commercial operations. However, the applicable rules were developed for amateur operations. There is a need for more effective entry control and to generally provide a more appropriate regulatory structure for the industry to operate within.

4.22 There is also the prospect of increased certification and audit activity stemming from the requirement for all flight training organisations to be certificated under Rule Part 141 from about mid-2007.

Maintaining and Developing Relations with Foreign Aviation Authorities

4.23 In addition to administering New Zealand’s obligations as an ICAO contracting state and involvement with ICAO standards and recommended practices, the CAA is also involved in a range of activities that support the maintenance and development of relations with foreign aviation authorities. In particular, this involves activity in relation to bilateral safety agreements and providing input to technical and co-operative agreements.

4.24 The Civil Aviation Legislation Amendment (Mutual Recognition with New Zealand) Bill 2005 was introduced to the Australian Senate in June 2005. The legislation provides for the mutual acceptance of air operator certificates issued by the CAA and its Australian counterpart – the Civil Aviation Safety Authority of Australia (CASA). The Bill has yet to be enacted. The CAA is also involved with mutual recognition agreements with:

- the United States (maintenance and airworthiness); and
- Transport Canada and the European Aviation Safety Agency (technical arrangements).

4.25 An area of activity that is placing increasing demand on CAA resources is support provided to Pacific Island states including work on a Pacific Security Strategy (currently under development). The CAA is working with the Ministry of Transport and Ministry of Foreign Affairs and Trade to develop a strategy for engagement with Pacific Island states.

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11 CAA Resource Review Workshop October 2006 – General Aviation – Appendix Two
Summary

4.26 The global nature of the aviation sector means that the CAA is exposed to a wide array of trends and developments and governmental and international obligations. Demands from these quarters will always have the potential to exceed the CAA’s capacity to respond. There is a need, therefore, for clear business strategy to guide the level and nature of interaction and response to changes in the external environment.
5 Alignment With Statutory Responsibilities

5.1 The terms of reference have required the Review to assess the extent to which the CAA is focussed on its statutory responsibilities. The functions of the CAA are set out principally in the CAA Act although other legislation also has implications for the nature and scope of the CAA’s responsibilities; the Health and Safety in Employment (HSE) Act 1992 and the Hazardous Substances and New Organisms (HASNO) Act 1996\(^\text{12}\). The functions conferred on the CAA by these Acts are not repeated in detail here, but can be summarised as:

- policy advice and rules development;
- certification and licensing of aviation participants;
- enforcement of the civil aviation regulatory system;
- surveillance and monitoring of compliance to aviation regulatory system rules;
- education and promotion of aviation rules, advisory circulars and other safety-related information;
- investigation and analysis of aviation accidents and incidents;
- publication of aeronautical information; and
- HSE and HASNO Acts administrator for the aviation sector.

5.2 The various functions undertaken by the CAA are grouped into four main outputs as follows:

<table>
<thead>
<tr>
<th>Policy Advice</th>
<th>Advice to Government</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Legislation development</td>
</tr>
<tr>
<td></td>
<td>Maintenance of international aviation safety related agreements</td>
</tr>
<tr>
<td>Safety assessment and certification</td>
<td>Airlines sector safety risk management</td>
</tr>
<tr>
<td></td>
<td>General aviation sector safety risk management</td>
</tr>
<tr>
<td></td>
<td>Personnel licensing and aviation sector safety risk management</td>
</tr>
<tr>
<td></td>
<td>Aviation community safety and health risk management</td>
</tr>
<tr>
<td>Safety analysis and education</td>
<td>Safety investigation</td>
</tr>
<tr>
<td></td>
<td>Safety analysis</td>
</tr>
<tr>
<td></td>
<td>Safety information and education</td>
</tr>
<tr>
<td>Enforcement</td>
<td>Responses to regulatory breaches</td>
</tr>
</tbody>
</table>

5.3 Total expenditure in 2005/06 across these outputs was approximately $27 million. The allocation across outputs is shown in the chart below.

\(^{12}\) Although it is noted that the HASNO responsibilities have been identified as an area for legislative change to remove CAA responsibilities.
5.4 The Review has considered whether the nature of activities undertaken by the CAA aligns with its statutory roles and responsibilities. In particular, the Review has considered whether there are any functions being undertaken by the CAA that fall outside of its remit and/or whether there are functions that should be, but are not being, undertaken.

5.5 In brief, the Review concludes that there is strong alignment between the nature of the CAA’s activities and its statutory responsibilities. In general, the Review has not identified any aspect of its statutory functions that are not included within the outputs described above. There are, however, several aspects of the CAA’s activities that warrant brief mention.

Statutory Objective

5.6 In December 2004, the CA Act was amended and as part of this the objective for the CAA was modified. Under the amended Act, the CAA is required to undertake its functions in a way that contributes to the aim of achieving an integrated, safe, responsive and sustainable transport system. This objective reflects the principles that underpin the New Zealand Transport Strategy (NZTS). As a result of the change, the objective for the CAA has broadened and, arguably, become more complex. In part, the added complexity stems from the multiplicity of definitions that can potentially be given to terms such as “sustainability” and “responsive”. For example, sustainability could be (mis)interpreted to mean an objective of assisting aviation operators to remain in business or it could be interpreted to mean that the way CAA approaches its regulatory responsibilities should have regard to the principles of sustainability. Further, it is not entirely clear what integration means in the aviation context.

5.7 This is not an issue that is unique to the CAA; it applies also to the other transport sector regulatory agencies. Recognising the cross-agency issues involved in giving effect to the principles that underpin the NZTS, there is a Transport Sector Strategic Directions (TSSD) project involving multiple government agencies including the CAA. Although CAA has indicated enthusiasm and support for the TSSD project, external stakeholders have questioned the level of resource commitment by the CAA. More generally, it is clear from
the CAA’s planning documents and comments made by a range of CAA personnel that there continues to be a very heavy emphasis on the safety element of the CAA’s objective. The change in objective requires the CAA to consider the implications in terms of what it does and, more particularly, the approach to its regulatory responsibilities. The broader objective means that the CAA has to consider the impacts of its regulatory initiatives and activities within a broader framework than arguably has existed in the past. The CAA needs to engage with the Ministry of Transport and other government agencies (including sister transport regulatory agencies) to assist in shaping and understanding the implications of the broader legislative mandate.

Security

5.8  The functions of CAA include the promotion of safety and security. While the CAA has a well-developed security function within the Personnel Licensing and Aviation Services Group, there is not a high visibility of security criteria in CAA strategic statements or in the CAA risk framework. Both of these areas could be strengthened to reflect this aspect of CAA endeavour.

5.9  The CAA is involved with various security related initiatives relating to the Pacific islands. The driver of these stems more from general Government commitments to assistance in the Pacific region. While aviation security (and safety) in the Pacific has implications for the credibility of New Zealand’s own aviation system, there is the potential for demands for CAA involvement to extend beyond that which is justified in risk terms. Accordingly, there is a need for clarity of Government’s expectations of the CAA as involvement in these initiatives is placing increasing demands on scarce CAA resource. There is also a need for the CAA to ensure that the costs it incurs in relation to these activities are fully cost recovered. The Review understands that current fees charged do not recover full costs.

Health and Safety in Employment

5.10 The Health and Safety in Employment Act 1992 was amended in 2002 to extend coverage to include the crew of operating aircraft. Because of the specialist knowledge of the aviation sector held by the CAA, the CAA has been designated to administer the relevant provisions of the Act. Three issues need to be noted in relation to the added responsibilities that this has conferred on the CAA.

- Staff resignations have impacted on the HSE unit’s ability to meet its output/performance targets. There is a need to fill the vacancies that exist.

- An appropriate balance needs to be maintained between the education role of the HSE unit and its regulatory role. The operational policies that guide the work of the HSE unit place considerable emphasis on educating and training the sector. This must be managed in a way that does not compromise the independent regulatory role of the CAA.

- The location of the HSE unit needs to be considered. Currently, it is part of the Professional Standards Group. The inspection role of the unit is a front line role analogous to that undertaken by members of the airlines and GA groups albeit with the need for specialist expertise/competencies/familiarity with HSE legislation. As such, a case can be made for locating the unit separate from the development of professional standards.
Safety Investigation

5.11 One of the CAA’s statutory functions is to investigate and review civil aviation accidents and incidents. Safety investigation, particularly in relation to fatal accidents, is resource intensive. The findings from some coronial inquiries are increasing the level of pressure and expectation on the CAA to intensively investigate all accidents involving fatalities. Given the level of available resource, this is limiting the ability of the CAA to investigate other accidents and incidents where there is either need for enforcement action or benefits from understanding the reasons behind the accident (or incident).

5.12 There is no statutory requirement for CAA to investigate all accidents or incidents. Like other areas of regulatory activity, priorities need to be established taking into account the safety and security risks involved. In addition, the expectations of third parties need to be managed.

Rules

5.13 The external drivers for rules development are considerable. There is a never ending stream of ICAO standards and policies which CAA must consider and decide whether to adopt as a Rule within New Zealand. Equally, as noted in the previous section of this report, technology in the sector changes apace and this can give rise to the need for new rules or amendments to existing rules. There are strong indications that the scope of Rules work is exceeding the capacity of resource within CAA. More generally, the Review has heard from a number of external stakeholders that the rule development process, of which the CAA is only a part, is too slow. The area of Rules development is a pressure point within the CAA, but the resource issue may be wider than just the CAA.

Summary and Recommendations

5.14 The Review concludes that the CAA’s activities generally align well with its statutory responsibilities. There is a need to consider whether security receives sufficient prominence relative to the safety regulatory role of the CAA. Furthermore, the Review recommends that the CAA and Ministry of Transport should engage further to assess the implications of the broader statutory objective, introduced in late 2004, in terms of the nature and scope of CAA’s activities and, more particularly, in terms of the range of matters that the CAA should give consideration to in discharging its statutory responsibilities.

5.15 The Review notes that there are increasing demands on the CAA to assist with various initiatives relating to the Pacific Islands. The Review recommends that Government provide clear expectations of the CAA in this regard and ensure that funding is provided to match those expectations.
6 Strategic Direction

Introduction

6.1 The objective and functions of the Civil Aviation Authority are defined in the Civil Aviation Act 1990. Under the Act, the objective of the Authority is to undertake its safety, security, and other functions in a way that contributes to the aim of achieving an integrated, safe, responsive, and sustainable transport system.\textsuperscript{13}

6.2 Strategic leadership to the transport sector is provided through the Ministry of Transport, including through the New Zealand Transport Strategy (2002) and Transport Strategic Directions Document (December 2005). Reference groups have been established at board and agency levels to facilitate a collaborative approach to transport sector strategy. The CAA contributes to this process.

CAA Strategic Statements

6.3 CAA strategy is expressed in two main documents: the \textit{Statement of Intent} 2006/07 – 2008/09, and the \textit{CAA Business Plan} 2006/2007 to 2008/2009. The Review notes that these documents make reference to transport and regulatory objectives, and present very high level objectives statements. There is no evidence in these documents of a cohesive, more detailed statement of strategy, with supporting analysis, or of the expected intervention logic required to link CAA outputs with required outcomes of integration, safety, responsiveness and sustainability.

6.4 At the operational work programme level, the CAA function groups produce Group Operating Plans (GOPS).

6.5 Beyond these documents the Review notes that there is little else in the way of strategic planning documentation in the CAA. In the area of Information Management there are some emerging strategic statements for information management through the recently developed Knowledge Management Plan and a series of papers supporting required changes for IT infrastructure. There is an Information Systems Strategic Plan (ISSP), which is now in need of update (the most recent version is 2003).

CAA Planning Process

6.6 Business planning is facilitated by and large by the Head of Business Planning and Reporting, supported by two analysts. This small group produces the CAA Statement of Intent, the CAA Business Plan, the CAA Annual Plans. In addition, the group co-ordinates the compilation of the Group Operating Plans.

6.7 The Authority members and the Executive management engage in an annual planning session to support the planning process.

\textsuperscript{13} Civil Aviation Act 1990
6.8 The Review notes, however, the lack of in-depth environmental scanning and analysis to support Authority and Executive planning activity, which has the effect of diluting the strategic perspective of this planning. Planning activity as a result has a highly operational focus, with the Head of Business Planning and Reporting left to ‘fill in the gaps’ for published documentation (e.g. Statement of Intent, Business Plan). The CAA has not articulated the links between daily activity and the outcomes it aims to achieve through a statement of the intervention logic linking inputs, outputs and outcomes.

6.9 The Business Planning Group is also responsible for producing quarterly reports against the business plan, and the CAA Annual Report. Until recently, reporting has had a strong operational focus. However, the CAA has been working to refresh its quarterly reporting and this now includes reporting against strategic initiatives. The Review considers there is scope to further strengthen this aspect of reporting.

6.10 The Review notes that the orientation towards the planning process within CAA tends towards a compliance orientation for public sector requirements. The lack of depth of strategic statements testifies to this. The Review observed a variety of understandings among managers and staff interviewed as to the strategic intent and purpose of the CAA. External stakeholders reinforced this with comments about the lack of consistency of view on occasion within the CAA. Strategy is under-developed and not effectively communicated within the organisation. This results in a lack of strong alignment of objectives and behaviours with CAA strategy through the various levels of the CAA.

CAA Planning Orientation

6.11 Overall CAA management has a very ‘hands on’ orientation to work. Managers frequently become engaged in performing day-to-day tasks to support the operational activity of their groups. Little time is given to planning activity either individually or collectively by the management team.

6.12 This dynamic means that it is challenge to get managers to engage with initiatives such as financial management, performance management, information management and at times training and development. Equally, this situation does not foster the development of a strategic orientation to such things as human resource management, and information management. There are strategic initiatives in these areas (see sections below), but they tend to be developed in some isolation, lacking in strong senior management engagement. This results in some frustrations for some staff, and reinforces the short-term reactive culture that is prevalent in the CAA (see section on culture below).

Summary and Recommendations

6.13 The Review recommends that the CAA:

- strengthen its strategic management process through:
  - more active participation from the Authority and Executive Group in a regular cycle of strategic and business planning;
  - further development of strategic plans based on environmental scanning, risk assessment, robust outcome statements and sound intervention logic that provides the link between CAA outputs and outcomes;
  - more extensive use of robust analysis from within and without CAA;
• review future SOIs and Business Plans to ensure that they are informed by the strategic management process;

• enhance ownership of the strategic planning process in CAA management through regular reporting on strategic plans and objectives;

• develop a short (1 or 2 page) summary statement of strategic direction and goals and communicate these to all CAA personnel so as to foster common understandings across the organisation; and

• achieve alignment of individual activity with the CAA intent through ensuring CAA goals and expected behaviours are reflected in the staff Performance and Development System and job descriptions.
7 Leadership

Introduction

7.1 The effective management of people and resources requires both management and leadership capability. Management is the exercise of ‘reasoned’ disciplines of planning, organising, monitoring and controlling. These are discussed in more detail in the section on CAA management practices. Leadership, on the other hand, is fundamentally about personal behaviours and styles. Leadership appeals to the emotions, seeking to align people behind a vision, and inspire them to make that vision a reality. Leadership is also a capability which can be exercised by a group within the organisation, with a key function of developing a team approach and co-ordinated effort.

7.2 Key competencies for leadership include communication skills, commitment, vision, inspiration, team orientation, and the empowering of others to achieve. Leadership is a competency which can, and should, be demonstrated by people in positions of responsibility at all levels of the organisation, from senior managers to team leaders and supervisors.

CAA as Leader

7.3 The role of a regulator is that of providing leadership to the sector for which it has regulatory responsibility. The CAA must demonstrate leadership if it is to encourage the development and maintenance of a consistently applied culture, focused on safety and security, within the aviation sector. In fact, industry stakeholders from various parts of the sector commented in interviews for the Review that their expectation was for a strong, fair and robust regulator. Clearly there is an expectation for leadership to be demonstrated.

7.4 The role of the Director of Civil Aviation is one which has two dimensions: that of Director of Civil Aviation, with the legislative responsibilities of this role, and that of the Chief Executive of the CAA. This is a large suite of accountabilities for any one individual. The effective exercise of leadership on both counts is achieved through the delegation of decision-making and leadership to others where appropriate. This means ensuring that the delegations available through legislation are exercised as appropriate and that the Authority, Executive and Management team work in alignment for effective leadership of aviation safety and security and the organisation.

Leadership within the CAA

7.5 The Review notes that there are some issues with leadership within the CAA, which appear to have affected the perceptions of external stakeholders and also those of CAA staff. The recent public disagreements between the Authority and the Director of Civil Aviation have served to weaken leadership within the organisation, as a single united view of the CAA has not been in evidence.

7.6 The absence of a strategic management framework, with clear accountabilities for the respective roles of governance and management has not assisted with the
development of a common vision for the CAA, resulting in the absence of a rallying point for leadership.

7.7 Comments to the Review in interviews indicate little unity of purpose across the different functional groupings in the CAA. The CAA appears to operate as a number of somewhat disconnected silos (several ‘mini CAAs’). These are symptoms of an organisation without effective cohesive leadership at executive and operational executive levels.

7.8 The structure and functioning of the Executive Group and the Operations Executive Group do not provide the leadership direction that these groups could be expected to deliver. Meeting agendas indicate a heavy emphasis on operational activity and the issues specific to each functional group.

7.9 Discussions with support staff indicate the frustrations and challenges that they feel they have to get senior leadership to engage with their initiatives and proposals for organisational change or improvement.

Leadership Improvements

7.10 The CAA recognises that it needs to improve its leadership capability within the organisation. The ‘CAA Way’ management and leadership development programme has been developed to assist with growing the management and leadership requirements of the CAA.

7.11 The CAA has commissioned a number of reviews over the past years, and these have identified the issues associated with management and leadership. The Review concludes that CAA management understands the notions of leadership, but has real difficulty in formulating solutions and implementing them.

Leadership and Change Management

7.12 Effective leadership is particularly important in times of significant change. Staff need to be brought to understand changes, accept them and indeed adapt to them enthusiastically. This is particularly relevant for the case of the adoption of CAA of its risk-based approach to inspections and audits. This approach has a major role to play in assisting CAA to encourage safer aviation behaviours, but also in enabling CAA to prioritise its use of resources.

7.13 However, the Review notes that the rationale for this new approach does not appear to be universally understood or accepted in some parts of CAA. United and effective leadership on this change is very important for the organisation.

7.14 There are a number of other changes that will also require effective leadership such as the new surveillance system implementation, information technology developments, training and development initiatives and so on.

Summary and Recommendations

7.15 Leadership and effective strategic management are related. The development of a properly functioning strategic management process in CAA will assist with the ‘on the job’ development of leadership competencies in senior and middle management.
7.16 The Review recommends that the CAA:

- clarify for all managers the expected leadership (and management) competencies and accountabilities from their roles;
- ensure that senior managers participate in the ‘CAA Way’ for management and leadership development;
- achieve accountability for leadership and management by ensuring that the Performance and Development Plans of CAA managers reflect the key competencies and accountabilities of effective leadership and management (including change management); and
- specify change and programme management roles and appoint fixed (and short) term resource(s) to undertake these roles and to provide leadership across major projects and initiatives.
8 Culture

Introduction

8.1 The culture of an organisation is the set of values, beliefs, and attitudes which defines the ‘way that things are done around here’. Organisation culture determines management and staff behaviours, influences decision-making and affects the quality and type of service delivered. Culture, therefore, has relevance for decisions regarding resource allocation and management, and for determining management practices and organisational responses.

8.2 It is beyond the scope of the current review to provide a detailed assessment of CAA culture. However, insofar as culture is one of the important determinants of the type and effectiveness of operational responsiveness, some observations on culture are relevant.

CAA Culture (as it is)

8.3 Our assessment of CAA culture is based on observation, discussions with CAA senior and middle management, and with external stakeholders in the aviation industry. A summary characterisation of the existing CAA culture is summarised in the table below.

<table>
<thead>
<tr>
<th>Reactive</th>
<th>CAA is well known for its accommodating orientation to industry, responding to urgent requests, providing ready assistance. People are driven by demands that arise, rather than setting the agenda. In some cases CAA is available 24/7.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Highly industry focused.</td>
<td>CAA has built strong relationships with industry, and is very responsive to its service requirements.</td>
</tr>
<tr>
<td>Technically oriented, operational</td>
<td>CAA is well known for its technical capability, which is important for the job. Staff can be technically oriented to the exclusion of other considerations (e.g. management).</td>
</tr>
<tr>
<td>Siloed</td>
<td>CAA sector based structure has enabled a focus on repairing relationships with industry. However, this has encouraged some fragmentation of effort, and loss of integration across CAA.</td>
</tr>
<tr>
<td>Cautious (decisions pushed up the line)</td>
<td>CAA staff are not consistently exercising decision-making at the lowest appropriate level. Decisions tend to be referred to the next level up. This is one effect of the lack of a clear sense of direction and therefore guiding mandate for decisions.</td>
</tr>
</tbody>
</table>
### Table of Characteristics

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Individualistic</td>
<td>CAA staff bring their own attitudes and experience to their roles, rather than embrace a 'CAA Way'. This leads to a loss of consistency of approach. New systems such as the Surveillance system will assist in achieving greater consistency.</td>
</tr>
<tr>
<td>Change resistant</td>
<td>Some CAA staff appear resistant to change. Evidence of this in the attitudes towards the adoption of a risk-based approach to inspection and audit.</td>
</tr>
<tr>
<td>Committed, dedicated to safety</td>
<td>CAA staff are strongly committed to and passionate about aviation safety, and the ongoing health of the sector.</td>
</tr>
<tr>
<td>Advisor vs. regulator</td>
<td>There are times when the CAA leans heavily towards advising operators on how to comply, in ways that might potentially compromise independence and integrity.</td>
</tr>
</tbody>
</table>

8.4 Feedback to the Review from external (and internal) stakeholders supports the culture characterised above. In particular CAA is regarded as being highly responsive and accommodating. This extends to 24/7 availability. At times there are distinct advantages in being involved with the industry (as client), as this provides a skills development opportunity when CAA is exposed to new technology developments. At other times there is always the risk that too close a relationship might potentially compromise independence and integrity.

8.5 The CAA culture has developed in response to the requirement to address issues of lack of responsiveness and less than satisfactory relationships with industry over the years. In 2000 (when the Ministry’s triennial review of CAA was undertaken) relationships between CAA and industry were at a low ebb. In 2000 the CAA had a better reputation among internal staff and government circles than it had with industry. There were issues of accessibility of staff for industry and a strong sense of a bureaucratic organisation and ‘out-of-touch’ management and staff. CAA has appointed staff with strong industry backgrounds to manage this dynamic. The Review notes that there is a strong commitment to providing quality client and customer service to industry in some group policy and procedures manuals. And it has worked. Relations with industry are significantly better than they were at the time of the 2000 review.

8.6 However, feedback to this Review from internal and external stakeholders is beginning to show that the pendulum has swung too far. There is a sense that while relations are good, the management of the CAA is lacking some key respects for leadership, co-ordination, deployment of resources and ensuring consistency of regulatory performance.

8.7 In addition, we conclude that there are some changes required if the CAA is to successfully implement recent major initiatives and meet the objectives in legislation for an ‘integrated, safe, responsive, and sustainable transport system’.

8.8 Industry stakeholders have indicated to the Review a unanimous expectation for a fair, robust and credible regulator. The current CAA culture does not (and is not perceived to) support such a regulator role.
CAA Culture (as it might be)

8.9 To be an effective regulator, CAA needs to demonstrate energetic characteristics such as being proactive, a more strategic and management orientation, a focus on the New Zealand public as main client, and to be adopting the position of a regulator over that of an industry advisor (although not without some advisory role – e.g. safety communication).

8.10 The following diagram summarises the different cultures in 2000 and 2006, and suggests where the pendulum needs to strike a balance for the future. In brief, the pendulum has swung too far to the right. A concerted effort is required to swing back to the left (which is why the pendulum is drawn slightly left of centre) so that there is more focus on the public, greater emphasis given to managing CAA in ways consistent with an overarching statement of strategic direction and no risk of crossing over from being a regulator into the role of adviser. The culture of the organisation should oscillate in a narrow band in between the two extremes shown in the diagram.

8.11 There is an important role for the Authority in terms of providing the leadership and setting the tone for the change in culture that is required. This includes ensuring that an appropriate balance is maintained between promoting the interests of the public (and New Zealand generally) in having a safe and secure aviation system and ensuring appropriate focus on the aviation industry.

Summary and Recommendations

8.12 CAA culture needs to adjust to reflect attitudes and behaviours that maintain focus on being a regulator and do not stray into being an adviser (other than in the sense of promoting awareness of Rules, safety education etc), and support a proactive, more managed, approach to business (including prioritisation of resources and a risk-based approach). To achieve these adjustments CAA needs to ensure that required attitudes and behaviours are clearly articulated and reflected in CAA strategic statements, in internal communications, in key policy documentation, in job descriptions, in the staff performance development system and in training material – in fact in all opportunities for staff communication. CAA needs to ensure that appropriate management practices are in place and that people in management roles display the required management competencies.
8.13 Not achieving the required proactive management culture within CAA will have a drag effect on other initiatives. For example, the Performance and Development System implementation will falter if managers are not fully committed to engaging with the process and making it happen. The risk-based approach to surveillance activities will similarly falter unless management at all levels understand it, sponsor and require full commitment from their staff.

8.14 Similarly, there is a need to ensure that industry stakeholders understand the cultural orientation of the CAA as the robust, but fair regulator.

8.15 To achieve this the Review recommends that the CAA:

- develop a statement of strategic intent which reflects elements of the required cultural orientation;

- task senior managers with ensuring that the risk-based framework and culture, necessary to guide regulatory interventions, is embraced by all operational groups at all levels;

- review the staff performance and development system to ensure that it incorporates all the required attitudes, values and behaviours consistent with the required cultural orientation;

- review all relevant documentation (e.g. job descriptions, policy and procedures) which states roles and responsibilities to ensure that these reflect the required cultural orientation;

- ensure that staff recruited to key positions display the required competencies to support the required culture; and

- review training materials and courses with a view to refreshing these to align with changes in cultural orientation.
9 Structure

Background

9.1 At the time of the PricewaterhouseCoopers Review in 2000/01, the CAA had recently changed its organisational structure. Previously, the organisation had been structured along functional lines; that is, safety assessment and certification, enforcement, auditing, safety education and so on. The functionally based structure was considered to have a number of shortcomings and the decision was taken to restructure with effect from mid-2001. In brief, some of the concerns at that time were that the functional structure:

- did not assist with a unified view of the safety performance and compliance of operators in each sub-sector within aviation;
- did not lend itself to effective working relationships with industry (operators had to deal with multiple divisions of CAA); and
- led to perceptions of inconsistency of approach across different functions within the same industry structure.

9.2 The functionally-based structure also did not find favour with independent advice. The Swedavia-McGregor recommendations for a civil aviation regulatory authority (which was a key part of establishing the CAA) noted that aviation is separated as an industry into discreet communities each with their distinctive knowledge base, expertise and professional associations with some, but limited, cross-over between each. Swedavia-McGregor favoured an industry-based structure with each organisational element responsible for the lifecycle monitoring of its respective part of the system.

Current Structure

9.3 The restructuring put in place in mid-2001 removed the functional design and replaced it with an organisational design based around sectors; that is, airlines, general aviation, personnel licensing and aviation services and Government relations. In turn the industry-based groupings were supported by cross-organisational groups focused on safety research, education and publishing, strategic support, professional standards and legal counsel. The principal driver for the supporting groups was to ensure consistency of regulatory framework, approach and practice across the organisation.

9.4 The expectation was that the industry-based structure, coupled with cross-organisation support functions would:

- encourage greater concentration of focus on each industry sector; and
- enable a “one-stop-shop” approach for each industry sector.

9.5 Comments made to the Review by a wide cross section of industry representatives clearly indicates that the restructuring that took place was a major contributor to strengthening focus on industry and building more effective working relationships with industry. Without the organisational design change, it seems likely that the fractious
9.6 The current structure is shown below.

9.7 Notwithstanding the advantages in having an industry-based structure, the structure that has evolved over recent years has several shortcomings:

- overall, the structure has become unwieldy;
there is a large number (11) of direct reports to the Director. This is too many for effective accountability;

there are managers with few (one or two) or no staff although to an extent this reflects the large number of functional areas that the CAA needs to cover;

the ratio of managers (34) to total personnel (180) indicates a management-heavy structure that is unlikely to promote optimal organisational effectiveness;

there is a number of “temporary” manager positions within which there are a multiplicity of roles, responsibilities and reporting lines (and such positions appear to be taking on an air of permanency). This further complicates the management structure;

as the diagram above shows, there are multiple reporting lines which add complexity and diminish transparency and accountability;

the location of some functions appears to create unnecessary disconnections within the organisation (although disconnections can arise not just because of structural arrangements). For example, safety analysis is under a temporary manager who is also the head of business planning and reporting but is part of the Safety Research, Education and Publishing Group.

9.8 A recent internal review has also considered the CAA’s structure and identified weaknesses with it. The Review concurs with the following findings of the internal review.

- The multiplicity of groups under General Managers and Managers invites breakdowns in communication, complexity in decision making and planning, and multi-directional assessment and prioritising.

- The additional tiers of management that the structure gives rise to hinders cohesive management.

- The multiplicity of units under so many managers with so many responsibilities reporting in so many directions makes it difficult to determine who, exactly, is accountable for manipulating the regulatory levers with which the CAA provides the incentives for movement towards the safety targets and other requirements of the Statement of Intent.  

9.9 In light of these findings, and those of this Review, the Review considers that there is scope for streamlining the current structure without losing the advantages of the industry-based structure.

Organisation Design Principles

9.10 There are several principles that should guide organisational design:

- ensuring that structure supports strategy;

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ensuring that structure facilitates the clear allocation of accountabilities to specific roles within the organisation;

• ensuring structure facilitates appropriate specialisation, co-ordination and co-operation to meet objectives; and

• providing for arrangements to support cross organisational activity.

9.11 This last point is of particular relevance for CAA. An industry-based structure runs the risk that regulatory frameworks, approaches and practices will not be consistently applied across the aviation sectors. There is a need, therefore, for a central grouping of roles and functions that provide the framework that achieves consistency and effectively knits the organisation together into a coherent whole operating with shared strategic goals and direction. Moreover, the structure and how it is managed must recognise the inter-dependencies that exist between the industry-facing business units (i.e. airlines, GA and PLAS) and some of the business development and support functions. For example, there are obvious inter-dependencies between those responsible for data analysis and those with responsibilities for the aviation sector safety targets. Each informs the other and the structure must facilitate this. Parallels can be drawn in other areas such as Rules development.

9.12 There has been a process underway within CAA immediately prior to this Review that has been examining organisational structure. The Review has been provided with a draft consultation document within which a revised organisational structure is proposed. The Review understands that staff have yet to be consulted fully on possible changes and, accordingly, the structure described in the draft consultation document is not repeated here. However, the Review supports the broad thrust of the proposed structure.

Streamlining the Structure

9.13 Taking into account the principles that should guide organisation design and recognising the benefits attaching to an industry-based structure for the CAA, we consider that there is scope for streamlining the existing structure to create an organisational design that is based around six core groupings. One possible example of the type of structure envisaged, in terms of the main organisational groups and the functions that would rest under each, is shown on the next page.

9.14 The following points should be noted regarding the example.

• Within the time frame available for this Review, it has not been possible to undertake a comprehensive analysis of possible structural options. The structure illustrated is, therefore, intended to prompt further analysis and discussion within CAA.

• The structure illustrated retains the industry sector alignment of groups concerned with safety regulatory services. The Review considers that this is a desirable feature and should be retained in whatever structure the CAA decides upon. The functions would essentially remain the same as currently although there are grounds for considering the transfer of the Field Safety Advisers to Business Development and Support to form part of the safety education and advice group. In general, it is desirable to draw a clear distinction between advisory-type roles such as safety education and awareness and regulatory roles so as to avoid the perception, or reality, of any conflict of interest. More generally, there is a need to
avoid creating a situation where industry looks to CAA for advice which industry can otherwise obtain commercially from service providers.

- The Business Development and Support Group is critical to the achievement of cross-organisation consistency and cohesion and is a further feature of the organisational design that should be incorporated into whatever structure is adopted by the CAA. This starts with having a strong focus on strategic and business planning and ensuring that the right mix of top-down and bottom-up contribution to planning achieves organisational ownership of agreed plans. This group would have responsibility for policy (in an operational sense so as to distinguish this role from the policy role of the Ministry of Transport) and Rules development (again recognising that work on Rules is undertaken pursuant to a service agreement with the Ministry) and ensuring that policy/Rules development is informed by the work of the industry groups and that the industry groups operate in ways consistent with the regulatory framework shaped by policy and Rules.

- The audit and investigation group is separated from the industry-based groups recognising that safety investigation and enforcement has the potential to question the practices of the regulator (and, hence, there is a need for a degree of independence). Similarly there needs to be a degree of separation between responsibilities for the development of quality standards and those with responsibilities for their application. Like any organisation, good governance requires that there be a direct reporting line from the internal risk and assurance team to the governing Board.
• The Corporate Support Group comprises the range of corporate services normally found in most organisations with the exception that legal services are included under Business Development and Support. Moreover, the Chief Legal Counsel should have a direct reporting line to the Director. The reason for this arrangement reflects the importance of legal services to a regulatory body. In the context of the CAA, legal services goes well beyond the normal corporate requirements for legal advice (e.g. legal compliance) because legal input is a key part of many of the CAA’s functions including Rules development, enforcement (in the sense of ensuring the consistent and fair application of regulatory tools), investigations and prosecutions. In this regard, The Review notes that the Commerce Commission goes one step further to have a separate Legal Services Branch that reports directly to the Commerce Commission’s General Manager and is part of the senior management team. The Review considers that having Legal Services at the senior management table is desirable for regulatory bodies.

9.15 The General Managers within CAA heading each of the groups would be members of the senior management executive. As such, the core competencies that are required for these positions are management, rather than technical, in orientation. Specifically, the personnel in these positions should have accountabilities for:

• leadership of their team, to achieve CAA goals and objectives;
• ensuring that the team contributes to the achievement of the CAA Statement of Intent and Business Plan;
• developing and maintaining strategies, plans and policies for the team / area contribution to overall CAA strategy;
• fostering a corporate culture that promotes ethical conduct;
• performance management of their team members;
• financial management and budgeting (to varying degrees);
• fostering innovation and continuous improvement;
• contributing to and supporting agreed change management and organisation development initiatives; and
• working collaboratively with CAA colleagues and managers.

Summary and Recommendations

9.16 The industry-based structure that is a key part of the CAA’s organisational design should be retained and is preferable to the arrangement several years ago that was functionally-based. The existing structure has, however, evolved to a point where it has significant shortcomings that are impeding overall organisational effectiveness. There is a strong need for a business development and support grouping that seeks to knit the organisation into a coherent whole that is operating from a common regulatory framework that is consistently applied. The Review has scoped an indicative structure in this regard (as illustrated above) which is intended as an option for further consideration and analysis by the CAA. The senior positions within the organisational structure need to have competencies that are management, rather than technical, in orientation.
10 Management Practices

Introduction

10.1 Management practices support the achievement of organisational objectives and expected performance, particularly through the allocation and management of organisational resources. Good management practice is evidenced through the existence of effective policies and procedures for such processes as business planning and reporting, performance management, human resource management, financial management among other things.

10.2 Good management practices should also be supported by the attitudes and behaviours of management personnel, particularly with regard to the management competencies of planning, organising, developing, monitoring, reviewing and responding, and their role in supporting management decision making. These disciplines are essential for ensuring effective resource allocation and management.

10.3 The Review has assessed CAA management competency and capability, and makes recommendations for strengthening current capability and practice.

Delegations and Decision-Making

10.4 Aviation inspectors are the front line who observe industry operations. Decisions to act on safety concerns need to be taken promptly commensurate with the level and nature of risks involved. Accordingly, as far as possible, regulatory decision making should be delegated to the inspectors subject to not going beyond the boundaries of their role and competencies.

10.5 In general, the formal delegations approved by the Authority reflect this point. In practice, however, comments suggest that decisions are being taken higher up the hierarchy.

10.6 The Review observes the following.

- Senior managers have strong technical and operational backgrounds that naturally incline them to operational matters. They are heavily involved in day-to-day operations (both technical and administrative) and regulatory decision making that can, and should, be shifted further down the decision-making tree. As a consequence, these managers are not giving enough of their time to the discipline of managing.

- Agendas and minutes of Executive Management meetings reflect decisions that are being taken in relation to detailed operational matters that could be dealt with below senior management level.

- There has been a series of reviews of the CAA over several years which made recommendations for management and organisational change. However, there has not been sufficient action on recommendations suggesting either a lack of
commitment to, or of focus on, management (as opposed to operational) decision making.

- There is frustration expressed by staff and external stakeholders regarding delays in decision-making, inconsistencies in decision-making, and poor (or lack of) prioritisation of programmes and resources.
- Managers do not seem to have adequate administrative support and this is slowing decision making because managers are having to focus on administrative duties.
- There are instances where front-line staff do not take decisions (e.g. regarding day-to-day work matters), but leave these to their immediate manager.

10.7 As a consequence of decision making being pushed back up the chain, middle and senior managers appear over-burdened. Managers should focus on management issues and technical inspection staff should be allowed to deal with operational issues instead of making recommendations for action by their managers.

Management Competencies

10.8 Core management competencies include those of planning, organising, developing, monitoring, reviewing and responding as shown below.

10.9 Among the senior and middle management team there is a high emphasis on technical and operational competencies, with little recognition of the exercise of management capability. Managers readily ‘roll up their sleeves’ and engage with the technical and operational aspects of daily business or a project, rather than step back and adopt the role of a manager of the activity of others (including planning for that activity).

10.10 This has been the result of a focus on recruitment of personnel with strong (and required) technical and industry backgrounds, and a lack of attention to management development requirements in the organisation. Paradoxically, insufficient management capability in CAA has had significant implications for operational and resource management.

10.11 As early as 2000 it was noted that there ’needs to be more universal focus and acceptance that management’s role does include responsibility for successfully managing the business and the key resources, as well as the key safety-focused operational
10.12 The CAA has recognised the need for management development in the organisation, and has initiated the programme ‘The CAA Way’ as a means to address this. ‘The CAA Way’ is a programme which introduces participants to the fundamentals of effective leadership and management. The Review understands that all CAA middle management have undertaken the first phase of this programme. Senior management personnel have yet to attend. It is important for all levels of management to receive management development training, as the need is universal. Training lower management levels without attention at upper levels will ultimately lead to frustration and cynicism.

10.13 It would assist to have the management accountabilities of each manager clarified, communicated and then reviewed as a regular part of the Performance and Development System (see below). A starting list of generic management accountabilities includes:

- leadership of their team to achieve CAA goals and objectives;
- developing and maintaining strategies, plans and policies for the team or group;
- contributing to the strategic management of CAA as a whole;
- fostering a CAA culture that promotes a proactive, risk-based approach to safety management;
- fostering innovation and continuous improvement;
- financial management and budgeting;
- contributing to and supporting agreed change management initiatives;
- workflow management and prioritisation of resource allocation;
- performance management of team members; and
- ensuring ongoing personal professional and self development.

Management Practices

10.14 The core competencies of management need to be supported by several fundamental management practices, including:

- business planning and reporting (including risk management);
- staff performance management;
- human resource management (including training and development, succession planning);

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15 Civil Aviation Authority Performance Review s. 2.1.4.3.

16 BVQI Draft Audit Reports
• financial management;
• knowledge and information management;
• programme and project management (including contract management); and
• change management (including communications management).

10.15 Strategic management is not included on this list as this has been addressed in the section on strategic direction.

10.16 The effective operation (or otherwise) of these practices within the organisation has a direct implication for capability and resource management in terms of attracting, deploying and retaining qualified staff. Poorly operating practices will create resource issues of turnover, poor motivation and productivity, insufficient training for work, and issues with career development and succession planning.

10.17 The CAA has in place policies and processes for a number of these management practices. However, not all of the tools are applied as effectively as they need to be and this is discussed further below.

Business planning and reporting

10.18 Business planning is carried out, by and large, by the Head of Business Planning and Reporting, supported by two analysts. This small group produces the CAA Statement of Intent, the CAA Business Plan, the CAA Annual Plans. In addition the group co-ordinates the compilation of the Group Operating Plans.

10.19 This Group also is responsible for producing quarterly reports against these plans, and the CAA Annual Report.

10.20 The Review notes that the orientation towards the planning process within CAA is largely one of compliance, i.e. to produce reports to satisfy public sector planning and reporting requirements.

10.21 A key issue with the planning process is the lack of engagement of the CAA management with the planning process and the monitoring of performance against plans. In this regard, there is little or no contribution to strategic or operational planning by the management team. This is supported by the topics on the agendas of Executive and Operational Executive meetings, which make no reference to monitoring progress against plans, but tend to address current issues or specific projects.

Staff performance management

10.22 The CAA has recently revised its staff performance management system and developed the Performance and Development System for all managers and staff. This system reflects good practice and is designed to accommodate the alignment of individual objectives and plans with those of the CAA as a whole. All managers and staff have been trained in this system, and the system was implemented in July 2006.

10.23 The Review notes that this system is an opportunity to engage managers and staff in planning and review discussions about day-to-day performance that is linked to CAA goals. In this regard the system should support the achievement of a common understanding of the purpose and goals of the CAA. There is opportunity to ensure that
desired attitudes, values and behaviours are reflected in the individual performance plans and reinforced in review discussions.

10.24 The supporting documentation for this system recognises the importance of management and staff engagement with this system for it to be effective. Given the comments above regarding the issues with management orientation within CAA, it is not surprising to hear that not all managers have engaged with, or accepted, the need for the new system.

**Human resource management**

10.25 The CAA is supported by a small human resource (HR) management team, with a relatively new, but experienced Human Resource Manager. The Review notes that over the past 18 months the HR team has commenced a number of initiatives, including:

- Performance and Development System
- Updating of HR policies
- Review of Human Resource Information System (CHRIS) and reporting
- Position Description Review
- Remuneration Structure Review
- Job Evaluation Review
- CAA Training Framework.

10.26 The training framework aims to address core training and development needs, from induction through technical training to management development training. The 'CAA Way' addresses management development for staff and is also aimed to ensure that key staff are developed in the first as a way of initially addressing CAA succession and career planning needs. These needs have not be formally addressed to date, and the intention is to develop a succession and career planning framework, utilising the CHRIS information database.

10.27 The Review notes that the HR team has identified some key initiatives. These need to be placed in a strategic context, i.e. as the components of a CAA Human Resource Strategy. Such an approach would also encourage the assessment of HR risk to the organisation, and assist with mitigation planning.

10.28 Operational managers report that training of staff is crowded out by day-to-day pressures. The Review notes that training budgets are under-spent. Technical staff come to the CAA with technical competencies but these are not being kept up to date. Maintaining currency of technical competency is critical for credibility as a regulator as well as the ability to effectively discharge regulatory responsibilities.

**Financial management**

10.29 The CAA has in place well developed systems for financial management information and reporting (FMIS). While the CAA’s systems are capable of producing reports for management in the degree of detail required, the Review notes comments by some CAA managers that improved corporate reporting tools are required. This issue goes beyond the systems themselves. There are issues with CAA financial planning,
budgeting and management which suggests lack of acceptance and use of the tools available.

10.30 The Review notes that managers generally do not seem to actively monitor or manage actual activity against budget. One factor suggested for this is that there is no immediate connection between CAA funding and activity. The levy delivers funding which is then parcelled up in an annual budget. The Review notes that Executive and Operational Executive meetings do not include opportunity for senior managers to report on the financial performance of their groups. This lack of engagement of managers with financial management has implications for the efficient and effective allocation of resource within CAA. The Review was advised that it is relatively common practice for managers to seek additional funding through direct approach to the Director rather than as part of a more formalised financial management and budgeting process.

10.31 It has been suggested that the adoption of a rolling forecast approach to budgeting and reporting would encourage more engagement of managers with allocation of resource and financial performance.

Knowledge and information management

10.32 The Review addresses Information systems and technology in a separate section, and CAA knowledge and information management is discussed there in some detail. At this point it is worth noting that the Review was told consistently of the problems of data integrity within the CAA, and issues with data management. There does seem to be an issue with staff and managers understanding the importance of data, as it fits into the entire business process. In other words, staff may not fully understand the implications of not entering information at their point in the chain.

10.33 There is a role for improved management practice here to develop staff understanding of the whole process and the impact of not entering data in a timely fashion. The adoption by CAA of a risk based approach to surveillance means a greater reliance on quality information in the system. Quality information and system integrity will be fundamental to assisting the effective prioritisation of work effort and therefore the allocation of resource.

Programme and project management

10.34 The CAA has a number of major projects underway or planned. These include the Surveillance, Risk and Intervention projects and the Certification project. The Review has discussed some significant human resource management projects. In addition there are significant information management projects planned such as the review of the Document Management System, the review of the Library System, enhancement of Communities of Practice, development of Service level Agreements between MIS and the business, and updating of the Information Systems Strategic Plan. The Airlines group has embarked on a major work process and resource allocation review.

10.35 In addition to these projects, the CAA engages a relatively large number of contractors to contribute to day-to-day operations.

10.36 The Review notes that there is not a consistent approach applied to the management of projects. For example there is not a consistent application of good practice project management discipline to projects (terms of reference, risk assessment, roles and responsibilities, milestone planning etc). In addition, there is no assurance of the alignment of projects at the planning stage. Some training is provided in project management, but this is oriented to the management of individual projects.
10.37 Project management could be strengthened through a systematic approach which includes formal steering committee oversight, formal project meetings, project risk assessment, and regular reporting and assessment of variations/departures from plans. There is a case for adopting a Programme Management approach and assigning responsibilities for programme management. One solution would be to engage a short term programme manager to define the standard project management approach for all projects, and to co-ordinate the management and monitoring of project progress.

10.38 There also does not seem to be a consistently applied approach to the engagement of contractors and the management of contracts within CAA. This can result in inefficiencies of contracting resource utilisation and pose potential risks for the organisation.

Change management

10.39 The roll out of major projects for operational practices (surveillance, risk and intervention), with associated changes to work practices (especially regarding the use of risk-based approaches), means significant change for many staff in the CAA. The move to new technology platforms also means the need to acquire new skills by CAA staff. It will be imperative to ensure that change is managed well within the CAA, so as to ensure optimum take-up of new approaches to work, and minimise any potential impacts on work standards and regulatory activity.

Summary and Recommendations

10.40 In summary, there is a need for CAA to address management practices from two perspectives:

- the definition and development of required management competencies and accountabilities from all staff in management positions; and
- the development and implementation of good practice in key areas of planning, human resource management, performance management, knowledge and information management, programme and project management and change management.

10.41 The Review recommends that the CAA focus management on managing through the following initiatives:

- provide managers with administrative support;
- shift decision making to the lowest level in accordance with approved delegations;
- assess training needs to ensure that managers have core management competencies around planning, organising, motivating and developing, monitoring, reporting and reviewing;
- extend the “CAA Way” programme to include senior managers;
- review management accountabilities with a view to clarifying and communicating these as part of the performance and development system;
- engage CAA managers in planning and reorient away from compliance toward contribution to strategic objectives and goals;
• review individual performance plans and appraisals to ensure that desired attitudes, values and behaviours are included;

• develop a HR strategy to ensure that various HR initiatives planned and underway are placed in a strategic context;

• promote (and expect) greater engagement of managers in financial management (e.g. through accountability for rolling forecast approach to budgeting); and

• adopt a programme management approach and appoint a short term programme manager to strengthen management of major initiatives and change management.
11 Operational Practices: Policies and Processes

Lifecycle Approach to Regulation

11.1 The CAA has adopted a “life-cycle approach to regulating civil aviation” that has three stages: entry, operation or participation, and exit. These elements are described as follows.

ENTRY: Aviation participants enter the civil aviation system when they have met the minimum regulatory standards and are issued the relevant aviation document(s) (i.e. a certificate or licence).

OPERATION OR PARTICIPATION: While they are in the system, aviation participants must continue to operate in compliance with civil aviation rules, standards and conditions of their documents. CAA inspectors check certificate and license holder’s adherence to those regulatory instruments regularly under its surveillance program. This program has several elements.

- Routine audits: System based audits conducted annually to check a certificate holder’s adherence to its “exposition” (conformance) and compliance with aviation rules (compliance).
- Inspections: Checks of aviation participants that do not require an exposition, or that do not require an operating certificate.
- Spot checks: These are usually “no notice” checks that may be done randomly, on an opportunity basis, as part of the certification process, or in response to other surveillance outcomes. These may be done on either a class of operation (e.g. tourist or ski plane operators), or an activity basis (e.g. air operator training).
- Special purpose audits: Are used to establish the cause of poor safety performance, or to identify a particular problem within an organisation. They may be initiated as a follow-up to occurrences identified during routine audits or inspections, as a result of information received, or a safety concern that warrants attention before the next scheduled routine audit or inspection.

EXIT: Aviation participants exit the civil aviation system, either voluntarily by surrendering their aviation documents or as a result of its action to suspend or revoke the document. The CAA takes exit actions in the interests of safety when other regulatory tools have failed or are unacceptable.

11.2 CAA operating practices revolve around these elements. The elements are consistent with those of other civil aviation jurisdictions worldwide, and the CAA organisation structure contains all of the functions that enable it to conduct activities related to each element.
11.3 The Review examined in more detail CAA’s existing operating practices as to the adequacy of its capability and resource levels to satisfy its regulatory mandate for safety oversight of the aviation industry through the three stages described above. These are presented under separate headings below.

Risk Management

11.4 Arguably, all activity involves risk. There are trade-offs to be made between the benefits of undertaking activity and the risks involved and their associated costs. In a regulatory context, risk management frameworks should be used to design the rules which regulate activity as well as to determine when, how often and what way to intervene to promote compliance with regulatory rules. This process should include vigorous pursuit of finding non-regulatory ways of achieving safety outcomes (e.g. through safety education and awareness and industry self-discipline through application of sound safety management systems).

11.5 This is not a concept that is unique to the safety regulation of the aviation sector. Risk management frameworks are used by several regulatory agencies that members of the Review have worked with in other contexts. These agencies include:

- The other transport safety entities (Land Transport New Zealand and Maritime New Zealand);
- Biosecurity New Zealand;
- New Zealand Food Safety Authority; and
- Land Information New Zealand.

11.6 For the most part, these agencies have established risk management frameworks based, to varying extents, on the Australia and New Zealand Standard for risk management. Each agency tailors the risk management standard to suit its particular requirements.

11.7 Internationally, aviation regulatory authorities have traditionally taken a fairly rigid approach to rule development and enforcement. In the past, Rules were, and still are, to a great extent prescriptive in nature rather than performance-based. Subject matter experts who exercised a strong “hands-on” approach to the application of rules have dominated regulatory inspection staffs for many years.

11.8 As the aviation industry has become larger and more complex, it has become increasingly more difficult for regulatory authorities to keep pace with the heavy workloads that accompanied these changes. At the same time, more cost-effective means were being developed to address the changing environment and the way in which resources could be more effectively deployed to achieve safety goals. Risk Management (RM) and Safety Management System (SMS) based on risk management methodologies have emerged as major tools that enable regulatory authorities to better address public safety concerns. The underlying concept of risk management is to set priorities and focus resources on the areas of the aviation industry that pose the greatest risk.

11.9 In line with this evolution, the CAA and, in particular, the Safety and Analysis Unit has done considerable work on developing risk-based methodologies. It has developed three categories of risk indicators that allow the CAA to establish risk profiles for air operators. Information is gathered through certification and surveillance activities.
• Client risk assessments – contains 9 risk indicators. Individual scores are applied against each indicator and an overall score is derived which shows whether an operator is a low, moderate, high, or very high risk.

• Non-compliance index (NCI) – provides a score that is weighted in terms of safety risk based on instances of non-compliance identified against an operator over a 12-month period in relation to the number of audit/inspection hours expended. Instances of non-compliance are scored for relative severity as critical (30 points), major (2 points) and minor (1 point).

• Quality index (QI) – is a qualitative rating of air operators based on observations made during surveillance activities. The QI score was designed to give a level of confidence in a certificate holder’s compliance with aviation rules and the operator’s exposition. It comprises the CAA inspectors’ assessment of 10 areas of an operation, with scores ranging from 1 to 10 (exemplary).

11.10 These risk indicators have recently been consolidated and enhanced for operational purposes by incorporation into an automated (computer based) system. Indicators are assigned a weighting factor based on their relative safety implications, and are scored in the range of 1 to 5. The assessment of each air operator against the risk-indicators is then computed into an overall score, which places operators into a low to high-risk category. The system is interactive in that changes in scores based on a reassessment of any risk indicator resulting from the most recent audits and inspections immediately compute a new risk rating for an operator.

11.11 The General Aviation Group has also developed an initial list of risk indicators with expressed intentions to use them as a tool in their surveillance program.

11.12 Despite these advances, it is clear to the Review that there is still a considerable amount of work for the CAA to undertake to establish and entrench, throughout all levels of the organisation, a risk-based framework for guiding regulatory activity. A major concern of the Review is that within parts of CAA, regulatory interventions (audits, inspections, spot checks etc) are being undertaken without sufficient regard to the relative risks posed by different operators. This is inefficient. It does not make sense to audit or inspect one operator with an excellent safety record to the same frequency and depth as another operator that is known to have a poor safety record. Better safety outcomes would be achieved by re-directing some of the resource engaged in auditing safe operators toward more stringent scrutiny of operators with a poor safety record. The Review is aware that there are individuals within the CAA who subscribe to the view that unless all operators are scrutinised in some fashion at least once a year, the CAA’s safety responsibilities will not be met. The Review disagrees. Those operators with an excellent safety record based on best practice safety systems and procedures and appropriate attitudes toward safety do not need or warrant the same level of regulatory scrutiny as those operators whose characteristics are polar opposites of those just described.

11.13 This conclusion is not one which is unique to this Review. The internal review commissioned by the CAA found that: 17

- the CAA’s effort is not aligned to risks; and
- risk management is disconnected from the CAA’s strategy.

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17 LECG (2006) Review of the Civil Aviation Authority (draft report) p 56
11.14 Similarly, the OAG’s review of the CAA’s certification and surveillance functions found that:\footnote{18}

- the risk analysis and risk assessment processes are not as effective as they should be;
- the risk analysis does not necessarily “feed into” the surveillance process; and
- operators that are assessed as higher risk are not always appropriately targeted in relation to both depth and frequency of the surveillance undertaken.

11.15 Risk-based management that disciplines decisions to be made, and priorities to be set, has very significant resource implications.

11.16 Although a risk-based framework is advanced in terms of its development and testing within the CAA, it has yet to be implemented and there are indications that understanding of the application of the framework, and its benefits, has yet to permeate all levels of the organisation. The adoption of a risk-based approach to regulatory intervention requires a significant change in mind-set. Historical practices, based on regular contact with operators to a level, depth and frequency that is not correlated with risk, still exist and these need to be changed. There are examples, within the operational groups (Airlines, General Aviation, and Personnel Licensing Aviation Services), of practices that remain focused on traditional modes of operation. Audits and inspections are carried out using a check-lists type approach (check-the-boxes) that correlate with each prescribed regulatory requirement without regard for the extent to which each item on the checklist is significant in terms of safety concerns.

11.17 The onus is on the CAA to develop and implement the strategy for effecting the change to risk-based ways of thinking and ensuring that this is embraced throughout the organisation.

Implications

11.18 The lack of “buy-in” across the CAA to the use of a risk-based approach to regulatory intervention is having some significant impacts.

11.19 Opinions expressed by a number of internal managers and, notably, by most external industry representatives interviewed, indicated the CAA’s commitment to the checklist approach to surveillance activities means that attention by CAA managers and inspector to “bigger picture” safety issues are being overshadowed by a preoccupation with items of relatively minor concern.

11.20 Fully implementing a risk approach to regulatory oversight is currently impeded by current CAA policy under which audits are conducted on every air operator annually. Furthermore, each operator is re-certificated every five years. These practices impose an arbitrary workload on scarce CAA resources that serves only to overburden low risk operators with unnecessary regulatory attention, and gives no assurance that safety infringements by high-risk operators will be revealed and attended to. Given the volume of certificate and license holders affected, it is difficult to rationalise how a surveillance program that entails routine audits, inspections, spot checks, and special purpose audits...

can be scheduled into a program that produces meaningful results over one-year intervals and a 5-year re-certification cycle.

11.21 Some of the critical activities identified during the Review that do not receive due attention likely as a direct result of this manpower intensive regime are as follows.

- There is evidence of insufficient rigour applied to certification activities at entry to the aviation system, thus creating reliance on, an added workload for, and problems with surveillance as the backup safety valve to catch unworthy operators who may have slipped into the system. Initial certification is the opportunity to assess “fit for operation” status of company before operations begin. Evidence during the Review, especially for General Aviation, indicated that certificates were issued without appropriate in-depth scrutiny of application documentation and site inspections. This created work intensive ongoing surveillance activities that could have been averted had the original certification been done sufficient to give CAA inspectors confidence that operators met required standards and understood their safety obligations.

- There is evidence of low rates of Findings during audits and inspections and insufficient follow up.

- Audits report the same issues year after year with little or no action being taken.

- Operational groups do not have sufficient time to provide input to rule development. Their involvement is essential since they are the front line personnel who can best gauge where regulatory intervention can be beneficial, and to help foster industry support.

- Field staff do not have access to good risk data and, as a result, site visits are not focused on areas of greatest safety risk.

**Institutionalise the Use of Risk Management Tools**

11.22 The CAA has developed an impressive array of risk management tools, especially the newly developed computerised system, that when used in conjunction with level of services standards could serve to target available resources where they can be most cost-effective. In short, the tools developed and being developed by CAA are good regulatory tools. They should be used. There needs to be leadership from the top of the organisation to orient personnel toward use of the tools as a matter of course and not left as something which personnel can choose to use or not. This may require training to assist with understanding why risk-management frameworks are a key part of the regulatory tool kit and to educate personnel as to how such tools can assist them to discharge their regulatory responsibilities more efficiently and effectively. Equally, the Review considers that there needs to be a change in culture which is a function of having in place the appropriate leadership, strategy, performance management and, ultimately personnel.

11.23 To optimise the benefits of risk-based management, it will be necessary for the CAA to reassess whether auditing every operator every year, and re-certificating operators every five years is warranted on safety-risk grounds. The principle is that is that low risk operators require less surveillance while those in high-risk categories need more frequent and in-depth attention. Consistent with this approach many jurisdictions (e.g. Canada and the US) have established a 5-year surveillance program where low risk operators may have as much as 5 years between audits with periodic spot checks on
various modules of the operation during intervening years. Surveillance of operators in the highest risk category would be more intense with combinations of audits, inspections, spot checks and special purpose audits occurring annually.

11.24 In summary, the CAA should:

- move to a risk based regulatory regime by taking advantage of the work that has already been done;
- align resources and staff expertise such that the areas of the industry with the highest risk get the regulatory attention needed to improve its safety profile. This Review supports the findings of other studies that General Aviation is especially vulnerable and deserves immediate attention;
- re-establish internal systems, processes, procedures and practices from a “corporate” risk-based perspective. Most functional groups currently have developed such systems, processes, procedures and practices for their own areas of responsibility, but they lack any CAA wide consistency;
- institute information/data analysis as an integral basis for program development and decision-making. Extensive information is collected and analysed, but it is either not made available, or is not being used by operational managers. Functional groups should be surveyed to ascertain their information requirements, and their needs should be addressed; and
- review the need for annual audits and 5-yearly re-certification in light of moving to a risk-based approach to the surveillance programme.

Level of Service (LOS) standards

11.25 Many service providers have developed level of service standards related to their operations, whether dealing with applications for certification documents and licenses, or in conducting routine audits and inspections. LOS standards serve to provide details on what the service provider (regulatory authority) expects from the industry in terms of documentation to support applications, or what is involved in audits and inspections, and sets a timeframe that aligns with priorities and levels of effort attainable with available resources.

11.26 Such standards establish a discipline for both internal processing as well as industry expectations. Most importantly, in this case it would enable the CAA to set standards that would allow it to better manage within available resources.

Client Focus

11.27 The CAA as regulatory authority is the guardian of safety for the travelling public. The public is therefore the “client” of the regulator. The CAA’s mission—*to take action that ensures people and property are not harmed or threatened by New Zealand civil aviation operations*—is a powerful statement that appropriately denotes the CAA’s commitment to “ensure” the safety of its client (i.e. the travelling public).

11.28 However, instead of carrying out its programs and activities in a planned and organised fashion in line with its mission statement, the CAA seems strongly reactive in its actions that allows industry stakeholders to not only set the operating agenda, but also to...
effectively set the timeframe in which things are to be done based on their own particular business interests and priorities.

11.29 A proactive approach for the CAA does not suggest being non-responsive to industry requirements. In fact, the rules oblige the CAA to respond to applications for certifications, licenses, and approvals.

11.30 However, it is difficult to rationalise, on the one hand, the manpower intensive workload of being “immediately” responsive to industry demands (as illustrated by comments made by aviation operators that inspectors are available 24/7) regardless of priority or safety risk and, on the other hand, assertions that CAA has a lack of resources.

Delegation of Authority

11.31 Aviation inspectors are the front line staff that observe industry operations and therefore should be delegated the appropriate authority to apply the rules. The rules should be applied fairly and consistently across all sectors of the industry. Decisions to act on safety concerns need to be taken promptly commensurate with the level of risk involved. Quality decision making by inspectors requires both initial and annual recurrent training in order to retain their delegation of authority.

11.32 The Review elicited comments that there are too many managers, some with limited, and in some cases no, staff, and that managers are too involved in day-to-day operations. Industry commented that decisions and actions are based on “who you talk to” rather than on any consistent CAA policy, procedure, process or practice. Also, often lack of knowledge or familiarity by CAA’s management and/or technical staff was the cause for delays in regulatory decisions allowing industry to conduct certain operations or introduce new technology.

11.33 Some of this may be attributable to the large amount of subject matter expertise needed to cover all aviation industry sectors (airline, general aviation, aerodromes, air traffic services, etc.) versus the relatively small volume of work involved in each, and lack of training. The principle of delegate regulatory decision making authority to the lowest reasonable level and providing training to support that delegation should be examined. In other words, managers should focus on management issues and technical inspection staff should be allowed to deal with day-to-day operational issues instead of making recommendations.

Advice/Consultation

11.34 Interaction between the regulatory authority and the industry pertaining to certification and surveillance activities should not be used for providing advice/consultation. The CAA, like other regulatory authorities, has very good safety education and promotion programs in place that extend to providing brochures on such topics as “How to obtain a pilot’s license” and “How to obtain an operating certificate”.

11.35 However, it is not appropriate for regulatory authorities to provide advice or consulting services to the industry they regulate -- to do so is time consuming as well as more seriously being a conflict of interest. Indications during this Review were that CAA inspectors are being drawn in to such a situation, though well intentioned to support the industry, yet without realising the overall resource workload and conflict of interest implications.
Rules Development

Consultative mechanisms for rule development

11.36 Good consultation processes between the regulatory authority and industry stakeholders for rule development serves many purposes, among them are:

- takes advantage of best available expertise;
- able to obtain broader “buy-in” on where the safety bar for rules should be set;
- achieves better understanding of the rules and their purpose;
- industry becomes a partner in both developing rules and in their promotion; and
- gets away from a “we” “they” relationship.

11.37 Although the CAA does have a consultative process under the Government Relations Group, it is effectively organisationally removed from the operating units and lacks their participation. As a consequence industry groups feel there is a disconnect between the Rules developers and the inspectors who they most closely relate to in their operation. Although a good consultative process is time consuming and involves significant workload, experience has shown that the net benefits versus costs have been extremely positive.

11.38 A significant problem raised with the Review by CAA personnel and external stakeholders, is that the rules do not keep pace with technological developments. Accommodating industry requirements, that are impeded by outdated rules, requires CAA operating managers and inspectors to consider rule exemptions as a long-term solution. The Review considers that exemptions should be used only for rare and temporary purposes.

11.39 The Review notes that, in recent times, there appears to have been some limitation imposed by Government on the amount of new rules work undertaken in order to address a back-log of rules work already partly completed. While there may be a need for a measure of this type in the short run, it is not sustainable beyond the short term. The CAA needs to ensure that work on Rules is prioritised and, together with the Ministry of Transport, ensure that appropriate funding is approved for the Rules development programme and its implementation.

Summary and Recommendations

11.40 The life cycle approach to regulating civil aviation is consistent with the approach used in many jurisdictions worldwide. The CAA has as its disposal the range of regulatory tools that are needed to effectively implement the life-cycle approach. There are, however, examples of practices being followed which mean that the CAA is not being as effective a regulator as it could be.

11.41 In particular, although the CAA has undertaken a considerable amount of good work in developing risk indicators and methodologies, these have yet to be translated into risk based approaches to guide organisation-wide regulatory activity. As a consequence, the Review has identified several areas where regulatory intervention is directed in areas of low safety risk and impact. This means there is inefficiency and ineffectiveness in resource use.
11.42 To address this, the Review recommends that the CAA:

- complete the development/refinement of the risk management framework and methodologies (including the risk and intervention project), and institute these throughout the CAA;

- in light of this, review the practice of annual audits of operators, and the need for recurrent re-certifications; and

- develop policies, procedures and processes that incorporate risk management philosophies in the surveillance program, e.g. a 5-year cycle, that intersperses routine audits, inspections, spot checks and special purpose audits commensurate with operator risk profiles.

11.43 In addition to ensuring a strong risk management framework to guide the allocation and use of resources, there is a need to ensure consistency of approach across the organisation and, furthermore, ensure that the CAA is responsive to regulatory requirements rather than reactive. To meet these needs, the Review recommends that the CAA:

- develop policies, standards, procedures, and processes to establish maximum possible standardisation across operational groups (airline, general aviation, personnel licensing and aviation services) with respect to how the CAA conducts business through the three phased life-cycle approach to regulating civil aviation: entry, operation or participation, and exit; and

- develop Level of Service (LOS) Standards for services provided to industry by the CAA (e.g. certification, licensing), and standard regulatory interventions that the industry can expect from the CAA while they are certificate and/or license holders in the aviation system (e.g. surveillance activities – standard audits and inspections, applied on a risk basis).

11.44 Rules are a fundamental part of the regulatory machinery. The Review is concerned that there is a disconnect between the Rules developers and the inspectors who they most closely relate to in their operation. To address this, the Review recommends that the CAA:

- action all items related to rule making, including the results of the ICAO audit; and

- conduct an internal review of rule-making procedures and processes to ensure the effective participation of operational groups in committees and working groups established for the purposes of rules development.
12 Systems and Technology

Introduction

12.1 The management of systems and technology is co-ordinated by the CAA Management Information Services Group (MIS). This group comprises two main streams: information services (library and records) and software development (network support, help desk, development). The Chief Information Officer co-ordinates the activity of the group. The CAA has adopted an approach of in-house software development to support its unique business requirements. This approach continues with the development of new systems to support surveillance, risk and intervention and certification activity.

12.2 In summary, the CAA information systems environment is characterised as a mix of these new systems and a number of legacy systems such as the document management system and records management.

12.3 The CAA now has a well-developed technically proficient and professional information services and software development capability, which provides significant software and IT infrastructure support to the organisation. This is evidenced in the currency of CAA technology and new systems development and implementation.

12.4 The CAA is currently implementing and testing a number of new technology initiatives for hardware and software to support service delivery. These include the development of custom systems to support CAA surveillance, risk and intervention and certification activity, the transition to a new IT environment of Microsoft Office 2007, and the adoption of the use of tablet PCs in the field to support new systems.

Information Systems Strategic Planning and Business Alignment

12.5 There is a lot of activity for systems and IT architecture development in the CAA. The Review notes that while this development is not without its rationale and evidence of planning, there is not in place a current Information Systems Strategic Plan (ISSP). The latest plan dates from 2003. The absence of a current strategic plan for information management reduces significantly the opportunity for the CAA executive and board to engage with information systems planning, take ownership of initiatives, ensure alignment of systems and technology initiatives with business requirements, and contribute as effectively to the decision-making.

12.6 In section 6 above, the Review has highlighted the need to strengthen strategic management in CAA. The management of systems, technology and information is a part of this. The triennial review undertaken in 2000 noted “a lack of a formal IT strategy and forum for IT strategic discussion” and that “current IT development activity runs the risk of being lead more by technology requirements and opportunities, than by the business requirements of CAA management and staff”. These observations are still current in 2006.

12.7 Comments to the Review indicate that while current initiatives are supporting the CAA business needs in many respects (surveillance, risk and intervention), there are
other areas of significant need which are not being addressed (data and document management). These issues are creating frustrations for staff.

12.8 Evidence of planning is found in a number of separate initiatives such as the Knowledge Management Strategy, Business Continuity Plan, and the documentation to support CAA software development strategy. CAA Executive and the Authority have been presented with a number of papers and presentations on planned IT initiatives. There is a need to bring these together and provide the CAA senior management team with a single integrated Strategic Knowledge and Information Systems Plan, which it can consider, challenge and integrate with its overall planning for the organisation.

12.9 The Review notes the importance of ensuring that the high IT technical competency of CAA information systems personnel is ‘connected’ to the specific needs and issues of the business. Integrated planning will assist, as it allows the business owners to inform the IT planning.

Proposed Strategies

12.10 The Review notes a summary of Management Information Strategies and Strategic Initiatives presented to the Authority in a supplementary paper on plans for Software Development. These strategies indicate plans for addressing document management, library management, IT architecture, knowledge management, business continuity planning, and MIS service level agreements. This document also indicates a strategy to review and update the ISSP for the next 3 to 5 years, and to strengthen the IT Strategic Planning group.

12.11 The draft ISSP should be completed as soon as possible and presented to the Authority and Executive for consideration.

Database and Knowledge Management

12.12 Many comments were made to the Review regarding issues with the integrity of the CAA database and issues with information/ knowledge management. There appears to be a range of views as to the ownership of the database, the responsibility for its maintenance, and the co-ordination of information flows within CAA. Data enters the CAA through many sources, and it is not recorded consistently or even at all in some cases. This has led to some issues of data integrity and duplication, and is expressed as significant frustration by staff across the CAA. Regardless of the reasons behind this situation, a business need is not being met. The issue may be in the database, user understandings, management practices or a combination of all three.

12.13 The Review notes that the lack of strong strategic management in CAA in general, and the lack of integration of operational management across the organisation has not assisted CAA personnel with development of understandings of end-to-end business processes. This is contributing to a possible lack of an appreciation of the importance of data to CAA, not only at the first point of contact, but later on for the work of others. Failure by someone to capture data means that opportunities are lost for data capture at critical points in the process.

12.14 Notwithstanding these issues, recent initiatives for improved knowledge management through the formation of Communities of Practice within the organisation to facilitate the sharing of information are a positive initiative and have the potential to assist with improved understandings and data management within CAA.
Document Management

12.15 The CAA document system is a legacy system developed in 1997, and needs upgrading to enable it to fully support the needs of the current business. Frustrations with the current system have led to a fragmentation of document and records management in CAA. This poses issues and risks for effective information retrieval and retention. The Review notes that a benefit of the move to the Microsoft Office 2007 environment in that this will provide CAA with a more robust platform for supporting integrated document management in CAA.

12.16 Summary and Recommendations

12.17 It is essential that the systems and technology deployed by CAA are developed to support organisational strategy and to meet business need. To this end it is imperative that management engage with and understand the knowledge and information strategy of the CAA. Management must take ownership of the strategy and monitor its implementation. Equally the well-developed technological competency of the CAA should be supported in a strategic approach to knowledge and information management through improved strategic management in CAA generally.

12.18 The Review recommends that the CAA:

- update the CAA Information Systems Strategic Plan so that it is current and is closely aligned with the strategic and operational requirements of the business. As part of this process, the ISSP must:
  - comprise knowledge and information management initiatives that meet business needs;
  - be based on robust environmental, business needs analysis and risk assessment;
  - address CAA information management priorities as defined/ required by the business;
  - address database management and data integrity issues;
  - gain ownership by the senior management team;
- review the CAA Knowledge Management Strategy and align it with the revised ISSP;
- agree that all proposed IT/IS initiatives should be subject to rigorous business case and cost benefit assessment as part of proposals submitted for senior management (and board) approval; and
- approve implementation plans for every future major technology initiative (e.g. initiatives of comparable significance to the adoption of Microsoft 2007, and the use of new IT hardware such as the tablets) and agree that implementation plans include change management plans which address implementation risks and resource requirements associated with major IT/IS initiatives.
13 Resource Implications

Introduction

13.1 The primary conclusion stemming from the analysis described in the foregoing sections of this report is that there is a considerable investment required in the capabilities of the CAA. Because of the current issues around various aspects of capability, there are numerous indications that resources are not currently optimally allocated or deployed. It follows from this that there are risks in responding to perceptions held within CAA that resources are stretched by increasing the amount of resource invested in CAA. Such a response risks applying more resource to low value activities with little, or no, added safety outcome.

Resource (mis) Allocation

13.2 Drawing together the analysis in preceding sections of this report, several indicators point toward sub-optimal allocation and use of resources:

- the need for further work to develop and implement across the organisation a risk management framework to guide the nature, frequency and depth of regulatory interventions (i.e. audits, inspections and so on);
- audits and inspections being carried out on a check-list basis without sufficient regard for the extent to which each item links to a significant safety concern;
- annual audits being undertaken irrespective of relative safety concern in the mistaken belief that this is what ICAO requires (it does not);
- insufficient rigour being applied to certification activities at the point of entry to the aviation system and, as a consequence, adding to the level of surveillance above that otherwise required;
- evidence of low rates of Findings during audits and inspections and insufficient follow-up;
- operational groups not having sufficient time to contribute to Rules developments;
- training being crowded out;
- a highly industry centric and reactive culture which means that industry is setting the operating agenda and timeframes;
- a lack of service standards to manage stakeholder expectations and guide resource allocation and use;
- managers who are too involved in technical matters and lack administrative support;
• field staff who do not have access to good risk data and, as a result, conduct site visits that are not as focused as they could be on areas of greatest safety risk; and
• decisions not being taken at the lowest appropriate level and being pushed back up the accountability chain.

13.3 In addition to these points, the Review notes that there are approximately 30 personnel in each of the Airlines, General Aviation and Personnel Licensing Groups. The uniform allocation of resources stands in stark contrast to the accident and social cost data which indicates that the safety record of parts of the GA sector is well short of agreed safety targets. On the face of it, the social cost data indicates that the combined effect of the risk of accidents and cost of accidents when they occur, is of more serious concern for the GA sector than it is for the airlines sector. Accordingly, there are grounds for questioning whether the uniform allocation of resources between airlines and GA is optimal.

13.4 This finding should not be interpreted as saying that all resources should be taken out of airlines and transferred to GA. Rather, the finding should be interpreted as saying that in terms of where best to assign the next increment of regulatory resource, it does not make sense to add further resource to the Airlines Group ahead of the GA Group. Vacancies that currently exist in the GA Group should be filled ahead of those in the Airlines Group.

13.5 The extent of resource mis-allocation that the Review considers exists at present means that it is not appropriate or sensible to recommended additional technical resource for the CAA.

Pressure Points

13.6 The CAA is not a large organisation (measured in terms of the number of personnel), but it has regulatory oversight of a significant, complex and dynamic industry. During the course of the Review, it has become clear that there are significant demands upon the CAA and these are creating noticeable pressure points in several areas. That said, however, because of the issues around the allocation and use of resources, it has not been possible for the Review to untangle the extent to which pressures are a function of external factors and the extent to which they reflect internal issues with the use and allocation of resources.

13.7 Further work on capability issues will enable a clearer picture to emerge regarding the extent of pressure points within the CAA. Pending the outcome of this work, the areas where the Review anticipates the need for additional, or reallocated, resources are as follows:

• the General Aviation group reflecting the poorer safety record of this sector compared to others, the significant growth in parts of this sector and the findings of other external and internal (including internal audit) reviews of the CAA (which have also pointed to general aviation as an area under pressure);

An important caveat to this is that the social cost estimates are based on historical, rather than forward looking, risk data.
rules development reflecting the dynamic nature of the industry, the fact that there appear to be too many differences being filed and the importance of maintaining pace with technology and other changes; and

technical training because this is being crowded out to an extent that is not sustainable in the longer term.

Resource Requirements

13.8 The capability issues that need to be addressed, as outlined in this report, are significant. They require energy and focus. To this end, there is a need for some additional resource to assist with implementing the various initiatives identified in this report aimed at strengthening the capability of the CAA. These initiatives need strong management and leadership. The Review considers that there is a need for temporary fixed term resources to assist with the implementation. Specifically, there is a need for resource of the following types.

- Programme management. A project office approach is required to manage the major initiatives in terms of ensuring appropriate co-ordination and consistency of approach, reporting, risk management and planning. The role of the programme manager must also challenge progress with the initiatives to ensure alignment with desired goals and objectives.

- Change management. This role requires an experienced change manager who understands the dynamic of change management and can assist with implementing the capability initiatives.

13.9 In the short to medium term (one or, possibly, two years) therefore, there is some need for additional capacity within the CAA over and above the actual number of personnel. Beyond this initial period, however, the Review would expect the need for resources to diminish as resources are better allocated and utilised. Diagrammatically, the picture of resource requirements can be shown as follows:
13.10 Once progress has been made on the items described above, it would be appropriate to conduct a further assessment to determine the ongoing resources (personnel and funding) needed for the CAA to conduct its work, taking into account the effects of the implementing the items listed above (the timing for the further assessment may be 12-24 months from now).
14 Recommendations

14.1 This Review has focused on three main questions:

- are the activities undertaken by the CAA consistent with its statutory responsibilities;
- does the CAA have the right level and mix of capabilities and resources to discharge its responsibilities; and
- what investment in capability and resource is required to enable the CAA to operate efficiently and effectively?

14.2 The recommendations below respond to these questions.

14.3 The Review recommends that the CAA:

Alignment With Statutory Responsibilities

(a) **Note** that the Review considers that, in general, the nature of the CAA’s activities align with its statutory responsibilities;

(b) **Engage** further with the Ministry of Transport to assess the implications of the broader statutory objective introduced in December 2004;

(c) **Consider** whether sufficient prominence is given (e.g. in planning and output documentation) to its mandate to promote security;

(d) **Note** that increasing demands are being placed on the CAA by Government and its agencies to contribute to initiatives (mainly security-related) in the Pacific and **note** the need to ensure that Government’s expectations of the CAA in this regard are clear;

(e) **Note** that existing fees and charges for Pacific-related work do not appear to fully recover costs and, accordingly, **agree** to review the level of cost recovery and take steps to ensure that fees and charges are aligned with the efficient level of cost incurred;

(f) **Note** that external pressure to investigate all fatal accidents is limiting the ability of the safety investigation team to investigate other accidents and incidents where warranted on safety and security risk grounds and **agree** that there is a need to establish priorities and manage third party expectations in regard to investigations;

Level and Mix of Capabilities and Resources

(g) **Note** that there is a range of opportunities for strengthening the capabilities of the CAA;

(h) **Note** that the Review has identified various areas where the use and allocation of resources is not contributing as much as it could to CAA objectives;
(i) **Note** that in light of the conclusions in (f) and (g) above, it is difficult for the Review to recommend at this stage whether or not the level of resource is appropriate;

(j) **Note** that the Review considers that steps need to be taken to address capability and resource allocation issues and recommendations for achieving this are set out below;

**Investment in Capability and Resource**

**Strategic Management**

(k) **Strengthen** its strategic management process through:

- more active participation from the Authority and Executive Group in a regular cycle of strategic and business planning;

- further development of strategic plans based on environmental scanning, risk assessment, robust outcome statements and sound intervention logic that provides the link between CAA outputs and outcomes;

- more extensive use of robust analysis from within and without CAA;

(l) **Review** future SOIs and Business Plans to ensure that they are informed by the strategic management process;

(m) **Enhance** ownership of the strategic planning process in CAA management through regular reporting on strategic plans and objectives;

(n) **Develop** a short (1 or 2 page) summary statement of strategic direction and goals and communicate these to all CAA personnel so as to foster common understandings across the organisation;

(o) **Achieve** alignment of individual activity with the CAA intent through ensuring CAA goals and expected behaviours are reflected in the staff Performance and Development System and job descriptions;

**Leadership**

(p) **Clarify** for all managers the expected leadership (and management) competencies and accountabilities from their roles;

(q) **Ensure** that senior managers participate in the ‘CAA Way’ for management and leadership development;

(r) **Achieve** accountability for leadership and management by ensuring that the Performance and Development Plans of CAA managers reflect the key competencies and accountabilities of effective leadership and management (including change management);
Culture

(s) **Develop** a statement of strategic intent which reflects elements of the required cultural orientation;

(t) **Task** senior managers with ensuring that the risk-based framework and culture, necessary to guide regulatory interventions, is embraced by all operational groups at all levels;

(u) **Review** the staff performance and development system to ensure that it incorporates all the required attitudes, values and behaviours consistent with the required cultural orientation;

(v) **Review** all relevant documentation (e.g. job descriptions, policy and procedures) which states roles and responsibilities to ensure that these reflect the required cultural orientation;

(w) **Ensure** that staff recruited to key positions display the required competencies to support the required culture;

(x) **Review** training materials and courses with a view to refreshing these to align with changes in cultural orientation;

Structure

(y) **Review** the organisational structure to ensure that it best supports the strategic goals of the CAA, and facilitates efficient and effective management, through:

- streamlining the existing structure;
- maintaining the industry-based structure but institute a business development and support group that knits the organisation together, and promotes consistency of approach and framework;
- institute a corporate support group to provide consistent organisational support to business functions;

(z) **Review** the core competencies and key accountabilities of the management positions to ensure that these have a strong leadership and management orientation;

Management Practices

(aa) **Provide** managers with administrative support;

(bb) **Shift** decision making to the lowest level in accordance with approved delegations;

(cc) **Assess** training needs to ensure that managers have core management competencies around planning, organising, motivating and developing, monitoring, reporting and reviewing;
(dd) **Extend** the “CAA Way” programme to include senior managers;

(ee) **Review** management accountabilities with a view to clarifying and communicating these as part of the performance and development system;

(ff) **Engage** CAA managers in planning and reorient away from compliance toward contribution to strategic objectives and goals;

(gg) **Review** individual performance plans and appraisals to ensure that desired attitudes, values and behaviours are included;

(hh) **Develop** a HR strategy to ensure that various HR initiatives planned and underway are placed in a strategic context;

(ii) **Promote** (and expect) greater engagement of managers in financial management (e.g. through accountability for rolling forecast approach to budgeting);

(jj) **Adopt** a programme management approach and **appoint** a short term programme manager to strengthen management of major initiatives and change management;

**Operational Practices**

(kk) **Complete** development/refinement of risk management framework and methodologies, and institute throughout the CAA;

(ll) **Reassess** the current practice of undertaking annual audits of every operator, and re-certificating participants once every five years;

(mm) **Develop** policies, procedures and processes that incorporate risk management philosophies in the surveillance program, e.g. a 5-year cycle, that intersperses routine audits, inspections, spot checks and special purpose audits commensurate with operator risk profiles;

(nn) **Develop** policies, standards, procedures, and processes to establish maximum possible standardisation across operational groups (airline, general aviation, personnel licensing aviation services) with respect to how the CAA conducts business through the three phased life-cycle approach to regulating civil aviation: entry, operation or participation, and exit;

(oo) **Develop** Level of Service (LOS) Standards for services provided to industry by the CAA (e.g. certification, licensing), and routine regulatory interventions that the industry can expect from the CAA while they are certificate and/or license holders in the aviation system (e.g. surveillance activities – routine audits and inspections);

(pp) **Action** all items related to rule making, including the results of the ICAO audit;
Conduct an internal review of rule making procedures and processes to ensure the effective participation of operational groups in committees and working groups established for the purposes of rules development;

Systems and Technology

Update the CAA Information Systems Strategic Plan so that it is current and is closely aligned with the strategic and operational requirements of the business. As part of this process, the ISSP must:

- comprise knowledge and information management initiatives that meet business needs;
- be based on robust environmental, business needs analysis and risk assessment;
- address CAA information management priorities as defined/required by the business;
- address database management and data integrity issues;
- gain ownership by the senior management team;

Review the CAA Knowledge Management Strategy and align it with the revised ISSP;

Agree that all proposed IT/IS initiatives should be subject to rigorous business case and cost benefit assessment as part of proposals submitted for senior management (and board) approval;

Agree that implementation plans be prepared and approved for every future major technology initiative (e.g. initiatives of comparable scale to the adoption of Microsoft 2007, and the use of new IT hardware such as the tablets) and agree that the implementation plans include change management plans which address implementation risks and requirements associated with major IT/IS initiatives;

Resource Implications

Note that the Review has identified several areas of activity (listed below) that are showing signs of pressure and the need for additional, or reallocated, resource should be reassessed once progress has been made in relation to capability and resource allocation issues:

- general aviation (e.g. scrutiny of certification documents and surveillance activities);
- rules development (in particular, input from the operational units as well as policy and research input);
- technical training; and

Note that the Review has identified several areas of activity (listed below) that are showing signs of pressure and the need for additional, or reallocated, resource should be reassessed once progress has been made in relation to capability and resource allocation issues:

- general aviation (e.g. scrutiny of certification documents and surveillance activities);
- rules development (in particular, input from the operational units as well as policy and research input);
- technical training; and
Specify change management and programme management roles and Appoint, for a fixed term, additional resource(s) to fulfil these roles and to assist with implementing the various initiatives outlined in this report for strengthening the capability of the CAA.