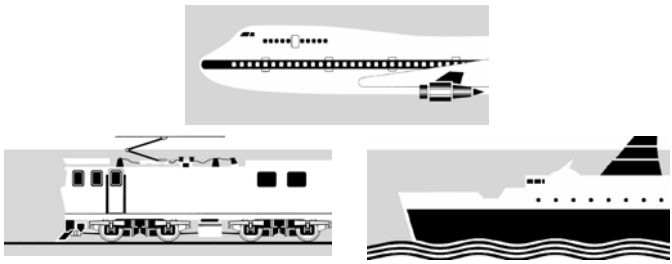


Transport Accident Investigation Commission

Annual Report

2001/2002

Annual Report

of the

Transport Accident Investigation Commission

Te Komihana Tirotiro Aitua Waka

for the period 1 July 2001 to 30 June 2002

Presented to the House of Representatives
as required in paragraph 34 of the schedule to the
Transport Accident Investigation Commission Act 1990

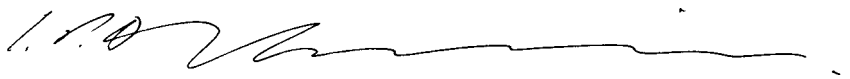
22 October 2002

Minister of Transport
Parliament Buildings
WELLINGTON

Dear Minister

In accordance with paragraph 34 of the schedule to the Transport Accident Investigation Commission Act 1990, the Commission is pleased to submit, through you, its 12th Annual Report to Parliament for the period 1 July 2001 to 30 June 2002.

Yours faithfully



Hon W P Jeffries
Chief Commissioner

Contents

Aim	1
The Commission	3
Assessors	4
Staff	6
Chief Commissioner's Overview	7
Chief Executive's Report	12
Functions and Powers	17
Promoting the Free Flow of Information	19
Accidents and Incidents to be Investigated	21
Commission Consultative Procedures	22
Safety Recommendations: Levers for Change	26
Examples of Investigations and Safety Recommendations	28
Summary of Occurrences Investigated	42
Summary of Safety Recommendations Finalised	50
Implementation of Safety Recommendations	52
Statement of Responsibility	53
Statement of Objectives and Service Performance	62

Aim

The aim of the Transport Accident Investigation Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future.

Te Whainga

Ko te whakatau i ngā āhuatanga me ngā take i puta ai ngā aitua, i tata puta ai rānei ngā aitua te tino kaupapa E WHĀIA ANA e te Komihana Tiritiro Aitua Waka, kia kore ai e pērā anō te puta i ngā rā tū mai.


Hon. Bill Jeffries
Pauline Winter
Norman Macfarlane

The Commission

The Transport Accident Investigation Commission (TAIC) is a body corporate established by the Transport Accident Investigation Commission Act 1990. It consists of not more than 5, nor less than 3, members appointed by the Governor-General on the recommendation of the Minister of Transport. Members hold office for a term not exceeding 5 years, and may be reappointed. There are no statutory qualifications for membership except that one of the members of the Commission must be a barrister or solicitor of the High Court who has held a practising certificate for not less than 7 years, or a District Court Judge. The Commission meets 6 to 8 times a year or as the workload requires.

Members of the Commission

There are 3 members. They are:

Hon. Bill Jeffries
Chief Commissioner
Mr Jeffries is a Wellington barrister practising in civil and commercial litigation. He is a former Minister of Transport, Civil Aviation and Meteorological Services, and was also Minister of Justice.

Pauline Winter
Deputy Chief Commissioner
Ms Winter started her own consultancy business in Auckland in 2001, specialising in governance training and support, mentoring and strategic planning. Pauline was the Chief Executive of Workbridge Inc for 5 years, a specialised professional services organisation that provided jobs and training for people with disabilities.

Norman Macfarlane
Commissioner
Mr Macfarlane is Managing Director of the Auckland based Caledon Aviation Management Consultancy. His career spans over 40 years in transport-related industries in the aviation, tourism, international oil and shipping sectors.

Assessors

Assessors are appointed by the Commission for independent technical advice from an operational perspective. The assessors include:

Richard Rayward *Aviation Assessor*
Mr Rayward is the Managing Director of Air Safaris and Services (NZ) Ltd in South Canterbury. He holds an Airline Transport Pilots License (Aeroplane), check and training qualifications, and Flight Examiner rating. With 35 years experience in aviation in New Zealand, Mr Rayward has been involved in areas of aviation ranging from bush flying and ski-plane operations to scenic, charter and commuter operations.

Pat Scotter *Aviation Assessor*
Mr Scotter is employed by Air New Zealand Limited as a Boeing 747-400 captain. Over more than 40 years in the aviation industry he has qualified as a flight instructor, a flight examiner, and a licensed aircraft maintenance engineer with an inspection authority. (He runs a part time engineering facility at Rangiora Airfield.) He has a Bachelor of Aviation degree (Massey) and has studied air safety investigation.

Bill Jones *Rail Assessor*
Mr Jones worked for New Zealand Rail (NZR) as a civil engineer for 32 years, including two undergraduate years at University of Canterbury, one postgraduate year at Victoria University of Wellington, and 2 years seconded to British Rail. He was NZR's Chief Civil Engineer for 5 years and Chief Engineer for 2. In the years since leaving NZR's full-time employment, he completed a number of consulting assignments in New Zealand and overseas. Mr Jones has a Bachelor of Engineering degree and Diploma of Public Administration qualifications, is a Fellow of the Institution of Professional Engineers New Zealand, and is a Registered Engineer.

Alan McMaster *Rail Assessor*
Mr McMaster has had 30 years experience with railways in New Zealand and during this time held senior management positions in engineering and train operations. Since leaving New Zealand Railways, he has carried out assignments for railway operations overseas and is a mechanical engineering consultant for heavy road transport vehicles in New Zealand. He holds a Bachelor of Engineering Degree (Mechanical), is a member of the Institution of Professional Engineers of New Zealand, and is a Registered Engineer.

David McPherson *Marine Assessor*
Mr McPherson spent 37 years working for Union Shipping New Zealand Limited, starting as a junior engineer. He retired after holding various senior management positions in the company's maritime operations. He holds a Class 1 Steam and Motor Certificate, and is a member of the Chartered Institute of Transport.

Keith Ingram *Marine Assessor*
Mr Ingram is the Managing Director of Neptune Charters Limited and VIP Publications Limited in Auckland. He is the editor and publisher of NZ Professional Skipper magazine and has more than 35 years marine experience in our coastal waters. As a professional mariner, he holds both trade qualifications and a valid seagoing certificate and is a restricted limits shipping industry advisor and consultant.

Other assessors are appointed from time to time as appropriate, to assist with specific inquiries.

Staff

These were the staff on 30 June 2002:

(back row from left)

John Goddard	*Air Accident Investigator*
Iain Hill	*Marine Accident Investigator*
Denise Steele	*Office Manager*
Ian McClelland	*Air Accident Investigator*
Ken Mathews	*Air Accident Investigator*
Peter Miskell	*Rail Accident Investigator*
Dennis Bevin	*Rail Accident Investigator*
Doug Monks	*Marine Accident Investigator*
Joanne McMillan	*Secretary*

(seated in front from left)

Ailsa Wong-She	*Administration Assistant*
Rob Griffiths	*Medical Consultant*
John Britton	*Chief Executive*
Nikki Brown	*Receptionist*

(absent - insert)

John Mockett	*Chief Investigator of Accidents*

Chief Commissioner's Overview

Last year I advised that Deputy Chief Commissioner Phillipa Muir would be leaving the Commission because her second term was to expire in September 2001. This year fellow Commissioner Norman Macfarlane and I warmly welcome our new Deputy Chief Commissioner, Pauline Winter, who brings a wealth of experience from both the private sector (including a number of years in the construction industry) and public sector. Pauline is a management consultant and also trustee of the Auckland Energy Consumers Trust, and the Pacific Island Business Development Trust. Pauline is currently a board member of the Legal Services Agency and a Trustee of the Auckland Mayoralty Foundation. She was recently the Chief Executive Officer of Workbridge Inc, which specialised in providing jobs and training for people with disabilities throughout New Zealand.

The New Zealand Transport Accident Investigation Commission seeks a strengthening of its existing statutory independence by arguing that the Transport Accident Investigation Commission ought to be completely separated from the transport regulatory entities, being the Ministry of Transport, Civil Aviation Authority, Land Transport Safety Authority and the Maritime Safety Authority. The Commission has a sound professional relationship with the Ministry of Transport. Accordingly, this is the appropriate time to make out the case for more independence than currently applies in the existing statutory and operational environment. The case for clearer independence is founded in principle. A well-known international investigation of a major transport accident in the Baltic sea illustrates the fundamental importance of full independence and unmistakable competency in investigation capability of the relevant state agency.

The overseas accident I refer to is the 1994 sinking of the roll-on roll-off passenger vessel *Estonia* with the loss of 851 lives. The lessons of the *Estonia* accident have been discussed at 2 annual meetings of the International Transportation Safety Association the Chief Executive and I attended in New Zealand, 2001 and Helsinki, 2002.

The *Estonia* had a false bow (a "bow visor") and a draw bridge structure for loading and offloading freight and vehicles through the front of the ship. Before sailing, the bow visor was swung down and locked closed, and together with a watertight door formed by the raised drawbridge, kept the sea out. In 1994, while encountering heavy seas in the Baltic, during a voyage from Estonia to Sweden, the bow visor locking devices failed because they were of inadequate design and the visor fell off, allowing the watertight door to lower. The sea poured into the vessel. The bow visor problems had been encountered earlier by a number of similar ships. In some cases they were not notified to the authorities, in others the authorities

did not act on the reports. Tragically those incidents did not lead to any systematic inspection and requirements for reinforcement of the bow visor locks on the *Estonia*. The first lesson, therefore, is the investigative agency's recommendations following incidents ought to be respected. Fortunately, with the new safety recommendation tracking regime now in use, New Zealand has learned this lesson.

The vessel was Estonian flagged, carrying mostly Swedish passengers. The ship sank in a Finnish Search and Rescue region, so the investigation was conducted by a Joint Investigation Board involving the representatives of 3 countries, Estonia, Finland and Sweden. The investigation was dogged with controversy and hampered by a turnover in investigating staff and even allegations of forgeries. Due to its temporary warrant, the Joint Investigation Commission ceased to exist after the final report was submitted to the various governments. After this the parties concerned had no one to whom to turn and as a result subsequent queries went unanswered and there was intense speculation over causes and conspiracies. There were a number of questions about the approach and work of the investigators. In an attempt to defuse the concerns, the government of Sweden funded a symposium on the *Estonia* sinking. None of the original investigating organisations were invited to this symposium. The symposium was held and resulted in the organisers recommending to the Swedish government that the investigation be reopened. I understand that the government will not reopen the investigation because there is nothing new to be learned from further investigation, but the controversy continues. The second lesson, therefore, is the relevant state agency or international group must have unchallengeable skilled human resources available with the capacity to produce authoritative investigative reports.

The *Estonia* sinking and investigation demonstrated an incomplete investigation process at two levels. On one level, information about previous similar occurrences was not independently investigated. Had the previous incidents been properly investigated, the causes of the disaster would have probably been identified and hopefully eliminated. 851 people would not have died in the Baltic Sea. Learning lessons is the sole purpose of independent accident and incident investigation. Learning is the reason for the existence of Transport Accident Investigation Commission. The second failure was the chaotic investigation into the *Estonia*: it was a mistaken response. The investigation process was not conducted by a permanent independent investigation agency, and staff turnover was high.

In summary, the sinking of the *Estonia* demonstrated investigation failure before the tragedy and investigation failure after the tragedy. In his report, the Chief Executive will touch on other risks associated with failed

responses to a major accident, including the critical process of informing survivors and the families of deceased victims, and the public.

Bow visor problems are not unknown in New Zealand. In March 1998, the fast ferry *Condor 10* was proceeding out of Wellington Harbour into a moderate southerly swell, when the vessel encountered two short steep waves of approximately 4.5 m in height[1]. The resultant slamming displaced the bow visor and caused substantial damage to the surrounding hull structure.

The TAIC was able to investigate the accident and identified a number of safety concerns including:

- the level of type-rating training for the crew of high speed craft
- the quality of route assessment
- the adequacy of route information provided for the master
- the interpretation of the "worst expected conditions".

The TAIC made safety recommendations to a wide range of organisations, domestic and international, to minimise the potential of future accidents of this type, any of which could have had fatal consequences. This accident and the safety recommendations is typical of many investigations and demonstrates the need for the Commission to be able to respond completely and thoroughly. The Commission also investigates a range of incidents, which, although of a lower public concern, result in equally important messages for preventing major accidents in future.

In addition to safety recommendations arising from individual accidents and incidents, the Commission has taken a wider view of preventing accidents by suggestions for improvements in transport safety. For example, the Commission has for some years asked state transport agencies to require rail operators to improve the scope of incident notifications. A June 2002 report by consultants Halliburton KBR confirms that rail incidents are underreported.

The Commission attempts eternal vigilance concerning its ability to investigate. The Commission is funded by vote: Transport, the same resource pool which funds the Ministry of Transport and the transport regulators. The fact of potential conflict of interest between a *funder* and an independent *investigator* ought to be recognised: on one hand, the Ministry is responsible for the allocation of the Commission's budgetary resources, which are in some cases appropriated out of the Ministry's own allocation and on the other hand, the Ministry is under a legal obligation to recognise the statutory independence of the Commission. Conflicts of interest may occur particularly, as the Ministry is managing and in some

[1] TAIC report 98-204, available from TAIC's web site www.taic.org.nz

cases drafting transport regulations, and the government is increasing its direct involvement in transport operations through ownership of operators such as Air New Zealand.

The Commission recognises unqualified accountability for the resources it expends. In last years' Transport and Industrial Relations Parliamentary Committee's review of TAIC, the Committee advocated that the TAIC should attempt to achieve more financial and operational independence from the Ministry of Transport and the Commission agrees that this must happen.

These issues must be managed wisely otherwise there could be adverse consequences for transport safety. The improved financial and operational independence advocated by the Transport and Industrial Relations Select Committee in its most recent review of TAIC is important. Any effort which might detract from complete and independent credible investigative performance could increase risks for the Minister of Transport and also the State. The risks could include:

- inability for TAIC to respond comprehensively to accidents
- increased conflicts of interest within the state transport entities
- missed investigations of incidents which might later be found to be precursors of major or high profile accidents.

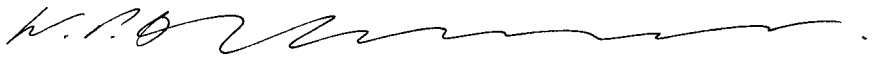
These types of events have lead to major controversies for governments overseas and which have then generated much pain and hasty change. I know that New Zealand will learn from others and not wait to experience the same pain ourselves. The fact that New Zealand has a less than enviable safety record in parts of its transport system may indicate the need for more widespread investigations for safety.

The Commission has been contributing information and opinion to the Ministry of Transport review of accident investigation which was announced in July 2000. Mindful of the conflict of interest issues identified earlier and the Ministry's key role in the transport sector and in the review, the Commission looks forward to the results with great interest. The review may resolve a number of critical issues facing the Commission, including its independence, its capability for investigating a major accident, the span of investigations, and the duplication of roles between TAIC and regulators.

We all operate in an unforgiving environment where a major disaster that is not investigated comprehensively and independently by the State will probably provoke a later more comprehensive further investigation designed to identify the failings on the part of (and perhaps allocate blame to) the State. In the view of the Commissioners, the Commission ought to

achieve a level of independence similar to that of the Office of the Auditor General. TAIC's counterpart agencies in Canada and USA have direct state funding without any intermediary body. The Transport Accident Investigation Commission submits that the same model ought to be considered for New Zealand. In closing my overview, may I share with you a compelling statement made in 1974, when the US congress made the National Transportation Safety Board independent of the US Department of Transport:

> Proper conduct of the responsibilities assigned to this Board requires vigorous investigation of accidents involving transportation modes regulated by other agencies of government; demands continual review, appraisal, and assessment of the operating practices and regulations of all such agencies; and calls for the making of conclusions and recommendations that may be critical of or adverse to any such agency or its officials. No federal agency can perform such functions unless it is totally separate and independent from any other agency of the United States.



Hon W P Jeffries
Chief Commissioner

Chief Executive's Report

Over the year we launched 47 investigations and completed 45 reports into accidents and incidents. Of the investigations finalised in the year, 76% were completed within 9 months. Variances in numbers of investigations launched, in comparison to target and previous years, are due to the uncertainty inherent in predicting the number and complexity of accidents and incidents to be investigated. We were not able to meet the timeliness target of completing 90% of marine and aviation investigations within 9 months because of staff turnover (we had to recruit 2 new marine investigators), and several complex or difficult investigations in both modes. The Commission's investigation and report output statistics are provided on page 63.

Importantly, for the first time in the Commission's 12 year history, we are able to confirm the outcome for public safety in more concrete terms: that recipients have completed implementing 47 of TAIC's safety recommendations (13 aviation, 18 rail, and 16 marine) over the year. Tracking and confirming implementation of safety recommendations is a valuable development in transport safety, supported by the Minister and Parliament's Transport and Industrial Relations Committee. The statistics are summarised on page 52.

This visible contribution to public safety contrasts with previous years when the Commission could only report on what the recipients of the Commission's safety recommendations said that they intended to do. In line with human and organisational nature, action did not always match intention, and the Commission did not know whether a safety recommendation had been implemented, other than by investigating a subsequent accident. The implementation tracking system relies on the cooperation of the 3 regulatory agencies (CAA, MSA, and LTSA) and transport operators or other recipients of recommendations.

Our original Crown revenue of $1.550 million[2] was increased by supplementary Crown revenue of $0.132 million. Total revenue including other income was $1.719 million. Total expenditure of $1.693 million exceeded forecast by $0.106 million. The net result was a surplus of $0.026 million.

The increase in expenditure was primarily required to attenuate staff recruitment and retention risks. Over the year staff turnover was 50%. Three of TAIC's 8 investigators left. Two of the investigators were

[2] All costs exclude GST.

headhunted to better paid positions, another left because the work was too demanding. The most significant departure was that of Chief Investigator of Accidents, Captain Tim Burfoot, who left to become Operations Manager at the Interisland Line. I am delighted to report that we were able to promote Captain John Mockett to the position, rather than having to look outside TAIC for a replacement. Another key appointment was Denise Steele, who replaced Office Manager Melanie Watts.

Given TAIC's small size, losing 3 investigators was a major crisis because:

- the departure of one investigator, in any mode, constitutes a loss of between half and a third of our investigative capability for accidents in that mode of transport
- there is an almost nonexistent pool of trained investigators from which to recruit. As a result we have to recruit people who have high level operational experience (for example aircraft pilots, masters of ships, and senior railway staff) and then train them as investigators
- recruitment can take many months
- any remaining investigator has to be diverted from investigations under way to help with on site training of the new investigator
- the new investigator is unavailable for significant periods because he or she has to attend off site training courses, some of which are overseas
- accidents do not wait for investigators to be trained, so the backlog caseload keeps building.

An independent survey confirmed that we need to pay more to attract and retain our investigators and this adjustment, together with recruitment costs, resulted in our personnel budget being exceeded by $0.113 million. We conducted our own advertising and recruitment programme as we felt this was the most efficient option, although we did contract out some specialist testing of applicants. The impact of staff losses will continue for some time while we catch up on outstanding work.

Clearly the Commission is in a very exposed position due to its small size, which makes any sort of succession planning impossible. Another difficulty posed by its small size is that associated with investigating larger than typical accidents.

The Commission's quality management system includes a comprehensive plan for investigating a major accident. An exercise, held to test the plan, has shown that the Commission lacks sufficient investigative and support staff to respond to accidents more demanding than those it encounters month to month. The Ministry of Transport has been alerted to this risk.

We have researched ways of conducting major accident investigations, relying on existing staff numbers and borrowing or hiring additional expertise. For example, it has been suggested that the regulators could supply investigators to make up the shortfall in TAIC's numbers. However, TAIC would have to rely on the regulator making enough staff available long enough to complete the investigation, and sufficient numbers of the regulator's investigators would swamp the 2 or 3 TAIC investigators. It would no longer be an independent TAIC investigation. We have concluded that the task is not possible with current staff numbers, even with offers of assistance from within New Zealand and overseas, if the Commission is to produce a credible report, free of conflicts of interest, within a reasonable time. Changes at TAIC and in the field of accident investigation mean that TAIC is unlikely to be able to undertake another Ansett Dash 8 type investigation as promptly as the original 1995 investigation.

An average of 13 years elapsed between the Tangiwai rail bridge disaster (123 deaths in 1953), the Wahine ferry sinking (51 deaths in 1968), and the Mount Erebus DC10 accident (257 deaths in 1979). It is now 23 years since the DC10 accident. Some may view the 23 year gap as evidence that there is no urgency for change, but we are concerned that the gap indicates time may run out before the question of resources is resolved, if TAIC is expected to conduct a major accident investigation.

Our mandate is to investigate occurrences of significance to transport safety, but we cannot tell if an occurrence is significant to transport safety unless we investigate it. This problem has been raised by the Select Committee several times. The proposition occurs that we are not investigating all the occurrences that we should under our legislation. Rather, TAIC investigates only the tip of the iceberg. In aviation, the Convention on International Civil Aviation overcomes this problem by advocating that the state's independent investigator is to investigate all aircraft accidents and serious incidents. A number of similar safety investigation agencies overseas are responsible for investigating all accidents and incidents in some modes of transport. TAIC would require more investigators to conduct a wider range of safety investigations. These investigators would be of great help in managing a major accident investigation, and (not least) will help prevent future aviation, rail and marine accidents. The opportunity could be taken to remove the duplication of roles that both TAIC and the regulators undertake for safety investigation, consistent with comments by the Transport and Industrial Relations Select Committee in its 2001/02 review of TAIC and the May 2001 Civil Aviation Performance Review.

If an investigation is conducted in an atmosphere of public trust and acceptance, the preventive aspects of the report are likely to receive greater emphasis than if the investigation is conducted in an atmosphere of controversy. Controversy often starts with concerns expressed by the accident victims – whether they are the survivors, or families of the dead and injured. The respect and concern shown to victims of an accident has a great impact on all work surrounding the aftermath of the accident, including the investigation into cause. It is not enough to carry out a thorough, scientific, effective and fair investigation. Victims must be helped to understand the purpose and process of the TAIC investigation.

Our analysis of accidents in New Zealand and overseas shows that an inadequate response has ramifications for the investigator, the transport system, and the government. Inadequate responses in the USA[3] resulted in such bitter complaints from families of callous treatment and government insensitivity in their time of grief, that it caused the US to pass urgent special legislation, and in the Netherlands, arguably would have toppled the government[4] had another controversy not done so first. We welcome and have contributed to reviews by other government agencies that are aimed at providing a coordinated response after an accident.

A significant beneficial development in the year was that TAIC received a government guarantee of up to a maximum amount of NZ$10 million, to cover urgent commitments in the initial stage of an investigation - for example deep water wreckage recovery. The guarantee will enable TAIC to gain immediate access to funds should an overseas contractor require a deposit or guarantee in advance of dispatching specialist recovery equipment to New Zealand.

The changing face of transport, both within New Zealand and overseas, means that TAIC must be alert to strategic issues affecting accident investigation and the effectiveness of its reports. Over the year, the Commission advocated improvements in a number of areas, for example:

- the establishment of confidential incident reporting systems, which are now seen by safety experts as beneficial to learning about accidents and incidents, and so preventing future accidents
- clearer standards for reporting rail incidents, more consistent with aviation and marine practice, reducing the scope for avoiding notifying TAIC of incidents

[3] Generated by the TWA 800 and ValuJet accidents, as reported in Lloyd's Casualty Week August 9 1996.

[4] Paper by Ken Johnson, then Executive Director of Transportation Safety Board of Canada, referring to the 1992 El Al Boeing 747 freighter which crashed into an apartment block in Amsterdam. Such controversy surrounded the accident that one report showed that 60% of Dutch voters believed that the inquiry into the accident failed to uncover the truth.

- requiring speed and other data to be recorded for all main line locomotives (including passenger units, many of which currently do not have such recorders)
- requiring recording of train control communications.

The Chief Commissioner's last overview commented on difficulties posed when the Commission gives evidence at inquests. The role of the Coroner is an important one, and each of New Zealand's 70 Coroners is independent. This year the Commission has put more effort into initiating communications with Coroners and explaining the statutory limitations on the evidence the Commission's investigators can give, with encouraging results. However, a central problem TAIC encounters at inquests remains to be resolved. If a party considers that the Commission's accident report adversely affects it, that party can use the inquest as a forum to attempt to discredit the Commission's report. TAIC cannot rebut misleading evidence and false arguments presented at the inquest because TAIC must keep sensitive information confidential to preserve the free flow of information to its investigators for solving the causes of accidents. The necessary restrictions on any TAIC response favours the party attempting to discredit the TAIC report, generating controversy and confusion over the TAIC report and the causes of the accident. This is not the fault of the Coroner, the parties to the inquest, or the news media. It is simply the almost inevitable product of overlap of two different independent approaches to investigating and preventing accidents. The end result can be inconsistent or produce conflicting findings that are unhelpful to transport safety, at a time when both TAIC and Coroners are concerned about scarce resources. Some resolution of this problem may be possible in the pending review of the Coroners' Act, or the review of accident investigation.

The 2001/02 year has provided many challenges for TAIC which we have overcome, thanks to the combined effort of the Commissioners and staff. I am particularly grateful for the extra effort "old hands" have put in to maintain operations over the year and to help train new staff.

John Britton
Chief Executive

Functions and Powers

The functions of the Commission are stated in the Transport Accident Investigation Commission Act 1990 as follows:

Functions of the Commission

1. The principal function of the Commission shall be the investigation of accidents and incidents.

2. Without limiting the principal function under subsection (1) of this section, the Commission shall also have the following functions:

   (a) To make such inquiries as it considers appropriate in order to ascertain the cause or causes of accidents and incidents.

   (b) To co-ordinate and direct all such investigations and to determine which other parties (if any) should be involved in such investigations.

   (c) To prepare and publish findings and recommendations (if any) in respect of any such investigation.

   (d) If requested by the Minister, to deliver a written report on each investigation to the Minister, including any recommendations for changes and improvements that it considers will ensure the avoidance of accidents and incidents in the future.

   (e) To co-operate and co-ordinate with other accident investigation organisations overseas, including taking evidence on their behalf.

   (f) Where (i) a notification under Section 27 of the Civil Aviation Act 1990, or (ii) a notification under Section 39c of the Transport Services Licensing Act 1989, or (iii) a notification under Section 60 of the Maritime Transport Act 1994 has not been received, to request from the Civil Aviation Authority, the Land Transport Safety Authority, or the Maritime Safety Authority, as the case may be, such further information as it considers appropriate regarding any accident that the Commission believes is required to be investigated under Section 13(1) or Section 13(2) of the Transport Accident Investigation Commission Act.

(g) To perform any other function or duty conferred on it by the Transport Accident Investigation Commission Act or by any other Act.

Powers of the Commission

The Commission's powers include the same powers that are conferred on a Commission of Inquiry by the Commissions of Inquiry Act 1908, and are subject to the provisions of the Transport Accident Investigation Commission Act, all the provisions of that Act except Sections 11 and 12 and all other powers reasonably necessary or expedient to enable it to carry out its functions.

The Commission's investigators, under warrants issued by the Chief Commissioner, have the power to:

- enter and inspect any transport-related thing
- inspect, copy, or retain any documents or records
- prevent tampering with evidence, prohibit access to an accident site or related things
- direct a transport-related thing to be taken to a nominated place
- seize, detain, remove, preserve, protect or test any place or thing.

Promoting the Free Flow of Information

Consistent with the Commission's responsibility to ensure that it has the best possible access to vital information, the TAIC Act requires the Commission and other parties to keep certain types of information confidential. These same obligations give informants certainty that information they provide to the TAIC for an investigation into an air, rail, or marine accident or incident will not be revealed, except in a de-identified form in the TAIC final report, and if the information is pertinent to the analysis of the occurrence. The practice has international precedents in Australia and Canada and is advocated by the International Civil Aviation Organisation which has, for a number of years, recognised that people will not provide information if they are afraid about the possible uses to which that information may be put.

Paragraph 5.12 of Annex 13 to the Convention on International Civil Aviation states: *Information ... which includes information given voluntarily by persons interviewed during the investigation of an accident or incident could be utilised inappropriately for subsequent disciplinary, civil, administration and criminal proceedings. If such information is distributed, it may, in the future, no longer be openly disclosed to investigators. Lack of access to such information would impede the investigative process and seriously affect* [transport] *safety.*

Records such as witness statements, submissions (for example, on preliminary reports), records of interviews, and notes or opinions taken down by the TAIC investigators in the course of any investigation that occurred after September 1999, cannot be released by the TAIC other than for accident investigation. These records cannot be obtained from the TAIC by execution of a search warrant, by order of the Court, nor through an inquiry by the Ombudsman or Privacy Commissioner.

The TAIC Act gives similar protection to cockpit voice and video recordings, transcripts of such recordings, and records (other than those included in the preceding paragraph) held by the Commission containing information about an identifiable natural person. However, the Court may order their disclosure for civil proceedings if the Court determines that the interest of justice outweighs the adverse impact disclosure may have on the investigation to which the record relates, or any future investigation.

The protection provided by the Act still allows people who have provided information to the TAIC to make the same (or different) statements to others. If a person does not wish to make the same statement to others, their reason may be precisely that which would have inhibited that person from making the statement to the TAIC, had the TAIC not been able to protect their information.

The TAIC Act also allows other agencies and individuals to carry out their own investigations and to make their own inquiries. Alternatively, TAIC reports are available from TAIC's website www.taic.org.nz, in libraries, or from TAIC at a modest charge.

The Commission seeks to ensure that its investigation processes are well understood and is happy to explain these. It has a policy of responding to public and news media inquiries as promptly as practicable and as helpfully as possible.

Accidents and Incidents to be Investigated

The Commission is required to investigate an accident or incident in the following circumstances:

a) The Commission believes that the circumstances of the accident or incident have, or are likely to have, significant implications for transport safety, or may allow the Commission to establish findings or make recommendations which may increase transport safety; or

b) In the case of an accident or incident that the Commission has decided not to investigate under paragraph (b) of this subsection, the Minister directs the Commission to undertake an investigation in respect of that accident or incident.

The Commission is not required to investigate marine accidents or incidents relating to maintenance while a vessel is not at sea, loading or unloading, unless directed to by the Minister.

The Commission may investigate aviation accidents in neighbouring states which do not have adequate accident investigation capabilities, when requested to do so by the state concerned. The Commission recovers its costs for these engagements.

Commission Consultative Procedures

The principal purpose of the Transport Accident Investigation Commission is to determine the circumstances and causes of accidents and incidents with a view to avoiding similar occurrences in the future, rather than to ascribe blame to any person.

The Commission aims to ensure that its procedures are fair and open and comply with the principles of natural justice. It must also produce its reports and recommendations in a timely and efficient manner, having regard to its contractual obligations to the Minister of Transport and the public interest to publish an accurate, comprehensive report promptly after a transport accident or incident. The following consultative procedures contribute to these objectives.

Consultation on reports

Before publishing a final report on an accident or incident, the Commission produces a preliminary report. If the preliminary report states or infers that a person's conduct has contributed to the cause of the accident or incident such a person becomes an **interested party**, and the Commission gives that person an opportunity to comment on or refute that statement. Because the preliminary report may contain inaccuracies, it is sent to interested parties in confidence to enable those parties to comment on it to the Commission. The Commission may also invite comment from other parties it considers may materially contribute to the accuracy of the report. No party is permitted to make public comment on, or add to public speculation about, the contents of the preliminary report, since this would breach natural justice and could impede the free flow of information to, and thus the effectiveness of the Commission, in future. It would also breach section 14B of the Transport Accident Investigation Commission (TAIC) Act 1990.

Under section 14B of the TAIC Act, any person to whom the Commission has provided information in confidence, for the purpose of the Commission's investigation (for example for comment on the preliminary report), must obtain the written consent of the Commission before they can disclose that information to any other party. The Commission will give its consent for interested parties to disclose the preliminary report or the information within the report to a support person or a legal advisor, as long as the interested party makes that person aware that they must not disclose the report or the information within it to any other person or organisation. Every person who discloses information so provided in confidence, without the Commission's written consent, commits an offence under section 14L

of the TAIC Act, and is liable for a fine up to $10,000. An organisation is liable for a fine of up to $25,000.

The TAIC Act does not prevent an interested party disclosing their own information to anyone else, including the police and other government or civilian investigators, or the news media. Nor does the TAIC Act prevent an interested party disclosing information gained from sources other than the Commission. When doing so, however, the interested party must be careful not to include the information supplied in confidence by the Commission, nor information that the interested party has derived from anything supplied in confidence by the Commission. Including those types of information would be a breach of confidence and may amount to an offence under section 14L.

The TAIC Act law on disclosing information promotes and protects the free flow of information to the Commission, so that it has the best opportunity to find out the truth of what happened, and tell the state and the public how to prevent people being killed by similar accidents. If you are an interested party and are not sure which information you can disclose to others, please discuss it first with the Commission's Investigator-in-Charge, or contact your lawyer for advice.

The Commission evaluates the written comments from interested parties if received by the Commission within 21 days, and may modify the preliminary report on the basis of these submissions. No further opportunity to comment on the report is provided, unless the Commission makes changes which imply a greater contribution by an interested party to the reported cause of the accident or incident.

The modified report is submitted to the Commission for final consideration and approval as its **final report** prior to publication. The Commission forwards a copy of the final report in confidence to interested parties a few days before public release. The same requirements for confidentiality that applied to the preliminary report also apply to the advance copy of the final report, until it is released to the public by the Commission. Once the final report is made public, interested parties are free to make public comment on the final report and its contents. However they may not make public comment on the other information provided to them in confidence by the Commission, including the contents of the preliminary report and preliminary safety recommendations, if different from the final report. Neither the preliminary report nor the final report are admissible as evidence in a civil or criminal court.

Consultation on safety recommendations

The ultimate goal of the Transport Accident Investigation Commission is to improve transport safety. To this end, the Commission prepares and publishes **safety recommendations** where it identifies substantive opportunities for improvement. Safety recommendations may be made at any time during an investigation and are made in general or specific terms, whether they have been directly derived from causal factors or have been prompted by other factors in the investigation. Each safety recommendation is made to the **recipient** (any organisation, entity, or person) in the best position to implement it. The Commission has no power to enforce its safety recommendations.

Following initial discussion between the Investigator-in-Charge and the recipient, the Commission forwards a **preliminary safety recommendation** to the recipient and invites comment within 10 or 21 days, depending on the urgency of the recommendation. Like a preliminary report, the preliminary safety recommendation and accompanying material is supplied to the recipient in confidence and must not be disclosed as this could result in inappropriate speculation or a breach of natural justice. This would amount to an offence. The Commission considers the recipient's comments before formulating the **final safety recommendation** which the Commission forwards again, in confidence, to the recipient. The Commission asks the recipient to reply within 10 or 21 days, stating whether or not the recipient will implement the safety recommendation.

If the recommendation is very urgent the Commission issues a final safety recommendation without first issuing a preliminary safety recommendation.

Implementing safety recommendations

To help maintain public confidence in the safety recommendation process, the Commission also encourages recipients to advise it when the recipient has implemented a safety recommendation, or has determined that it cannot or should not implement the recommendation. The Commission considers the information or evidence and publishes each final safety recommendation's **status**: not yet implemented, implemented, or that it should not be implemented. This information helps the Commission make better safety recommendations in future, and demonstrates that the recipient is helping prevent similar accidents in future.

Public hearings

The Commission may hold a public hearing if it is likely to provide any significant advantages for determining the causes and circumstances of an accident or incident, over the Commission's normal procedure of gathering information in camera. The Commission will conduct the hearing according to such rules of procedure appropriate to its purpose, under the TAIC Act 1990 and the powers conferred on it by the Commissions of Inquiry Act 1908.

Safety Recommendations: Levers for Change

"The ultimate goal of a truly effective investigation is to improve safety. To this end, recommendations are made in general or specific terms in regard to matters arising from the investigation, whether they have been directly affected by causal factors or have been prompted by other factors in the investigation."[5]

Safety recommendations (SRs) are arguably the Commission's most important product for avoiding similar occurrences in the future. Consultation on preliminary SRs will not always reveal the difficulties or cost of putting the final SR into practice, so it is not reasonable to expect all SRs to be implemented. It would also be inappropriate for TAIC to enforce any SRs, as this would erode the Commission's independence. If a recipient does not implement a SR, the option always exists for the state to assess importance, cost and benefit, and, if necessary, intervene and enforce implementation.

Many of TAIC's SRs may have gone unheeded. However, given the relevant information, TAIC can provide an opinion on whether a SR has been implemented, or whether a decision not to implement is reasonable.

Recognising the potential importance of TAIC's SRs, in October 2000 the Minister of Transport asked the safety authorities to participate in returning information to TAIC showing completed action to implement all new SRs. TAIC now forms a view about whether the evidence shows beyond reasonable doubt that each new SR has been implemented. The process covers all SRs developed since October 2000.

The Commission reports the status of each safety recommendation as one of the following:

Closed – acceptable

The recipient or other relevant party has shown that it has completed action satisfying the objective of the safety recommendation.

Closed – cancelled

The safety recommendation has been superseded, or become no longer applicable for a variety of reasons. For example the recipient or other relevant party has shown that

[5] From International Civil Aviation Organisation's Manual of Accident Investigation.

the safety recommendation probably is not practicable or does not meet the test of safety at reasonable cost.

Open

The Commission has received insufficient evidence to assign a status of Closed – acceptable, or Closed – cancelled, to the recommendation.

The Commission publishes the final safety recommendation, its status and the pertinent portion of the recipient's reply in the final occurrence report if practicable. All final safety recommendations, and the pertinent portions of recipients' replies are also published on the internet at the Commission's website www.taic.org.nz.

Fifty-eight SRs were assigned "closed – acceptable" status since October 2000. Although the number closed may seem low in relation to the 200 SRs finalised, good progress is being made in the aviation and rail sectors. It may take some time to implement an SR to ensure lasting benefit through appropriate integration with existing systems. The Commission is evaluating progress on the marine SRs, but many of the marine SRs are expected to be implemented as a result of draft Maritime Rules being enacted.

Two SRs have been assigned "closed – cancelled" since October 2000.

The status of all SRs developed before the status system was launched is recorded as "unconfirmed", unless information received (for example, during a subsequent investigation) enables TAIC to assign another status.

Examples of SRs are provided in the following section.

A summary of SRs finalised appears on pages 50 and 51, and detailed statistics on SRs finalised and implemented on page 52.

Examples of Investigations and Safety Recommendations

Finalised in the year ended 30 June 2002

Aviation

Partenavia P68B ZK-DMA, double engine power loss, North Shore Aerodrome, 20 July 2001 (investigation 01-007)

This investigation and the resulting safety recommendations are important because the aircraft type is in common use in New Zealand commercial operations. The double engine power loss was probably caused by icing with the potential for the total loss of the aircraft and its occupants. The safety recommendations are focused on alerting operators and pilots of this aircraft type to the corrective actions required to counteract the effects of icing.

On Friday 20 July 2001, at around 0450, Partenavia P68B ZK-DMA was abeam North Shore Aerodrome at 5000 feet, in darkness and enroute to Whangarei, when it suffered a double engine power loss. The pilot made an emergency landing on runway 21 at North Shore Aerodrome, but the aircraft overran the end of the runway, went through a fence, crossed a road and stopped in another fence. The pilot was the only person on board the aircraft and received face and ankle injuries.

The aircraft encountered meteorological conditions conducive to engine intake icing, and ice, hail or sleet probably blocked the engine air intakes. The pilot had probably developed a mindset that dismissed icing as a cause, and consequently omitted to use alternate engine intake air, which should have restored engine power.

Safety issues identified were the need to amend the aircraft flight manual warning concerning the use of alternate engine intake air, and the need to remind pilots about the Partenavia's in-flight vulnerability to engine air intake blockages by ice, hail, sleet and snow.

The following safety recommendation was made for the Director of Civil Aviation to:

- ❑ Amend the Partenavia P68B flight manual warning concerning the use of alternate engine intake air to reflect the warning contained in the P68C manual, which is, "when flying in high humidity at any air temperature, open the engine alternate air doors". (062/01)

The Director of Civil Aviation replied:

> I will publish an amendment to the Partenavia P68B flight manual as recommended and I expect this to be completely implemented by 17 December 2001. The covering letter to operators will require them to brief their pilots on the content of the amendment.

The following safety recommendation was made for the Chief Executive of Great Barrier Airlines Limited to:

- Remind company pilots about the Partenavia's in-flight vulnerability to engine air intake blockages by sleet, ice or hail, the symptoms of any blockage, and the corrective action necessary should a blockage occur. (063/01)

The Chief Executive of Great Barrier Airlines Limited replied:

> Great Barrier Airlines supports your recommendation, and would like to suggest the following addition to your proposal.
>
> "It is advisable that companies should implement as a standard operating procedure (P68) that if temperatures of below 5 degrees C and/or visible moisture are encountered, then engine alternate air systems should be activated."
>
> Discussion has been held with CAA with regards to incorporating the above (or similar) into a supplement to the Partenavia manual, or to advise all operators.
>
> Since the occurrence of ZK-DMA all pilots were involved in a flight safety meeting [in] which this incident was discussed. Engineering staff were involved, a working model of an alternate air box was displayed and manual operation shown. The flight standards and training manager reinforced the dangers of not completing all trouble checks from 100% recall, [and] more emphasis has been put on this in training.

F.7

Cessna A185E Skywagon, ZK-JGI, forced landing following power loss after take-off, near Motueka, 29 November 2001 (investigation 01-011)

This investigation and the resulting safety recommendations are important because with the significant increase in this tourist activity in New Zealand, the study of passenger restraints and any action taken will enhance the safety of participants, a large proportion of whom are international tourists. A significant number of occurrences of power loss after take off can be attributed to fuel management. The second safety recommendation will address this issue and help avoid similar accidents in this and other aircraft types.

On Thursday 29 November 2001, at about 0930, Cessna A185E Skywagon ZK-JGI took off from Motueka Aerodrome on a local parachuting flight. Shortly after take-off, at about 100 feet, ZK-JGI had a sudden and total power loss. Unable to re-establish power, the pilot guided the aircraft to a nearby kiwifruit orchard. After clipping trees, the aircraft struck the ground heavily, resulting in the pilot and 4 parachutists receiving serious injuries and 1 parachutist sustaining minor injuries.

The power loss was due to the pilot inadvertently selecting the fuel Off before the flight.

The safety issues identified were the certification of the aircraft with a modified fuel selector, pilot actions for a sudden power loss after take-off, and the non-fitment and wearing of safety restraints by parachutists. Safety recommendations were made to the Director of Civil Aviation to address these issues.

The following safety recommendations were made for the Director of Civil Aviation to:

- In conjunction with the New Zealand Parachuting Federation, complete a study into the utility of parachutists wearing safety restraints for take-off and landing, and include any resulting recommendations in the rule making process as a petition by March 2003. (018/02)

- Remind pilots of the actions for an engine failure after take-off as contained in the Civil Aviation Authority's Flight Instructor's Guide, and the benefit, if time permits, of changing fuel tank selection should a sudden, total and unexplained power loss occur. (019/02)

The Director of Civil Aviation replied in part:

> Both recommendations are accepted as worded and will be implemented as follows:
>
> 018/02: The study into the utility of parachutists wearing safety restraints for take-off and landing which will include any resulting recommendations in the rule making process as a petition will be submitted by 1 March 2003.
>
> 019/02: I will publish an article in The Civil Aviation Authority's "Vector" magazine reminding pilots of their immediate actions following an engine failure after take-off. I expect this to be implemented by 31 December 2002.

Rail

Express freight Train 828 and express freight Train 951, collision, Middleton, 8 December 2000 (investigation 00-121)

This investigation and the resulting safety recommendations are important because of the issues of fatigue and microsleeps in locomotive crews. The safety recommendations are focused on the control of rosters and hours worked to help avoid fatigue, training of crews to better manage their state of alertness and revision of the operation of locomotive vigilance devices to provide better defences against the effects of microsleeps should they still occur. A safety recommendation from a previous occurrence and applicable to this occurrence was also referred to in the report.

At about 0400 on Friday 8 December 2000, Train 828, a northbound express freight train, passed Signal 212 at Middleton at "Stop", and collided head-on with departing southbound express freight Train 951.

Three locomotive crew members received minor injuries. The locomotive on each train and a number of wagons were extensively damaged.

Safety issues identified included the control of locomotive engineers' hours of duty, fatigue management, and the ability of the locomotive vigilance system to overcome short-term attention deficits in time to prevent this type of collision.

In view of safety recommendations made to the operator in Rail Occurrence Reports 00-115 and 00-117, relating to previous occurrences involving similar attention loss through microsleeps, no further safety recommendations were made to the operator.

The following safety recommendations to the Managing Director of Tranz Rail relating to control of hours of work, Alertness Management training, and the operation of vigilance devices were included in Railway Occurrence Report 00-115 regarding a derailment at Westmere on 22 September 2000:

- ❑ put in place control measures to ensure:
  - mini rosters are controlled within defined criteria compatible with the principles used in compiling base rosters
  - defined criteria are met before offering extra shifts to LEs

- actual hours are monitored and immediate corrective action taken when late running or other factors increase rostered shifts to defined unacceptable levels (017/01)

- ❑ implement Alertness Management courses to reach at least 90% of LEs by the end of 2001, and 100% by the end of 2002 (018/01)

- ❑ revise the operation of the vigilance device system to provide a better defence against short duration microsleeps (019/01)

The following safety recommendation to the Managing Director of Tranz Rail relating to biological sleepiness leading to microsleeps was included in Railway Occurrence Report 00-117 regarding a derailment near Kai Iwi on 26 November 2000:

- ❑ research information available on factors contributing to biological sleepiness in LEs, with particular regard to the possible adverse effect of continuous night shifts, and take steps to:
  - minimise the probability of biological sleepiness leading to microsleeps
  - provide an effective defence against any microsleep which may occur, leading to an unacceptable risk exposure. (025/01)

These safety recommendations are equally applicable to this incident.

Light locomotive and private car, collision, private level crossing, Stratford, 19 September 2001 (investigation 01-113)

This investigation and the resulting safety recommendations are important because the private level crossing was used by the public but was without the appropriate signage or other protection. The safety recommendations improve the safety at the particular level crossing and also identify and improve the safety of other private level crossings which have come into public use and that may similarly lack appropriate protection.

On Wednesday 19 September 2001, at about 0705, a collision occurred between a light locomotive and a private motorcar at Egmont Tanneries Ltd private level crossing, between Stratford and Inglewood on the Marton to New Plymouth Line. The motor vehicle had made a right-hand turn from State Highway 3, which ran parallel to the railway line, and entered the unprotected level crossing immediately in front of the approaching locomotive.

The locomotive engineer was the only crew on the locomotive and was not injured, but the car driver, who was the sole occupant of the car, received fatal injuries.

The collision was caused by the failure of the car driver to see and give way to the approaching locomotive at the level crossing.

The safety issues identified included:

- the lack of appropriate warning signage at the level crossing
- the use of the level crossing for purposes outside the deed of grant
- the restricted views at the level crossing.

The following two safety recommendations were made for the Managing Director of Tranz Rail to:

- ❑ either immediately prohibit the public use of the level crossing in accordance with Clause 1(d) of the Deed of Grant or, if public use is to continue, give written consent to the lessee under conditions which ensure safe public access (077/01)

- ❑ identify all other private level crossings that the public are invited to use to ensure that:
  - the appropriate authority has been given for such use
  - the deed of grant contains appropriate conditions that ensure public safety
  - the appropriate signage for a public level crossing status is in place. (078/01)

The Managing Director of Tranz Rail replied:

> 077/01 – Tranz Rail accepts this recommendation.
>
> Tranz Rail has worked in partnership with the owners of Egmont Tanneries and the District Council to upgrade an existing alternative access route for use by the public and the tannery. The level crossing will be closed upon completion of the new access road. This is expected to occur during February 2002.
>
> 078/01 – Tranz Rail is in the process of reviewing this recommendation.

Tranz Rail needs to undertake further work to determine to what extent it is possible to implement this recommendation. Tranz Rail has a database of "known" private level crossings (approximately 700 in number). However, when a property is sold or changes hands, Tranz Rail has no way of knowing that this has occurred, as it is not informed. In such a situation, the Deed of Grant permitting use of the private level crossing would become invalid since it is a private agreement between Tranz Rail and the owner of the property and does not pass to the new owner with the title to the land. A new owner should, under law, then apply to Tranz Rail for its own Deed of Grant. Tranz Rail is planning to review the terms of the Deed of Grant to include an obligation to notify Tranz Rail of a change in ownership, but Tranz Rail has no way of enforcing this. In addition, there are a number of statutory private level crossings which are granted to farmers and the like by statute and which Tranz Rail also has no record of.

Tranz Rail intends to write to known private level crossing owners who have a Deed of Grant to remind them of their obligations under the Deed of Grant and to ask them to notify us of any public use of their crossings. Public use is prohibited under the Deed of Grant without Tranz Rail's consent. Tranz Rail then intends to deal with each known case of public use, by requiring the holder to erect appropriate signage, where this is the appropriate course of action. Unfortunately, it is the private holder and not Tranz Rail who is in the best position to monitor public use of the crossings and to this extent is reliant upon the compliance of the holders to the terms of their grant.

In addition, Tranz Rail also intends to amend its Deed of Grant to all new holders, to refer to the appropriate signage which should be put up in compliance with LTSA standards for the protection of level crossings with public use.

Further work is also required to determine the role of track inspections and now they can identify the status of private level crossings.

This is an ongoing project for Tranz Rail and the company is committed to following it through to all extents reasonably possible.

Marine

Passenger ferry *Aratere*, lifeboat incident, Wellington, 6 August 2001 (investigation 01-211)

This investigation and the resulting safety recommendations are important because, while nobody was hurt in this incident, the potential existed for serious injuries or fatalities to the boat crew had the lifeboat fallen from a greater height, and even more so had the lifeboat been used to capacity (112 people) in an emergency situation. The safety recommendations are focused on the manufacturer modifying the particular type of release mechanism, advising known users of the type about this incident and submitting the results of the investigation to the Maritime Safety Committee of the International Maritime Organisation, which is conducting research into the safety of lifeboats and drills.

On Monday 6 August 2001, at about 0730, a lifeboat and rescue boat launching drill was conducted on board the passenger and freight ferry *Aratere*. At about 0750, during the recovery of the port lifeboat, the forward hook of the synchronous release equipment opened spontaneously when the lifeboat was about one metre above the water. The bow of the lifeboat fell back into the water. None of the 8 occupants were injured and the lifeboat sustained no damage.

Safety issues identified included:

- the design of the equipment, which allowed the closure of the operating levers while the release mechanism was not properly engaged
- the limited visibility from inside the lifeboat of critical parts of the release equipment, which did not allow the boat crew to adequately check that the release mechanism was properly engaged
- the limited opportunities for maintenance and training, leading to a lack of appreciation by the ship's crew of the proper operation of the release mechanism
- the difficulty of operating the cumbersome and complicated equipment while attempting to recover a lifeboat from a seaway
- the fitting of replacement critical parts that were not made or approved by the manufacturer of the release mechanism
- the lack of appreciation by the ship's crew of warning signs in previous events which, if acted

> upon, would have increased the crew's knowledge of the equipment.

Safety recommendations were made to the Managing Director of Tranz Rail, the Spanish Maritime Administration, Inspeccion General Maritima, Pesbo S.A., the International Association of Classification Societies, and the Director of Maritime Safety to address the safety issues.

The following safety recommendation was made for the Managing Director of Tranz Rail Limited to:

- ❑ Introduce a policy that when replacement parts are required for any life-saving appliances or safety equipment, only parts made or approved by the manufacturer are used. (001/02)

The Technical Manager of The Interisland Line replied in part:

> Your final safety recommendation number 001/02 is already included in our Safety Manual, and has been since 1st November 2001 as we realised that this would be required.
>
> Chapter 9 Maintenance states that Manufacturers' instructions and original manufacturers parts are to be used for the maintenance of "Critical Equipment" and critical equipment includes all LSA.

The following safety recommendations were made for the Spanish Maritime Administration, Inspeccion General Maritima to:

- ❑ Require Pesbo S.A. to re-design its future synchronous lifeboat release equipment so that it fully complies with the provisions of the LSA Code, and is able to be engaged and checked before the lifeboat is attached to the davit falls. (002/02)

- ❑ Require Pesbo S.A. to provide a modification for existing synchronous lifeboat release equipment to address the deficiencies identified in this report. (003/02)

The following safety recommendation was made for Pesbo SA to:

- ❑ Advise all recipients of its synchronous lifeboat release equipment of the type supplied to the Aratere, of this incident and of the potential for the equipment to be incorrectly engaged when recovering a lifeboat. (004/02)

- ❑ When available, provide all recipients of its synchronous lifeboat release equipment of the type supplied to the Aratere with a modification to prevent incorrect engagement of the equipment. (005/02)

Pesbo SA responded in part:

> We have decided to carry out the following actions:
> 1. To communicate to all our clients of the danger that it supposes to manage the lifting system with no qualified personnel.
> 2. To send to each ship a new instructions book.
> 3. To notify them the absolute prohibition of substituting any [component] for another that is not identical to the original.
> 4. To send precise documentation so that each owner equips his system with:
>   (a) A ring to suspend the boat [off] the davit to carry out maintenance operations without lowering the boat to the water.
>   (b) A [placard] with instructions to check [that] the [components within] the system [are] correctly engaged.
>   (c) A security pin that impedes the opening of the hook [if attempts are made to lift the boat] with the system incorrectly engaged.
>
> We will also send the necessary data to install another [placard] in the vicinity of the control box with instructions so that the use of the security pin doesn't hinder the manoeuvre of the hooks.
>
> We want to leave clear that all these instructions will be given to the owners so that they carry them out themselves.

The following safety recommendation was made for the International Association of Classification Societies to:

- ❑ Advise all member Classification Societies of this incident in order that where synchronous release equipment of the same type is fitted on ships classed by them, their surveyors and all relevant ship operators are made aware of the potential for improper engagement of the equipment. (006/02)

The Senior Technical Officer of the International Association of Classification Societies Permanent Secretariat replied to the Commission's preliminary safety recommendation, which remained unchanged and became final:

> On receipt of the final report, I will send it to the IACS Correspondence Group on Life Saving Appliances to include in their work on the subject in conjunction with IMO (DE).

The following safety recommendation was made for the Director of Maritime Safety to:

- ❑ Submit a copy of Commission's report 01-211, together with the Maritime Safety Authority final report into the same incident, to the Maritime Safety Committee of IMO to support the work and initiatives now being conducted by both the Marine Accident Investigation Branch and the Maritime and Coastguard Agency of the United Kingdom, regarding the safety of lifeboats and lifeboat drills.

  Any review conducted by IMO should consider reported accidents worldwide, with particular emphasis on lifeboat/rescue boat launch and recovery systems.

  In addition, the review should consider standardised and integrated systems which:
  - have effectively common operating systems and procedures independent of the manufacturer
  - can be readily understood by non-technical persons
  - will reliably perform the tasks required, including routine testing, with maximised safety
  - can be operated safely under the control of operators with minimum experience and training. (007/02)

The Director of Maritime Safety replied to the Commission's preliminary safety recommendation, which remained unchanged and became final:

> MSA has no formal comment to make on either the report or preliminary safety recommendations to the Director or other parties. These are acceptable and we will action them when the report is finalised.

Commercial jet boat Shotover Jet 21, collision with canyon wall, near Queenstown, 31 August 2001 (investigation 01-213)

This investigation and the resulting safety recommendation are important because it highlights the danger of the loss of steering resulting from a power failure in a single-engine jet boat. The safety recommendation advocates exploring the possibility of developing an alternative means of steering to give a jet boat driver some degree of control in the event of a power loss. Such alternative steering has been developed for personal water craft but it is not clear if the technology can be adapted for larger and less manoeuvrable jet boats. Hundreds of thousands of passengers are carried annually on jet boat trips in New Zealand, a high proportion of whom are international tourists, and the majority of the jet boats in use are propelled by a single engine.

On Friday 31 August 2001 at about 1440, the commercial jet boat Shotover Jet 21 was proceeding down the Shotover River at about 60 km/h, with the driver and 11 passengers on board, when the engine stopped suddenly. With no propulsion, the driver lost directional control of the boat and it continued in a straight line for some 60 m before colliding with a rock face at about 30 km/h. Five of the passengers suffered serious injuries, the other passengers suffered minor injuries and the driver was unhurt. The boat was extensively damaged.

The cause of the engine stoppage was not conclusively established.

A safety issue identified was the inherent loss of directional control for single-engine jet boats in the event of a propulsion failure.

The following safety recommendation was made for the Director of Maritime Safety to:

- liaise with the National Transportation Safety Board of USA and manufacturers of jet boat propulsion systems to explore the possibility of developing an alternative means of providing directional control for single-engine jet boats in the event of an engine failure. (020/02)

The Director of Maritime Safety replied in part:

> I confirm that MSA has accepted the recommendation and we are currently corresponding with National Transportation Safety Board of USA and also industry within New Zealand regarding the feasibility of developing alternative means of steering in single engine jet boats.
>
> The Commission has correctly identified that the alternative steering arrangement discussed in Point 22 of Analysis 2, are for personal water craft, that is jet-skis, rather than jet boats. We therefore consider that careful analysis must be made to assess whether this type of technology can be incorporated into jet boats, bearing in mind the greater weight, speed and size of these vessels.

Summary of Occurrences Investigated

Within the period 1 July 2001 to 30 June 2002 the Transport Accident Investigation Commission initiated investigations into 15 aviation occurrences, 21 rail occurrences and 11 marine occurrences. Over the same period, work continued on completing investigations launched the previous year.

Aviation investigations

reference	date	locality	aircraft	operator	injuries
01-006	17 Jul 01	Great Mercury Island Beach	Piper PA 32 ZK-DOP	Christian Aviation	Nil
wind gust, damage to wing, undercarriage and propeller					
01-007	20 Jul 01	North Shore	Partenavia P68B ZK-DMA	Great Barrier Airlines	Nil
double engine failure and ditching					
01-008	10 Aug 01	Grand Canyon Arizona USA	Eurocopter AS350-B2 NI69PA	Popillon Grand Canyon Helicopters	6 f 1 s
collision with terrain, assisting NTSB investigation					
01-009	12 Sep 01	Mt Pisa Station Lowburn	Bell 206 ZK-HWI	Helicopters Otago	Nil
engine power loss after take-off					
01-010	31 Oct 01	New Plymouth to Auckland	Embraer EMB-820C Chieftain, ZK-RDT	Air National	Nil
door opened in-flight					
01-011	29 Nov 01	Motueka	Cessna 185 Skywagon ZK-JGI	Skydive Nelson	3 s
forced landing following power loss after take-off					
01-012	03 Dec 01	near Ruatahuna, Urewera National Park	Robinson R44 ZK-HTK	Heli-Kiwi	Nil
collision with terrain					
02-001	19 Jan 02	near Milford sound	Cessna 207 ZK-SEV	Air Fiordland	6 f
collision with terrain					
02-002	25 Jan 02	Hastings	Piper PA 34 200T ZK-SFC	Air Gisborne	Nil
undercarriage failure and subsequent wheels-up landing					
02-003	15 Mar 02	South Auckland near Drury	Hughes 300 ZK-HIC	Heli-Sika	Nil
crash landed due to in-flight tail rotor failure					
02-004	11 Apr 02	North of Dunedin	Cessna 210N Centurion ZK-TWA	Private	1 f
collision with terrain					
02-005	30 Apr 02	near Rotorua	Hughes 369D ZK-HRV	NZ Helicopters	Nil
engine failure					
02-006	15 May 02	near Wairoa	Partenavia P68B ZK-ZSP	Sunair Aviation	Nil
engine stopped					

Aviation investigations Continued

reference	date	locality	aircraft	operator	injuries
02-007	10 Jun 02	30nm SW of Napier	Piper PA23 Aztec ZK-DIR	Sunair Aviation	Nil
			Piper PA34 Seneca ZK-MSL	Air Napier	
loss of separation					
02-008	24 Jun 02	Napier Aerodrome	Piper Navajo PA-31 ZK-NPR	Air Napier	Nil
landing gear failed to lower					

Partenavia P68B ZK-DMA, double engine power loss, North Shore Aerodrome, 20 July 2001 (investigation 01-007). The pilot suffered face and ankle injuries in this accident.

Cessna A185E Skywagon, ZK-JGI, forced landing following power loss after take-off, near Motueka, 29 November 2001 (investigation 01-011). All six passengers suffered injuries in this accident.

Rail investigations

reference	date	locality	vehicle	operator	injuries
01-108	07 Jul 01	Otira Tunnel	Express Freight Coal Train 842	Tranz Rail	Nil
derailment					
01-109	16 Jul 01	Tawa	Passenger EMU Train 8203	Tranz Rail	Nil
doors opened on EMU					
01-110	27 Jul 01	Wellington	2 Passenger EMU units	Tranz Rail	Nil
near collision					
01-111	15 Aug 01	Ava	Passenger EMU Train 2621	Tranz Rail	Nil
door incident					
01-112	13 Sep 01	Stillwater	Shunt 84	Tranz Rail	Nil
runaway wagon					
01-113	19 Sep 01	Stratford	locomotive DC 4185	Tranz Rail	1 f
fatal level crossing accident					
02-101	04 Jan 02	near Rangitata	Express Freight Train 929	Tranz Rail	Nil
embankment washed out					
02-102	03 Jan 02	Buller Gorge	Coal Train 841	Tranz Rail	1 m
derailment, hit slip					
02-103	19 Jan 02	Mina, near Kaikoura	Express Freight Train 720	Tranz Rail	1 m
train hit washout and derailed					
02-104	21 Dec 01	near Jackson	Passenger Express Train 802	Tranz Rail	Nil
encountered 3 heat buckles					
02-105	27 Jan 02	Ikamatua	Coal Train 847	Tranz Rail	Nil
derailment					
02-106	28 Jan 02	Aitkens	Coal Train 820	Tranz Rail	Nil
derailment					
02-107	29 Jan 02	New Plymouth	Express Freight Train 530	Tranz Rail	Nil
collision					
02-108	04 Feb 02	near Te Hana	Shunt L23 and HRV	Tranz Rail	Nil
collision					
02-109	19 Feb 02	near Tangarakau	Freight Train 380	Tranz Rail	Nil
derailment					
02-110	05 Apr 02	Christchurch	Train Locomotives & rolling stock Train 801	Tranz Rail	Nil
collision					
02-111	22 Apr 02	Waitakere Ranges near Auckland	passenger train Rain Forest Express	Nihotupu Tramline	Nil
collision (nrp)					
02-112	04 May 02	Waitakere Ranges near Auckland	passenger train Rain Forest Express	Nihotupu Tramline	1 s
passenger fell from train					

Rail investigations continued

reference	date	locality	vehicle	operator	injuries
02-113	03 May 02	near Blenheim	Passenger Express Train 700 Coastal Pacific	Tranz Scenic	Nil
near collision between petrol tanker and train					
02-114	12 Jun 02	Silverstream station	Passenger EMU Train 2643	Tranz Metro	1 m
passenger fell from train					
02-115	13 Jun 02	Redwood Station	Passenger EMU Train 8268	Tranz Metro	Nil
train stopped short of platform					

Express freight Train 841, derailment due to slip, Buller Gorge,
3 January 2002 (investigation 01-105).
There were no injuries. Photograph courtesy of Tranz Rail.

Train 929 derailment, Rangitata, 4 January 2002 (investigation 02-101).
The locomotive engineer escaped with minor injuries.

Marine investigations

reference	date	vessel	locality	operator	injuries
01-209	04 Jul 01	Hauraki Gulf	fishing boats *Saint Peter / Sieshin Maru*	Siminovic/?	Nil
collision					
01-210	30 Jul 01	Manukau Harbour	container vessel *Spirit of Enterprise*	Pacifica Shipping	Nil
grounding					
01-211	06 Aug 01	Wellington	passenger ferry *Aratere*	Interisland Line	Nil
lifeboat incident					
01-212	19 Aug 01	Tory Channel	fishing vessel *Hans*	Pegasus Bay Fishing Company	Nil
sinking					
01-213	31 Aug 01	Queenstown	Commercial jetboat *Shotover 21*	Shotover Jet	5 s 6 m
collision with rock					
01-214	17 Sep 01	Tory Channel	Passenger ferry *Arahura* & Ro Ro vessel *Kent*	Interisland Line Strait Shipping	Nil
close quarters incident					
01-215	25 Sep 01	Christchurch	Jet boat *CYS*	Jet Stream Tours	Nil
partial steering loss & beaching					
01-216	16 Nov 01	Takatu Point	Tug *Wainui*, *Barge Seatow 11*, Yacht *Toolka*	McCullums Seatow Private	1 f
collision and sinking					
02-201	06 Feb 02	Gisborne	log carrier *Jodi F Millennium*	Jyundai Merchant Marine Co	Nil
grounding					
02-202	23 Feb 02	Bay of Islands Passenger	Vessel *Dolphin Seeker*	Kings Tours & Cruises	Nil
rock strike (nrp)					
02-203	01 Mar 02	Lyttelton	harbour tug *Purau*	Lyttelton Port Co	Nil
loss of control and grounding					

Key to abbreviations:

c = crew
p = passenger
m = minor
s = serious
f = fatal
nrp = no report published

Commercial jet boat *Shotover Jet 21*, collision with canyon wall, near Queenstown, 31 August 2001 (investigation 01-213).

Bulk carrier *Jodi F Millennium*, grounding, Gisborne, 6 February 2002 (investigation 02-201).

Summary of Safety Recommendations Finalised

The number of safety recommendations finalised over the year varies widely between modes of transport. This is indicative of the different nature of safety issues raised by individual investigations, rather than a reflection of relative levels of safety.

Aviation

Over the year, 11 safety recommendations were finalised to improve aviation safety:

2	to prevent un-commanded engine flame-outs
2	to prevent double engine power loss due to icing
1	to prevent false power loss indications
1	to reduce the risk of bird strikes
2	to improve aviation safety through education
1	to improve the safety of ex-military aircraft
1	to reduce the risk of inadvertent fuel transfer
1	to improve recorded maintenance information, leading to enhanced safety investigations after accidents or incidents

Rail

Over the year, 21 safety recommendations were finalised to improve rail safety:

5	to reduce collisions at level crossings
2	to improve safety of multiple work groups working under Conditional Stop board protection
1	to improve safety culture
2	to improve defences against track warrant operating errors, leading to collision
4	to reduce undesirable or known risk exposure
7	to improve the integrity of train control operations

Marine

Over the year, 50 safety recommendations were finalised to improve marine safety:

8	to improve vessel and critical component design
5	to improve compliance with current regulations
1	to improve completeness of safe ship management systems
9	to improve operator policies, procedures and risk management
10	to improve industry training and training standards
2	to ensure adequate manning for safe operations
1	to improve the standard of repair and maintenance of safety-critical components in vessels
6	to improve the standard of monitoring, repair and maintenance of aids to navigation
6	to educate the wider marine community, by dissemination of investigation reports and related articles
2	to improve traffic management in congested or confined waters

The full text of all safety recommendations and replies is published on the Commission's website www.taic.org.nz.

Implementation of Safety Recommendations

The SR status reporting system covers all SRs developed after 4 October 2000. It also covers any SRs made before 4 October 2000, the need for which has been reaffirmed by more recent investigations.

	Number of SRs…				
	issued over year	**closed over year**	**open at 30 June 2002**	**open longer than 12 months**	**Comment on SRs open longer than 12 months**
Aviation	11	13	15	6	See note 1
Rail	21	18	34	19	See note 2
Marine	50	16	92	46	See note 3
Total	82	47	141	71	

Note 1: Comment on aviation SRs open for longer than 12 months:
The SRs, all to CAA, cover wirestrike, special VFR operations (e.g. airspace incident 99-005), and reporting of unsafe flying by passengers (floatplane accident 99-004). Most are expected to be implemented as a result of Aviation Rule changes.

Note 2: Comment on rail SRs open for longer than 12 months:
The SRs, all to Tranz Rail, cover a mix of items. The bulk have either been implemented (TAIC is awaiting evidence confirming this) or are expected to be implemented in the short term.

Note 3: Comment on marine SRs open for longer than 12 months:
The SRs are to a mixture of MSA, ports, and operators. Almost half the 46 SRs arose from the grounding of "Caribic" (investigation 00-204). A number of the SRs are expected to be implemented as a result of Maritime Rule changes over the next 12 months. TAIC will re-evaluate the remaining SRs for practicality in light of replies from the MSA, and may seek more information as a result.

Transport Accident Investigation Commission

Statement of Responsibility
For the Year Ended 30 June 2002

In the financial year ended 30 June 2002, the Commissioners and management of the Transport Accident Investigation Commission were responsible for:

(a) the preparation of financial statements and the judgements therein

(b) establishing and maintaining a system of internal control designed to provide reasonable assurance as to the integrity and reliability of financial reporting.

In the opinion of the Commissioners and management of the Transport Accident Investigation Commission, the financial statements for the financial year reflect fairly the financial position and operations of the Transport Accident Investigation Commission.

Hon W P Jeffries
Chief Commissioner

John Britton
Chief Executive

Dated 22 October 2002

F.7

Transport Accident Investigation Commission
Financial Statements
Statement of Accounting Policies
For the year ended 30 June 2002

1. Reporting entity

The Transport Accident Investigation Commission is an independent Crown entity established under the Transport Accident Investigation Commission Act 1990.

The Commission investigates aviation, marine and rail accidents and incidents, the circumstances of which have, or are likely to have, significant implications for transport safety. The Commission publishes safety recommendations and reports on accidents and incidents to avoid similar occurrences in future.

The Commission also represents New Zealand at accident investigations, conducted by overseas authorities, in which New Zealand has a specific interest, and exchanges accident and incident information with overseas government accident investigation authorities.

The Commission's air accident investigation capability is occasionally extended, on a cost recovery basis, to Pacific Island states with no similar agency.

2. Measurement system

The financial statements have been prepared on a historical cost basis.

3. Particular accounting policies

The following particular accounting policies, which materially affect the measurement of financial performance and financial position, have been applied:

(a) Forecast figures

The forecast figures are those approved by the Commission at the beginning of the financial year.

The forecast figures have been prepared in accordance with generally accepted accounting practice and are consistent with the accounting policies adopted by the Commission for the preparation of the financial statements.

(b) Revenue

The Commission derives revenue through the provision of outputs to the Crown, for services to third parties and income from its investments. Such revenue is recognised when earned and is reported in the financial period to which it relates.

(c) Fixed assets are shown at cost less accumulated depreciation, and have been depreciated on a straight line (SL) basis at Inland Revenue published rates, which are anticipated to write them off over their estimated useful lives.

Fixed asset type	Useful life (years)
buildings (store)	33
motor vehicles	5.6
furniture and fittings	10 - 18
office equipment	2.5 - 8.0
EDP equipment	3.3 - 4.2

(d) Receivables

Receivables have been valued at expected net realisable value.

(e) GST
These financial statements have been prepared exclusive of GST.

(f) Statement of Cash Flows
Cash comprises monies held in the Commission's bank accounts and short term deposits

Investing activities relate to the sale and purchase of fixed assets.

Operating activities include all transactions and other events that are not investing or financing activities. Interest received is included in operating activities.

Financing activities comprise the change in equity and debt capital structure of the Commission.

(g) Employee entitlements
Provision of employee entitlements is recognised when employees become eligible to receive the benefits.

(h) Taxation
The Commission is a public authority in terms of the Income Tax Act 1994 and consequently is exempt from income tax.

(i) Operating leases
Operating lease payments, where the lessor effectively retains substantially all the risks and benefits of ownership of the leased items, are charged as expenses in the periods in which they are incurred.

(j) Financial instruments
The Commission is party to financial instruments as part of its normal operations. These financial instruments include bank accounts, short-term deposits, debtors and creditors. All financial instruments are recognised in the statement of financial position and all revenues and expenses in relation to financial instruments are recognised in the statement of financial performance.

4. Changes in accounting policies

There have been no changes in accounting policies during the period under review.

Transport Accident Investigation Commission

Statement of Financial Position

As at 30 June 2002

	Note	Actuals 30/06/02 ($)	Forecast 30/06/02 ($)	Actuals 30/06/01 ($)
Assets				
Fixed assets	1	105,345	163,000	136,048
Current assets				
Cash at bank		220,860	42,041	107,041
Short-term deposits		150,000	150,000	150,000
Receivables	2	1,414	5,000	2,020
Accrued interest		1,905	-	1,312
Prepayments and advances		19,105	5,000	8,335
Total Current assets		393,284	202,041	268,708
Total Assets		498,629	365,041	404,756
Represented by:				
Liabilities and Taxpayers' funds				
Current liabilities				
Payables and Accruals	3	157,753	101,678	113,460
Provision for employee leave entitlements	4	88,221	60,000	64,933
Total Current liabilities		245,974	161,678	178,393
Taxpayers' Equity		252,655	203,363	226,363
Total Liabilities and Taxpayers' funds		498,629	365,041	404,756

Hon W P Jeffries
Chief Commissioner

John Britton
Chief Executive

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Statement of Financial Performance
For the year ended 30 June 2002

	Note	Actuals 30/06/02 ($)	Forecast 30/06/02 ($)	Actuals 30/06/01 ($)
Revenue				
Crown revenue		1,682,667	1,550,000	1,552,000
Other income		8,045	1,000	17,692
Profit on sale of fixed assets		15,554	-	-
Interest earned		12,626	13,000	16,420
Total Revenue		1,718,892	1,564,000	1,586,112
Expenditure				
Audit fees		8,000	8,000	7,500
Commissioners' fees		50,991	50,000	50,299
Depreciation			43,000	
Buildings		894		1,242
EDP equipment		18,362		15,690
Office furniture, fittings and equipment		9,100		19,354
Motor vehicles		11,574		2,040
Lease, rentals and outgoings		103,211	105,000	99,128
Capital charge	5	19,470	23,000	22,700
Personnel costs		1,027,836	915,000	869,238
Loss on sale of fixed assets		-	-	3,411
Other operating costs		443,162	443,000	497,144
Total Expenditure		1,692,600	1,587,000	1,587,746
Net Surplus/(Deficit)		26,292	(23,000)	(1,634)

Transport Accident Investigation Commission
Statement of Movements in Equity
For the year ended 30 June 2002

	Note	Actuals 30/06/02 ($)	Forecast 30/06/02 ($)	Actuals 30/06/01 ($)
Opening Taxpayers' equity at 1 July 2001		226,363	226,363	227,997
Plus:				
Net Surplus/(Deficit)		26,292	(23,000)	(1,634)
Total recognised revenues and expenses for the year		26,292	(23,000)	(1,634)
Closing Taxpayers' equity at 30 June 2002		252,655	203,363	226,363

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Statement of Cash Flows
For the year ended 30 June 2002

	Actuals **30/06/02**	Forecast **30/06/02**	Actuals **30/06/01**
Cash flows from operating activities	($)	($)	($)
Cash was received from:			
Crown revenue	1,682,667	1,550,000	1,552,000
Other income	8,651	1,000	24,989
Interest received	12,033	11,000	16,398
	1,703,351	1,562,000	1,593,387
Cash was disbursed to:			
Payments to suppliers and employees	1,566,437	1,534,000	1,534,161
Capital charge	19,470	23,000	22,700
Net cash flows from operating activities	117,444	5,000	36,526
Cash flows from investing activities			
Cash was received from:			
Sale of fixed assets	39,018	0	17,333
Cash was applied to:			
Purchase of fixed assets	42,643	70,000	41,466
Net cash flows from investing activities	(3,625)	(70,000)	(24,133)
Net movement in cash for the period	113,819	(65,000)	12,393
Opening bank balance	257,041	257,041	244,648
Closing bank balance	370,860	192,041	257,041

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission

Reconciliation of Cash Flow with Statement of Financial Performance
For the year ended 30 June 2002

	30/6/02 ($)	30/6/01 ($)
(Deficit)/Surplus from Statement of Financial Performance	26,292	(1,634)
Add: Non-Cash Items		
Depreciation	39,930	38,326
(Profit)/loss on sale of fixed assets	(15,554)	3,411
	24,376	41,737
Add/(Less) movements in Working Capital Items		
Decrease (increase) in Receivables	606	5,390
Decrease (increase) in Accrued interest	(593)	(23)
Decrease (increase) in Advances and Prepayments	(10,770)	2,598
Increase (decrease) in Creditors and Accruals	54,245	(8,141)
Increase (decrease) in Provisions	23,288	(3,401)
Total working capital items	66,776	(3,577)
Net cash flows from operating activities	117,444	36,526

The accompanying notes and statement of accounting policies should be read in conjunction with these financial statements.

Transport Accident Investigation Commission
Notes to the Financial Statements
For the year ended 30 June 2002

1. Fixed assets

2002	Cost ($)	Accumulated Depreciation ($)	Book Value ($)
Buildings	29,798	11,489	18,309
EDP equipment	142,528	105,830	36,698
Office furniture, fittings and equipment	173,860	151,186	22,674
Motor vehicles	33,737	6,073	27,664
	379,923	274,578	105,345
2001	($)	($)	($)
Buildings	29,798	10,595	19,203
EDP equipment	113,285	87,469	25,816
Office furniture, fittings and equipment	187,789	153,335	34,454
Motor vehicles	67,076	10,502	56,574
	397,949	261,901	136,048

2. Receivables

	30/06/02 ($)	**30/06/01** ($)
Gross Receivables	1,414	2,020
Less: Provision for doubtful debts	-	-
Net Receivables	1,414	2,020

3. Payables and Accruals

	30/06/02 ($)	**30/06/01** ($)
Trade creditors	51,064	68,796
Accrued expenses	106,689	44,664
Total Payables and Accruals	157,753	113,460

4. Employee leave entitlements

	30/06/02 ($)	**30/06/01** ($)
Annual leave	58,946	47,644
Retirement leave	29,275	17,290
	88,221	64,934

5. Capital charge

Levied at 9% on the taxpayers' funds for 2002. For the 2001 year the rate was 10%.

6. Financial instruments

The Commission has various financial instruments comprising both financial assets and liabilities which are stated at their estimated fair value in the Statement of Financial Position.

Financial instruments which potentially subject the Commission to credit risk consist of cash at bank and accounts receivable. All financial instruments are unsecured and do not require collateral or other security. There are no significant concentrations of credit risk.

Term deposits are currently placed with WestpacTrust - Wellington and funds are invested pursuant to investment powers granted under Section 25 of the Public Finance Act 1989.

The Commission incurs minimal foreign currency risk through payables and accruals in the normal course of its business.

7. Employee remuneration

Total remuneration and benefits	Number of Employees	
$000	2002	2001
$100-$110		1
$110-$120	1	
$150-$160	1	1

The Chief Executive's total remuneration and benefits is in the $150,000 -$160,000 band.

8. Commission members

Commission members earned the following fees during the year:

Member	Fees	
	2002	2001
Hon WP Jeffries (Chief Commissioner)	$23,500	$27,000
Ms PA Winter	$7,132	
Mr NA Macfarlane	$17,196	$11,205
Ms P Muir	$3,163	$12,094

9. Statement of commitments

The Transport Accident Investigation Commission has ongoing leases of the following amounts:

	30/6/02	**30/6/01**
	($)	($)
Less than 1 year	85,315	60,738
1 - 2 years	116,692	22,500
2 - 5 years	-	-
5 + years	-	-
	202,007	83,238

10. Statement of contingent liabilities

There were no contingent liabilities existing at balance date.
(2002: Nil.)

Transport Accident Investigation Commission

Statement of Objectives and Service Performance
For outputs in the Year Ended 30 June 2002

Output

This output class covers the investigation and reporting on certain aircraft, rail, and marine accidents and incidents in New Zealand and the waters over which it has jurisdiction. Investigations for safety are conducted in order to identify the causes of accidents and incidents and make recommendations to minimise the risk of such events occurring again. This output also covers international co-operation and exchange of accident information with similar safety investigation bodies overseas.

Outcome

This output contributes to safe and sustainable transport at a reasonable cost.

Financial objectives

Resources employed	Actual 12 months to 30/06/02 $000	Actual 12 months to 30/06/01 $000	Performance Agreement with the Minister 12 months to 30/06/02 $000
Revenue			
Crown	1,683	1,552	1,550
Other	36	34	14
Total revenue	1,719	1,586	1,564
Expenditure	1,693	1,588	1,586
Surplus/(Deficit)	26	(2)	(22)

Service performance

Service measured	Note	Actual 12 months to 30/06/02	Actual 12 months to 30/06/01	Performance Agreement with the Minister 12 months to 30/06/02
Air Accidents/Incidents				
New investigations begun		15	15	15
Reports finalised	1	10	10	n/a
Investigations ceased without publishing a final report	2	2	2	n/a
Rail Accidents/Incidents				
New investigations begun		21	19	20
Reports finalised	3	21	15	n/a
Investigations ceased without publishing a final report	2	4	4	n/a
Marine Accidents/Incidents				
New investigations begun		11	13	20
Reports finalised		14	11	n/a
Investigations ceased without publishing a final report	2	3	2	n/a

F.7

Service measured	Note	Actual 12 months to 30/06/02	Actual 12 months to 30/06/01	Performance Agreement with the Minister 12 months to 30/06/02
Timeliness				
% of aviation and marine investigations finalised in the year completed within 9 months	4	76	80	90
% of rail investigations finalised in the year completed within 9 months	4	76	47	60
Availability of Accident Investigators (hr/days)		24/365	24/365	24/365
Quality				
Number of published reports requiring revision and republishing with changed causes, findings or safety recommendations		0	0	0
% of reports which determined the probable cause(s) of occurrences investigated	5	-	92	-
% of responses in a triennial readership survey which will rate the investigation reports as "good" or better for their contribution to transport safety	5			
Air		-	86	-
Rail		-	84	-
Marine		-	93	-

Note

1. Includes addendum to report 95-008, missing aircraft ZK-MBI.
2. Investigations are ceased without publishing a report when the circumstances of the accident or incident do not have, or are unlikely to have, significant implications for transport safety.
3. Includes addendum to report 99-122, collision of freight trains at Waipahi.
4. In the 2000/01 annual report, the actual for 12 months to 30/06/01 was 64% across the 3 modes of transport. This figure was re-calculated because the 2001/02 performance agreement specified a different timeliness target for rail investigations.
5. Not a performance agreement requirement for 2001/02.

Audit New Zealand

REPORT OF THE AUDITOR-GENERAL

TO THE READERS OF THE FINANCIAL STATEMENTS OF TRANSPORT ACCIDENT INVESTIGATION COMMISSION FOR THE YEAR ENDED 30 JUNE 2002

We have audited the financial statements on pages 54 to 65. The financial statements provide information about the past financial and service performance of the Transport Accident Investigation Commission and its financial position as at 30 June 2002. This information is stated in accordance with the accounting policies set out on pages 54 to 55.

Responsibilities of the Commission

The Public Finance Act 1989 requires the Commission to prepare financial statements in accordance with generally accepted accounting practice in New Zealand that fairly reflect the financial position of the Transport Accident Investigation Commission as at 30 June 2002 and the results of its operations and cash flows and service performance achievements for the year ended on that date.

Auditor's responsibilities

Section 15 of the Public Audit Act 2001 and Section 43 (1) of the Public Finance Act 1989 require the Auditor-General to audit the financial statements presented by the Commission. It is the responsibility of the Auditor-General to express an independent opinion on the financial statements and report that opinion to you.

The Auditor-General has appointed S. J. Lewis, of Audit New Zealand, to undertake the audit.

Basis of opinion

An audit includes examining, on a test basis, evidence relevant to the amounts and disclosures in the financial statements. It also includes assessing:

- the significant estimates and judgements made by the Commission in the preparation of the financial statements; and
- whether the accounting policies are appropriate to the Transport Accident Investigation Commission's circumstances, consistently applied and adequately disclosed.

We conducted our audit in accordance with the Auditing Standards published by the Auditor-General, which incorporate the Auditing Standards issued by the Institute of Chartered Accountants of New Zealand. We planned and performed our audit so as to obtain all the information and explanations which we considered necessary in order to provide us with sufficient evidence to give reasonable assurance that the financial statements are free from material misstatements, whether caused by fraud or error. In forming our opinion, we also evaluated the overall adequacy of the presentation of information in the financial statements.

Other than in our capacity as auditor acting on behalf of the Auditor-General, we have no relationship with or interests in the Transport Accident Investigation Commission.

Unqualified opinion

We have obtained all the information and explanations we have required.

In our opinion the financial statements of Transport Accident Investigation Commission on pages 54 to 65:

- comply with generally accepted accounting practice in New Zealand; and
- fairly reflect:
  - the Transport Accident Investigation Commission's financial position as at 30 June 2002; and
  - the results of its operations and cash flows for the year ended on that date; and
  - its service performance achievements in relation to the performance targets and other measures adopted for the year ended on that date.

Our audit was completed on 25 October 2002 and our unqualified opinion is expressed as at that date.

S.J. Lewis
Audit New Zealand
On behalf of the Auditor-General
Wellington, New Zealand

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