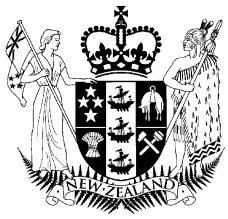
Transport Accident Investigation Commission

Annual Report

2003/2004



Annual Report
of the

Transport Accident Investigation Commission

Te Komihana Tirotiro Aitua Waka

for the period 1 July 2003 to 30 June 2004

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

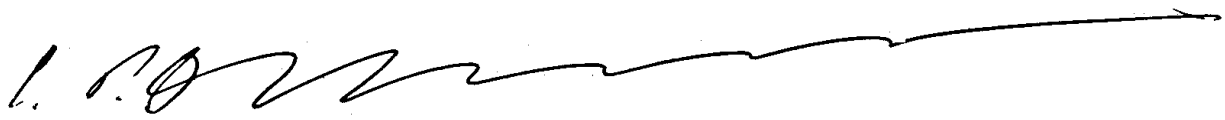
August 2004

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 14th Annual Report to Parliament for the period 1 July 2003 to 30 June 2004.

Yours faithfully



Hon W P Jeffries
Chief Commissioner

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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.

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 at approximately 8 week intervals, with additional meetings 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 is also a former Minister of Justice. In 1995 the Swedish Government appointed Mr Jeffries as Honorary Consul-General for Sweden. At the 2004 annual meeting in Holland, Mr Jeffries was elected Chairman of the International Transport Safety Association, a grouping of similar bodies to the Transport Accident Investigation Commission.

Pauline A Winter
Deputy Chief Commissioner

Ms Winter has her own consultancy business INTERPACIFIC Ltd She is the former Chief Executive of Workbridge Inc, a board member of Legal Services Agency, and member of the UNITEC and NACEW (National Advisory Council on the Employment of Women) Councils. She chairs the Pacific Business Trust and is on the Board of Trustees for Otahuhu College. Pauline is of Maori (Te Ati Awa/Taranaki), Samoan, and European descent.

Norman Macfarlane
Commissioner

Mr Macfarlane is Managing Director of Auckland-based Caledon Aviation Management Consultancy. His experience spans more than 40 years in transport-related industries in the aviation, tourism, international oil and shipping sectors. Originally a Master Mariner, his subsequent career included such appointments as the London based co-ordinator of British Petroleum activities in South-East Asia and the Far East, Group Operations Manager for BP and Europa in New Zealand and the Pacific Islands, as well as Deputy Chief Executive of Air New Zealand. He is a Fellow of the Chartered Institute of Logistics and Transport and has served as a director on numerous company boards, both private and public.

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 Licence (Aeroplane), check and training qualifications and a flight examiner rating. With more than 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 recently retired from employment as a Boeing 747-400 captain. He has qualified as a flight instructor, a flight examiner, and a licensed aircraft maintenance engineer with an inspection authority. He also runs an engineering facility at Rangiora Airfield. Mr Scotter holds a Bachelor of Aviation degree and has studied air safety investigation. He is also a Fellow of the Royal Aeronautical Society.

Bill Jones
Rail Assessor

Mr Jones worked for New Zealand Rail (NZR) as a civil engineer for 32 years and was NZR's Chief Civil Engineer for 5 years and Chief Engineer for 2. 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. He 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 Chartered Professional 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 I 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 VIP Publications Limited in Auckland. He is the editor and publisher of Professional Skipper and New Zealand Work Boats magazines and has 40 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

TAIC staff as at 30 June 2004:

(Back row from left)	
Dennis Bevin	*Rail Accident Investigator*
John Goddard	*Air Accident Investigator*
Rob Griffiths	*Medical Consultant*
Ian McClelland	*Air Accident Investigator*
Iain Hill	*Marine Accident Investigator*
John Mockett	*Chief Investigator of Accidents*
Peter Miskell	*Rail Accident Investigator*
Duncan Middlemass	*Air Accident Investigator*
(Middle row from left)	
Ailsa Wong-She	*Receptionist/Administration Assistant*
Vernon Hoey	*Rail Accident Investigator*
Jenny Seaga	*Administration Assistant*
Doug Monks	*Marine Accident Investigator*
Ken Mathews	*Air Accident Investigator*
Lisa West	*Secretary*
(Seated from left)	
Lin New	*Office Manager*
John Britton	*Chief Executive*

Chief Commissioner's Overview

This last year the Commission launched 44 investigations (including resuming one investigation originally reported on in 2002[1]), completed 42 investigations (some begun in the previous year), ending the year with 37 investigations in progress[2]. The Commission also issued 70 safety recommendations. The Commissioners met 11 times in the process.

Over the year we received evidence of 36 of the Commission's recommendations being fully implemented. A further 10 recommendations were probably implemented, and the Commission is at time of writing making inquiries to confirm this.

A significant and welcome advance for the Commission in the 2003/04 year was an increase in organisational capacity, with the addition of 2 investigators, one aviation and one rail, following an increase in resourcing by the Government. The positions were filled after an extensive search process, confirming the Commission's view that candidates having the necessary minimum of operational experience and personal attributes for training, as investigators are not readily available. The increase in numbers of investigators brought the total number to 9, comprising 4 air accident investigators, 3 rail accident investigators, and 2 marine accident investigators.

The recently completed Government Review of the Transport Sector, endorsed by Cabinet, decided to maintain the current roles and arrangements for transport accident investigation. The Minister has tasked the Secretary for Transport with working with TAIC on a number of matters over the coming months. The first of these is to review TAIC's capability with a view to making a budget bid for additional safety investigators and supporting resources during 2004/05. The Commission welcomes this because an increase in the number of investigators has significant benefits. These include improving prompt access to high-level expertise, improves timeliness of reports, reducing the dependency on just a few investigators for each mode of transport, and is an incremental step towards achieving sufficient numbers to be able to be confident that it has sufficient numbers to manage and direct the most critical of events: a major accident investigation.

The Commission welcomes the appointment of a Minister for Transport Safety and looks forward to working with that Minister and the Minister of Transport.

Operational issues will be covered in more detail in the Chief Executive's report. However, a very important recommendation made by the Commission over the year was the need for rail operators to implement a policy for managing the risks associated with substance induced performance impairment (safety recommendation 012/03). Discussion leading up to the recommendation also guided the Commission's submission on the Railways Bill, suggesting amendments to:

- clearly identify the overall purpose or role of the regulator, rather than relying on the role being described in detailed task-oriented terms, and
- make the criteria for the Director to vary a safety case less restrictive, so the rail system is more responsive to emerging issues and safety developments, rather than merely responding to operator non-compliance with legislation or Rules.

Drawing on its railway accident investigation experience over the last 10 years, the Commission, through submissions on the Railways Bill, sought improvement in a number of other areas of railway safety though new legislation, relating to the definition and recording of rail accidents and incidents, the recording of train control and locomotive event data.

[1] Investigation 01-005 Bell UH-1H Iroquois ZK-HJH, tail rotor failure and in-flight break-up resulting in 3 fatalities, near Taumarunui, on 4 June 2001.
[2] The 37 investigations includes 4 investigations where the Commission was assisting an overseas investigation agency.

The Commission publishes its reports with due regard for the concerns of all those affected by the investigation, and no one can be more directly affected by an accident than the victims. To this end the Commission supplies, under embargo, advance copies of its reports to give all those affected the opportunity to read and prepare themselves for public release of the report. The Commission also supplies copies under embargo to the news media so they have an opportunity for more careful reading of these often highly technical reports than might otherwise be the case in an attempt to break the story or meet a deadline. The Commission followed such a process when it released the report into the Air Adventures Ltd Piper Chieftain accident, in which 8 people died and 2 others were seriously injured (report 03-004). Unfortunately, one newspaper breached the embargo, which added to the stress and suffering of the victims, and has put the whole embargo process in jeopardy. The Commission has lodged a complaint with the Press Council, and is considering other options for managing the release of its reports. Unfortunately, none are likely to be as efficient as the embargo process.

The Commission continues its membership of the International Transportation Safety Association (ITSA), an organisation whose other members are State investigation agencies from Australia, Canada, Finland, India, The Netherlands, Sweden, United Kingdom, and USA. ITSA was founded on the beliefs that:

- Independent non-judicial investigations of transportation accidents contribute significantly to the safety of the travelling public and the environment
- There is a need for an international organisation, that brings together accident investigation agencies in all modes of transportation
- It would be beneficial to learn from the experiences of other countries and share safety information.

The mission of ITSA is: "To improve transport safety in each member country by learning from the experiences of others." As an indication of the standing of the Commission, at the most recent meeting of ITSA at Apeldoorn, in the Netherlands, I was honoured to be appointed Acting Chair for the meeting, and Chairman for the period July 2004 to March 2005.

Together with fellow Commissioner Norman Macfarlane I was honoured that the Minister extended my appointment for a further period from 1 July 2004 to 1 November 2004. The Commission has been a challenging and rewarding organisation to work for. Its success can be directly attributed to my fellow Commissioners Norman Macfarlane and Pauline Winter, and to the staff, headed by Chief Executive John Britton.

Hon Bill Jeffries
Chief Commissioner

Chief Executive's Report

Probably the most significant investigation (in terms of public interest the demands on the Commission's resources and complexity) launched in the year was that into the double-fatality accident involving the Convair 580 near Paraparaumu in October 2003. The wreckage recovery process cost approximately $120,000, 3 times the total annual budget for air accident investigation direct costs. A successful funding bid in 2002/03 ensured sufficient additional resources to enable us to continue operations without seeking supplementary funding and contributed (in the form of an additional investigator of air accidents) to the speed and thoroughness of whole process of wreckage recovery and examination. The final report on the accident is expected to be published in the 2004/05 year.

It is impossible to measure objectively the contribution of each investigation to transport safety in terms of the prevention of future accidents. Sometimes the Commission's recommendations have global application. One important example is provided by the report the Commission published this year about the Boeing 747 tail-strike during take-off at Auckland International Airport on 12 March 2003 (report 03-003). This investigation found that inadequate cross checking of critical aircraft data led to take-off at low speed. A very real potential for a major accident existed as the aircraft struggled into the air with its main undercarriage only a few metres from the grass at the edge of the runway. Had any other event occurred to disturb take-off (for example the wheels ploughing into the grass) there was insufficient margin in the take-off speed. Rather than just the tail scrape, which did occur, loss of control and a major accident could have occurred. 389 people were on board.

Another important recommendation arose out of the derailment of an express freight train, near Te Wera, in July 2002 (report 02-116). This investigation involved extensive work determining the likely degree and effect of substances that impair human performance. In this case alcohol was directly involved. However, the effect of any performance impairing substances, legal or illegal, is of concern for the potential to cause accidents – in any mode of transport. The safety recommendation is focused on the elimination of the use of performance impairing substances within the rail industry. Draft rail transport law has been amended to address substance-induced performance impairment.

An important marine transport safety recommendation arose following the collision of the passenger freight ferry *Aratere* with a moored fishing vessel, *San Domenico*, in Wellington Harbour in July 2003. This investigation and resulting safety recommendation highlighted the problems of fatigue and medication affecting staff working in safety-critical roles. The recommendation also provides for educational material to inform and educate staff of the methods to ensure safe working practices.

While the Commission's statutory duty is to investigate occurrences, which the Commission believes that the circumstances 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[3], it is often impossible to tell whether a notified event is of significance unless investigated. The forthcoming capability review may go some way toward reducing the risk that the Commission is not investigating as wide a range of occurrences as it should.

An important procedural change in reporting safety recommendation status occurred with an improvement in efficiency and public availability of tracking data. The Commission now collects the implementation information directly from the recipient of the SR, rather than have the regulators do this. Another major advance was to publish the implementation status of safety recommendations on its web site.

Timeliness of air and marine investigations continued to be good, meeting the target of completing 90% of investigations within 9 months. Timeliness of rail investigations undertaken by the Commission is poor, due to the combination of high caseload, the Te Wera derailment (which involved lengthy discussions with the operator and regulator over substance-induced impairment policies and research on other countries' handling of the same issues), and turnover of TAIC rail investigation staff. We were expecting steady improvement and to meet the target in 2004/2005, however, a recent 6-week illness of

[3] s13 (1) (b) of the TAIC Act

our most senior investigator, and a spate of rail incidents in the last 2 months, has put attainment of even that long-term goal at risk.

In pursuit of its statutory duties the Commission's expenditure for 2003/04 of $ 2.174 million[4], closely matching a budget of $2.159 million. Total revenue including other income was $2.205 million. The net result was a surplus of $0.031 million. The additional resource was a welcome and significant increase enabling the Commission to hire 2 additional investigators and undertake work deferred to save costs in previous years. The lengthy search for the additional investigators contributed to a net surplus in salaries of $94k and organisational development of $69k. This was largely offset by the direct investigation costs $127k higher than budgeted associated with the wreckage recovery of the Convair aircraft off Paraparaumu (investigation 03-006) and the wreckage recovery and engineering work associated with a helicopter accident near Mokoreta, Southland (investigation 04-003).

In the coming year we look forward to contributing to the Secretary for Transport's review of the Commission's capabilities.

John Britton
Chief Executive

[4] All figures exclude GST.

A short guide to the Transport Accident Investigation Commission

What is the Transport Accident Investigation Commission?

The TAIC is an independent crown entity with the powers of a Commission of Inquiry and some additional powers. It was established under the Transport Accident Investigation Commission Act 1990, and has 3 Commissioners and 15 staff. The Governor-General appoints the Commissioners. The Commissioners meet about 10 times a year to review and approve accident reports and to make findings and safety recommendations. The Commission is responsible to the Minister of Transport.

What does the Commission do?

The TAIC Act requires that "The principal purpose of the Commission shall be 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 TAIC achieves this purpose by investigating and reporting on accidents and incidents, and recommending action to avoid similar occurrences in future.

What does the Commission investigate?

The TAIC investigates rail, marine, or aviation accidents or incidents, the circumstances of which, in the TAIC's opinion, have, or are likely to have, significant implications for transport safety, or may allow the Commission to establish findings or make safety recommendations which may improve transport safety.

There are no limits on the depth nor the extent of the investigation, its report, or any safety recommendations. The whole air, rail, or marine transport system is open to scrutiny. Any relevant previous occurrences, findings, or safety recommendations are taken into account.

The TAIC investigates separately from and is independent of the police, safety authorities, and other organisations. The TAIC's reports are not admissible as evidence in criminal or civil courts.

The TAIC is not empowered to investigate road accidents, unless one of the previously mentioned modes of transport is also involved.

Responsibilities of the Commission

When it investigates an accident or incident the TAIC:

- Makes the inquiries it considers necessary to ascertain the cause or causes.
- Co-ordinates and directs its investigation and determines if any other parties should be involved in such investigations.
- Prepares and publishes findings and safety recommendations arising from the investigations.
- Co-operates and co-ordinates with other transport safety investigation organisations overseas.

What is involved in an investigation?

The investigation team: The TAIC's investigation team is lead by an Investigator-in-Charge, and is made up of experts who have the skills and knowledge to examine relevant aspects of the accident or incident. The composition of the team depends on the investigation.

On-site investigation: A site investigation is carried out as soon as practical. The length of time this takes to complete varies depending on the severity and complexity of the accident or incident. Investigators carry a warrant authorising them to control the site, and to seize and detain evidence. They also have certain powers of entry.

Interviews: Investigators interview or confer with anyone whose information may assist determination of the causes and circumstances of an accident or incident. Investigators carry photo-identity cards to identify themselves. Mindful of the stress an accident or incident brings to those involved or affected, investigators strive to arrange and conduct interviews with sensitivity, and allow a support person to be present (as long as they do not impede the interview). Some people may need to be interviewed several times. A person can be required to attend an interview and to answer questions. The TAIC Act prevents other people and organisations obtaining investigators records of interviews and discussions and certain other types of information from the TAIC. The TAIC Act does not prevent people making statements to anyone else, but those statements must not include or speculate on information provided by the TAIC.

Information from interviews will be included in the final report only when pertinent to the analysis of the accident or incident.

Tests and research: The TAIC engages specialists to provide advice, analysis and opinion on matters not within the TAIC's own expertise. Laboratories in New Zealand or overseas analyse components and "read out" voice recorders and decipher data recorders.

Safety recommendations: Safety recommendations are fundamental to the TAIC's role of accident prevention. With human lives at stake, timeliness is an essential part of the recommendation process. As a result the Commission may issue a safety recommendation without waiting for an investigation to be completed. The TAIC designates the person or party expected to take action and describes the result it recommends. The TAIC consults with the recipient of the safety recommendation prior to finalising the recommendation. Final safety recommendations are usually incorporated in the accident report together with the relevant parts of any replies (if available).

The report: The TAIC's report is a summary of the investigation. It contains the relevant facts, analysis, findings, and safety recommendations. Before finalising the report the TAIC circulates a **preliminary report** to any person whose conduct is stated or implied to have contributed to the cause of the accident to give them an opportunity to comment on or to refute that statement. The TAIC may also seek comment from others who may be able to contribute to the accuracy of the report, or to the effectiveness of safety recommendations.

Because the preliminary report may contain inaccuracies and may be subject to change, its circulation is strictly limited and wider disclosure is prohibited under the TAIC Act. Submissions have the same protection as records of interviews and discussions.

The **final report** incorporates improvements arising from any further investigation and the submissions on the preliminary report. Recipients of the preliminary report, and, if they so request, next of kin and others similarly affected, are forwarded a copy of the final report on a confidential basis a few days before public release.

Most final reports are released within seven or eight months of the start of the investigation. In the case of particularly complex investigations reports will take longer to complete. In addition to providing reports as outlined above, the TAIC's reports are available on interloan from public libraries, or may be purchased individually or by annual subscription from the TAIC. The TAIC web site carries an index of TAIC reports, report abstracts and safety recommendations and status, as well as general information about the TAIC.

Public hearings: The TAIC 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 TAIC's normal procedure of gathering information in camera.

Summary of Investigations Launched

Aviation investigations

Seven aviation occurrence investigations were launched over the year. These were:

Refer-ence	Date	Aircraft	Occurrence	Locality	Operator	Injuries
03-006	03 Oct 03	Convair 580, ZK-KFU	loss of control & in-flight break-up	Kapiti Coast	Airfreight NZ	2 fatal
03-007	30 Nov 03	Hughes 369C, ZK-HCC	in-flight power loss & emergency landing	Fox Glacier	Mountain Helicopters	4 minor
03-008	30 Nov 03	De Havilland Dash 8, VHT-QA	propeller cuff separation on take-off. See Note 1.	Sydney, Australia	Eastern Airlines	nil
04-001	12 Jan 04	Piper Aztec, PA 25-250	undercarriage collapse during taxi	Paraparaumu	Sunair Aviation	nil
04-002	02 Apr 04	Boeing 767, ZK-NCF & Boeing 767, VH-OGB	airspace incident. See Note 2.	between Auckland & Hong Kong	Air NZ and Qantas	nil
04-003	23 Apr 04	Bell UH-1B, ZK-HSF	in-flight break-up	Mokoreta, Southland	Helicopter Services	1 fatal
04-004	12 May 04	Hughes 269C, ZK-HMP	heavy landing during practice autorotation	near Masterton	Heliflight New Zealand	nil

Note 1: Assisting ATSB (Australia) investigation
Note 2: Assisting NTSC (Indonesia) investigation

Convair 580, ZK-KFU,
In-flight break-up over the Kapiti Coast, 3 October 2003.
The 2 crew lost their lives in that accident.
(Investigation 03-006)

Rail investigations

Twenty-two rail occurrence investigations were launched over the year. These were:

Refer-ence	Date	Vehicle	Occurrence	Locality	Operator	Injuries
03-110	09 Aug 03	Express freight Train 337	derailment	near Kaimai Tunnel	Tranz Rail	nil
03-111	18 Aug 03	Passenger service DMU 3797	fire	Ellerslie	Tranz Rail	nil
03-112	28 Oct 03	Passenger service DMU 2153	collision with truck	Avondale	Tranz Rail	nil
03-113	30 Oct 03	Passenger service DMU 3366	passed conditional stop board without permission	between Tamaki & Meadowbank	Tranz Rail	nil
03-114	30 Oct 03	Express freight Train 220	derailment	Shannon	Tranz Rail	nil
03-115	04 Dec 03	Express freight Train 845	level crossing collision with truck	Darfield	Tranz Rail	1 fatal 1 minor
04-101	14 Jan 04	Express freight Train 575	derailment	between Normanby & Hawera	Tranz Rail	Nil
04-102	25 Jan 04	Motor trolley	derailment	Waitara	Waitara Railway Preservation Society	4 serious
04-103	16 Feb 04	Shunt P 40	derailment	Oringi	Tranz Rail	nil
04-104	28 Feb 04	Express freight Train 845	derailment	Buller Gorge	Tranz Rail	nil
04-105	03 Mar 04	Passenger service EMU Train 9246	departure from station while doors open	Khandallah	Tranz Metro	nil
04-106	03 Mar 04	Passenger service DMU Train 2105	doors open	New Lynn	Tranz Metro	nil
04-107	24 Mar 04	Express freight Train 327	derailment	Kopaki	Tranz Rail	nil
04-108	26 Mar 04	Passenger service EMU Train 2671	unauthorised vehicle occupying track	Wellington	Tranz Rail	nil
04-109	01 Apr 04	Passenger Train 804	stall	Otira Tunnel	Tranz Scenic	nil
04-110	08 Apr 04	Shunt L 9	run away wagon ZH 358	Onehunga	Tranz Rail	nil
04-111	16 Apr 04	Express freight Train 736	train authorised to enter occupied track	between Christchurch & Belfast	Tranz Rail	nil

Refer-ence	Date	Vehicle	Occurrence	Locality	Operator	Injuries
04-112	19 Apr 04	Passenger service DMU Train 2146	oil fire	Boston Road, Auckland	Tranz Rail	nil
04-113	29 Apr 04	Express freight Train 220	collision with truck	between Palmerston North & Maewa	Tranz Rail	1 minor
04-114	07 May 04	Passenger service EMU Train 5612	fire	Petone	Toll NZ Consolidated	nil
04-115	20 May 04	Passenger service EMU Train 4618	electrical fault	between Wellington & Taita	Toll NZ Consolidated	nil
04-116	28 Jun 04	Passenger service Train 1605	fire	between Masterton & Wellington	Toll NZ Consolidated See Note 1	nil

Note 1: New owner of Tranz Rail, effective 5 May 2004.

Motor trolley derailment, Lepperton, 25 January 2004.
This accident resulted in serious injuries to 4 passengers.
(Investigation 04-102)

Marine investigations

Fifteen marine occurrence investigations were launched over the year. These were:

Refer-ence	Date	Vessel/s	Occurrence	Locality	Operator	Injuries
03-208	20 Jun 03	Passenger ferry *Harbour Cat*	engine failure	Auckland	Fullers Group	nil
03-209	04 Jul 03	Container ship *Bunga Teratai 4* and fishing vessel *Mako*	collision	Tasman Bay	Malaysian International Shipping	nil
03-210	05 Jul 03	Passenger/freight ferry *Aratere* and fishing vessel *San Domenico*	collision	Wellington	Interisland Line/Pescatore Fishing	3 minor
03-211	27 Jul 03	Oil tanker *Eastern Honor*	grounding	Whangarei	Star Tankers	nil
03-212	16 Aug 03	Cargo ship *Spirit of Enterprise*	grounding	Manukau Harbour	Pacifica Shipping 1985	nil
03-213	18 Aug 03	Commercial jet boats *T21 & T2*	collision	Shotover River	Shotover Jet	nil
04-201	12 Feb 04	Container ship *Nicolai Maersk*	touched bottom	Port Chalmers	AP Moller-Maersk	nil
04-202	13 Feb 04	Catamaran *Queenstown Princess*	collision with shore	Lake Wakatipu	Princess Cruises	nil
04-203	15 Feb 04	Passenger ferry *Arahura*	heavy weather incident	Cook Strait	Interisland Line	nil
04-204	24 Feb 04	Restricted passenger vessel *Freedom 3*	collision with shore	Lake Manapouri	Fish Fiordland	nil
04-205	26 Mar 04	Fishing vessel *Bronny G*	grounding	Banks Peninsula	Pegasus Fishing	nil
04-206	06 Apr 04	Restricted passenger vessel *Glen Rosa*	engine room flood	Auckland	Mr Muso's Ferry Boat	nil
04-207	15 Apr 04	Fishing vessel *Poseidon*	grounding	Manukau Harbour	Poseidon Fishing	nil
04-208	13 May 04	Jet boat *CYS*	propulsion failure and capsize	Waimakariri River	Jet Thrills	nil
04-209	19 May 04	Fishing vessel *Joanne* and tanker *Hellas Constellation*	collision	Tauranga	Rawlinson Business Trust and Consolidated Marine Management	nil

Container ship *Bunga Teratai 4*

Fishing vessel *Mako*

The above vessels collided in Tasman Bay, 4 July 2003.
There were no injuries or fatalities.
(Investigation 03-209)

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 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 intervene and enforce implementation after assessing importance, cost and benefit.

The Commission publishes SRs and the pertinent portion of the recipients' replies in the final occurrence report if practicable. All SRs, and the pertinent portions of recipients' replies are also published on the Commission's website www.taic.org.nz.

Implementing safety recommendations

To help maintain public confidence in the SR process the Commission also encourages recipients to advise it when an SR has been implemented, or it has been determined that it cannot or should not implement the SR. The Commission considers the information or evidence, and updates each SR's reported status.

The Commission reports the status of each SR 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 SR.
>
> *Closed – cancelled*
> The SR has been superseded, or become no longer applicable for a variety of reasons. For example, the recipient or other relevant party has shown that the SR 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 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.

The following sections:

- summarise SRs issued over 2003/2004
- give examples of notable SRs
- comment on the implementation of SRs.

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

Summary of Safety Recommendations Issued

The number of SRs issued 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 of relative levels of safety between modes of transport.

The full text of all SRs and replies, and the implementation status of each is published on the Commission's website www.taic.org.nz.

Aviation

8 safety recommendations were issued:

1 to improve warning systems (063/03)

2 to improve aviation safety through education (064/03, 065/03)

1 to enhance operators' pilot training standards (051/03)

1 to ensure additional crew members are used effectively to augment safety (050/03)

1 to ensure time delays do not pressure pilots to compromise safety (049/03)

1 to ensure crucial take-off information is independently verified (048/03)

1 to upgrade flight management computer software (047/03)

Rail

27 safety recommendations were issued:

2 to avoid trains derailing (038/03, 007/04)

1 to reduce collisions between trains and obstructions (037/03)

9 to improve the safety culture of personnel (012/03, 013/03, 014/03, 035/03, 052/03, 005/04, 006/04, 018/04, 019/04)

4 to avoid collisions through improving the integrity of train control operations (006/03, 007/03, 008/03, 053/03)

1 to improve track safety through improved track inspection (036/03)

2 to avoid injuring passengers (023/04, 024/04)

8 to reduce collisions at level crossings (008/04, 009/04, 010/04, 011/04, 012/04, 013/04, 016/04. 017/04)

Marine

34 safety recommendations were issued to improve marine safety:

- 2 to improve passenger safety in commercial boats (029/03, 039/03)
- 4 to improve safety in large concentrations of vessels (026/03, 027/03, 028/03, 032/03)
- 1 to improve watchkeeping practices (004/04)
- 6 to avoid fires on board vessels, or to improve fire detection and fire fighting capability (023/03, 024/03, 025/03, 033/03, 054/03, 058/03)
- 1 to ensure vessel safety through improved bridge resource management (003/04)
- 5 to improve maritime safety through awareness and management of fatigue (059/03, 060/03, 061/03, 001/04 002/04)
- 2 to ensure correct certification regarding manning and Safe Ship Management (056/03, 066/03)
- 4 to improve safety of operations by correct manning (040/03, 041/03, 055/03, 057/03)
- 5 to improve communication and thus safety of operations on congested rivers (042/03, 043/03, 044/03, 045/03, 046/03)
- 2 to avoid loss of ships' rudders and therefore loss of steering (022/04, 027/04)
- 2 to provide improved environmental data for masters to assess the safety of crossing a bar harbour (020/04, 021/04)

The following sections give examples of notable SRs issued over the year, and comments on implementation of some SRs.

Notable Safety Recommendations

Finalised in the year ended 30 June 2004

Aviation

Boeing 747-412 9V-SMT, flight SQ286, tail strike during take-off, Auckland International Airport, 12 March 2003 (report 03-003)

This investigation and the resulting safety recommendations are important because inadequate cross checking of critical aircraft data can lead to incorrect application of such data that can endanger the aircraft and its occupants.

On Wednesday 12 March 2003, at 1547, flight SQ286, a Boeing 747-412 registered 9V-SMT, started its take-off at Auckland International Airport for a direct 9-hour flight to Singapore. On board were 369 passengers, 17 cabin crew, and 3 pilots.

When the captain rotated the aeroplane for lift-off, the tail struck the runway and scraped for some 490 metres until the aeroplane became airborne. The tail strike occurred because the rotation speed was 33 knots less than the 163 knots required for the aeroplane weight. The rotation speed had been mistakenly calculated for an aeroplane weighing 100 tonnes less than the actual weight of 9V-SMT.

A take-off weight transcription error, which remained undetected, led to the miscalculation of the take-off data, which in turn resulted in a low thrust setting and excessively slow take-off reference speeds. The system defences did not ensure the errors were detected, and the aeroplane flight management system itself did not provide a final defence against mismatched information being programmed into it.

During the take-off the aeroplane moved close to the runway edge, and the pilots did not respond correctly to a stall warning. Had the aeroplane moved off the runway or stalled, a more serious accident could have occurred.

The aeroplane take-off performance was degraded by the inappropriately low thrust and reference speed settings, which compromised the ability of the aeroplane to cope with an engine failure and hence compromised the safety of the aeroplane and its occupants.

The Commission recommended to the President and CEO of Boeing Commercial Airplanes that he:

> Implement a FMS software change on all various Boeing aircraft models that ensures any entries (such as V speeds and gross weight) that are mismatched by a small percentage are either challenged or prevented (047/03).

Boeing Commercial Airplanes replied in part:

> Boeing will continue to examine the safety recommendation in the context of the broader issue regarding incorrect takeoff speeds. As the work progresses, we will determine whether changes to existing FMS installations may be warranted. Separately, we will also determine if such new features should be included in new FMS installations. At this point, no schedule has been set for the completion of our examination.

The Commission also recommended to the Divisional Vice President, Safety, Security and Environment of Singapore Airlines Limited that he:

> Establish procedures that ensure comprehensive, independent verification of all essential take-off data, such as the TOW, reference speeds and thrust setting, are accomplished at key points before engines are started (048/03).

Singapore Airlines Limited replied in part:

> We are pleased to report that SIA has implemented all the TAIC's safety recommendations with the exception of Safety Recommendation 050/03, which is still in discussion with Boeing.
>
> The current bug card preparation involves a cross check between the two pilots after it has been prepared by one pilot. To enhance this crosschecking process, the Normal Procedures have been amended to include:
>
> - Independent crosscheck of weights and bug card calculations by both pilots, and
> - A crosscheck of FMC generated speeds with that manually calculated by the crew.

Boeing 747-412 9V-SMT, flight SQ286, tail strike during take-off,
Auckland International Airport, 12 March 2003
(Investigation 03-003, published in 2003/2004 year)

Piper PA 31-350 Navajo Chieftain ZK-NCA, controlled flight into terrain, near Christchurch Aerodrome (report 03-004)

This investigation and the resulting safety recommendations are important because the safety of instrument approaches may be compromised by inappropriate procedures in single pilot IFR operations.

On Friday 6 June 2003, Air Adventures New Zealand Limited Piper PA 31-350 Navajo Chieftain aeroplane ZK-NCA, was on an air transport charter flight from Palmerston North to Christchurch with one pilot and 9 passengers. At 1907 it was on an instrument approach to Christchurch Aerodrome in darkness and in instrument meteorological conditions when it descended below minimum altitude, in a position where reduced visibility prevented runway or approach lights from being seen, to collide with trees and terrain 1.2 nm short of the runway. The pilot and 7 passengers were killed, and 2 passengers received serious injury. The aircraft was destroyed.

The accident probably resulted from the pilot becoming distracted from monitoring his altitude at a critical stage of the approach. The possibility of pilot incapacitation is considered unlikely, but cannot be ruled out.

Safety issues identified included:

- the desirability of adoption of TAWS equipment for smaller IFR air transport aircraft
- the need for VFR/IFR operators to have practical procedures for observing cellphone rules during flight
- the need for pilots on single-pilot IFR operations to use optimum procedures during instrument approaches.

Three safety recommendations to address these issues were made to the Director of Civil Aviation. The first was:

> monitor closely the future development of TAWS equipment with a view to amending Part 135 to require its installation in relevant aircraft (063/03).

The Director of Civil Aviation replied in part:

> I accept this recommendation and will monitor closely the future development of TAWS equipment and if appropriate amend Part 135 to require its installation in relevant aircraft. No precise time frame can be stated.

The second recommendation to the Director was:

> Develop educational material to raise awareness of the rules prohibiting cellphone use on IFR flights (064/03).

The Director replied in part:

> I accept this recommendation and will publish an article in Vector magazine outlining the differences between VFR and IFR and the prohibition of cell phones whilst operating under IFR rules and reminding operators of their obligations under the current rules. This will be completed by July 2004.

The third recommendation to the Director was:

> Use the circumstances of this accident as educational material for single pilot IFR operators and pilots in the management of instrument approaches (065/03).

The Director replied in part:

> I accept this recommendation and will use this accident as educational material in the forthcoming General Aviation Group projects specifically aimed at light twin multi engine training and operation. This will be completed by December 2004.

Piper PA 31-350 Navajo Chieftain ZK-NCA, controlled flight into terrain, near Christchurch Aerodrome, 6 June 2003
(Investigation 03-004, published in 2003/2004 year)

Rail

Express freight Train 533, derailment, near Te Wera, 26 July 2002 (report 02-116)

This investigation and this resulting safety recommendation is important because of the issues surrounding the use of alcohol prior to commencing duty. The safety recommendation is focused on the elimination of the use of performance impairing substances within the rail industry.

On Friday, 26 July 2002, at about 0150, Train 533, a westbound express freight, derailed as it negotiated a 45 km/h speed restricted curve after descending a 1 in 51 gradient between Whangamomona and Te Wera. The train plunged about 12 m down the side of the track formation killing the locomotive engineer. A second crewmember sustained serious injuries.

The 2 locomotives and several wagons on the train were extensively damaged, but the track sustained minor damage only.

Causal factors included:

- the locomotive crew's loss of attention and situational awareness consistent with their having fallen asleep
- consuming alcohol prior to commencing duty
- the accepted non-compliance with track warrant instructions
- the inability of the locomotive vigilance system to overcome such short-term attention deficits in time to prevent this type of accident.

Safety recommendations were made to address these issues.

One recommendation to the Director of Land Transport Safety was that he:

> Either invoke Section 6F (1) of the Transport Services Licensing Act 1989 or, alternatively, procure changes to legislation or, alternatively, by any other process he judge suitable, ensure that the approved safety system for all rail operators includes a policy for managing the risks associated with substance-induced performance impairment.
>
> Such a policy should:
>
> - be focused on education
> - include all levels of staff and be collaborative between them
> - include major contractors working for the licence holder
> - encourage co-worker intervention after recognition of risk of, or actual, impairment
> - allow for rehabilitation rather than punishment should a problem be identified
> - include all substances that have the potential to impair performance, including those for medicinal use (prescription or otherwise), any toxic elements accidentally ingested or inhaled and any taken for recreational purposes
> - include the requirement for individuals to be promptly tested for the presence of such substances where reasonable cause is shown and, in all cases, after an accident or incident (012/03).

The Director of Land Transport Safety advised that he was unable to implement the recommendation as worded and that the recommendation should instead be directed to the Ministry of Transport. He was, however, discussing options to progress this issue.

Amendments to draft railway legislation at the time of writing require operators' safety cases (the overarching safety risk management documentation) to state or describe the policies in place to ensure that rail operators' rail personnel are fit for duty, and are not suffering impairment or incapacitation as a result of fatigue, illness, medication, drugs, alcohol, or any other factor. The amendments also provide the Minister with the power to make rules regarding substance-induced performance impairment in rail personnel.

Train 533, derailment, near Te Wera, 26 July 2002
(Investigation 02-116, published in 2003/2004 year)

Electric multiple units, Trains 9351 and 3647, collision, Wellington, 31 August 2002 (report 02-120)

This investigation and this resulting safety recommendation is important because it focuses on identifying the inability of locomotive engineers to safely and effectively carry out their duties when concerned with external, personal factors.

On Saturday 31 August 2002 at about 1515, Train 9351, a Tranz Metro[6] Johnsonville to Wellington electric multiple unit passenger service collided with Train 3647, a Tranz Metro Upper Hutt to Wellington electric multiple unit passenger service, as both trains were approaching the Wellington platforms on converging tracks.

There were no injuries to passengers or crew and only minor damage to the trains.

The safety issues identified included the well being of the electric multiple unit driver of Train 9351 and his resulting capacity to recognise and respond to a danger signal indication.

One safety recommendation was made to the Managing Director of Tranz Rail to:

> Reinforce with operating staff the company's procedures for reporting instances of sudden incapacitation through illness or other condition while on duty (035/03).

Tranz Rail replied that it accepted the recommendation. Implementation was pending as at 30 June 2004.

Electric multiple units Trains 9351 and 3647, collision, Wellington, 31 August 2002
(Investigation 02-120, published 2003/2004 year)

[6] Tranz Metro was the group within Tranz Rail with responsibility for the operation of suburban train services in Wellington.

Marine

Restricted limits passenger vessel *Triptych* and pleasure motor launch *Barossa*, collision, Rangitoto Channel, Auckland, 18 February 2003 (report 03-202,)

This investigation and this resulting safety recommendation is important because of the lack of understanding by small boat operators of the effect the wash of a large numbers of vessels has on the sea conditions and the way vessels interact. Education will better prepare spectator boat skippers, thus allowing the danger to be minimised.

On Tuesday 18 February 2003, at about 1530, as the spectator fleet proceeded back towards Auckland Harbour after race 3 of the America's Cup regatta, the pleasure launch *Barossa* and the passenger trimaran *Triptych* collided in the vicinity of the entrance to the Rangitoto Channel. There were 10 people on board the *Barossa,* and 7 crew and 64 passengers on board the *Triptych*. During the collision 3 of those on the launch fell or jumped into the sea but they were rescued by other craft. No serious injuries were sustained and both vessels, although moderately damaged, were able to reach their berths under their own power.

Safety issues identified included:

- severe sea conditions generated by the wash from a very large fleet of vessels
- operating a vessel under sail while manoeuvring within a large fleet of vessels
- speed of vessels in close proximity of each other
- interaction between vessels operating in close proximity of each other
- visibility from the steering position of the *Triptych*.

Safety recommendations were made to the Director of Maritime Safety and the owner of Triptych Cruises.

The Commission also recommended to the Chief Executive of the Auckland Regional Council that he:

> include in future publications for special maritime events advice on the effects of wake produced by large concentrations of craft. Such advice should include the information contained in relevant marine notices (027/03).

The Auckland Regional Council replied in part:

> We will be implementing safety recommendations 026/03, 027/03 and 028/03 and these will be included in the planning for and, the operation of future events which are designated as major maritime events under the legislation contained in Maritime Transport Amendment (No. 2) 1998. Such arrangements will be communicated to the public as part of the overall public education programme which we provide for major events. Most of the recommendations are event-driven and we cannot be specific about the date of implementation until event dates have been established.
>
> I would add that the promotion and enforcement of the 5-knot rule remains central to Auckland Regional Council's education and enforcement in the Auckland Region.

Implementation was pending as at 30 June 2004.

Launch *Barossa* and trimaran *Triptych*, collision, Hauraki Gulf, 18 February 2003
(Investigation 03-202, published in 2003/2004 year)

Jet boats *Wilderness Jet 3* and *un-named private jet boat,* collision, Dart River, Glenorchy, Queenstown, New Zealand, 2 February 2003 (report 03-203)

This investigation and this resulting safety recommendation is important because it will improve the safety of both private and commercial jet boaters and their passengers on a wilderness river which is becoming more congested with traffic.

On Saturday 22 February 2003 at about 1130, the commercial jet boat *Wilderness Jet 3* was travelling downstream on the Dart River, with a driver and 4 passengers on board, when it collided with *Private Jet Boat* proceeding upstream with a driver and one passenger on board. The boats came to rest on a shingle bank with the commercial boat on top of the private boat. The *Private Jet Boat* was extensively damaged. Both drivers and 4 of the passengers sustained minor injuries.

Safety issues identified included:

- the concentration of traffic on the Dart River
- the radio traffic on the Dart River
- the promulgation of information concerning private jet boaters on the river
- the training of persons in charge of a pleasure craft.

Safety recommendations were made to the operators involved.

The Commission also recommended to the Chief Executive, Queenstown Lakes District Council that he:

> evaluate and quantify the traffic on the Dart River and put in place a policy that will prevent conflict between and within the various user groups (042/03).

The Queenstown Lakes District Council replied in part:

> It was agreed that the council will prepare a brief, including costs for the purposes of implementing a safety study of the Dart River to evaluate and make any necessary recommendations to improve safety between various user groups. This will include any recommendations concerning changes to the 'Memorandum – Dart River Operating Procedures', under which commercial users presently operate.
>
> It is envisaged that the study will commence and be completed by the end of the 2003/04 summer period.

Implementation was pending as at 30 June 2004.

Jet boats *Wilderness Jet 3* and *un-named private jet boat*, collision, Dart River, Glenorchy, Queenstown, New Zealand, 22 February 2003
(Investigation 03-203, published in 2003/2004 year)

Passenger freight ferry *Aratere*, collision with moored fishing vessel *San Domenico*, Wellington Harbour, 5 July 2003 (report 03-210)

This investigation and this resulting safety recommendation is important because it highlights the problems of fatigue and medication that can affect staff in safety critical zones and will provide for educational material to inform and educate staff of the methods to ensure safe working practices.

On Saturday 5 July 2003 at about 2100, the passenger freight ferry *Aratere* collided bow first with the starboard side of a fishing vessel moored at Aotea Quay in Wellington Harbour. The fishing vessel, *San Domenico,* and the quay suffered extensive damage.

The safety issues identified included:

- the undertaking of safety critical tasks while suffering from the effects of chronic sleep loss
- the adequacy of provision of medical data concerning sleep disorders in the Maritime Rules
- the adequacy of the requirement to report to owners and operators any condition that may affect the ability of staff involved in safety critical tasks to perform their duties.

The Commission recommended to the Director of Maritime Safety that he:

> Prepare educational material for employers and seafarers on the problems associated with stress, including fatigue, medical conditions and certain types of medication, and the impact this may have on the fitness for duty of those working in safety critical tasks (060/03).

The Director of Maritime Safety replied in part:

> This recommendation is accepted by the Maritime Safety Authority. The proposed educational material will be developed in the year 04/05.

Passenger freight ferry *Aratere*, collision with moored fishing vessel *San Domenico*, Wellington Harbour, 5 July 2003
(Investigation 03-210, published in 2003/2004 year)

Container ship *Spirit of Enterprise*, touching bottom and loss of rudder, Manukau Bar, 16 August 2003 (report 03-212)

This investigation and this resulting safety recommendation is important because it improves the safety of the Manukau Harbour.

On 16 August 2003 at about 1420, as the container ship *Spirit of Enterprise* crossed the Manukau Bar, it encountered several large swells, causing it to pitch heavily. The ship's rudder struck the seabed with sufficient force to fracture the rudderstock causing the loss of the rudder, thus disabling the ship.

Safety issues identified were:

- insufficient "real time" environmental information
- pre-accident cracking of the rudderstock
- possible pre-damage to the rudderstock from a previous grounding and the jamming of the flap actuating mechanism
- adequacy of the rudderstock size despite the high-strength steel design.

The Commission recommended to the Manager Marine Services, Ports of Auckland Limited that he:

> Provide accurate sea condition information to masters and pilots of ships transiting the Manukau Bar. In the first instance he should endeavour to gain access to the data from the Taharoa wave rider buoy, either in real time or within one hour of its measurement (020/04).

Ports of Auckland Limited replied in part:

> Ports of Auckland are in the process of discussing access to the Taharoa wave buoy data with its owners.

Container ship *Spirit of Enterprise*, touching bottom and loss of rudder, Manukau Bar, 16 August 2003 (Investigation 03-212, published in 2003/2004 year)

Safety Recommendation Implementation

This section reports on the implementation of all safety recommendations (SRs) developed after 4 October 2000, and any SRs made before that date for which the need has been reaffirmed by more recent investigations.

Because SRs can take some time to implement, the Commission's comments below address only the SRs that have been open for more than one year since the Commission issued the SR.

Mode of transport	Number of Safety Recommendations (SRs)			
	issued over year	closed over year	open at end of year	open longer than 1 year (See notes below)
Aviation	8	9	22	17
Rail	28	15	56	32
Marine	34	12	98	66
Total SRs	**70**	**36**	**176**	**115**

Aviation SRs open longer than 1 year:

Fifteen of the 17 SRs are to CAA. Three have probably been implemented, and the Commission is confirming this before formally closing them. The CAA has indicated that most of the other SRs will be dealt with during 2004 and 2005. This includes three SRs that relate to mountain flying. The first of these dates back to a 1997 accident. Implementation of one SR, relating to marking of wires, depends on the outcome of a cost/benefit analysis to be completed in 2004/05.

Rail SRs open longer than 1 year:

Thirty of the 32 SRs are to Tranz Rail. The bulk of these are expected to be implemented. The 2 SRs to LTSA are effectively the same and relate to stacking distance for long vehicles at level crossings. The first of these 2 SRs was issued in 1996, and the second in 2002. They are expected to be implemented upon completion of a major review currently under way. The LTSA has not advised a completion date.

Marine SRs open longer than 1 year:

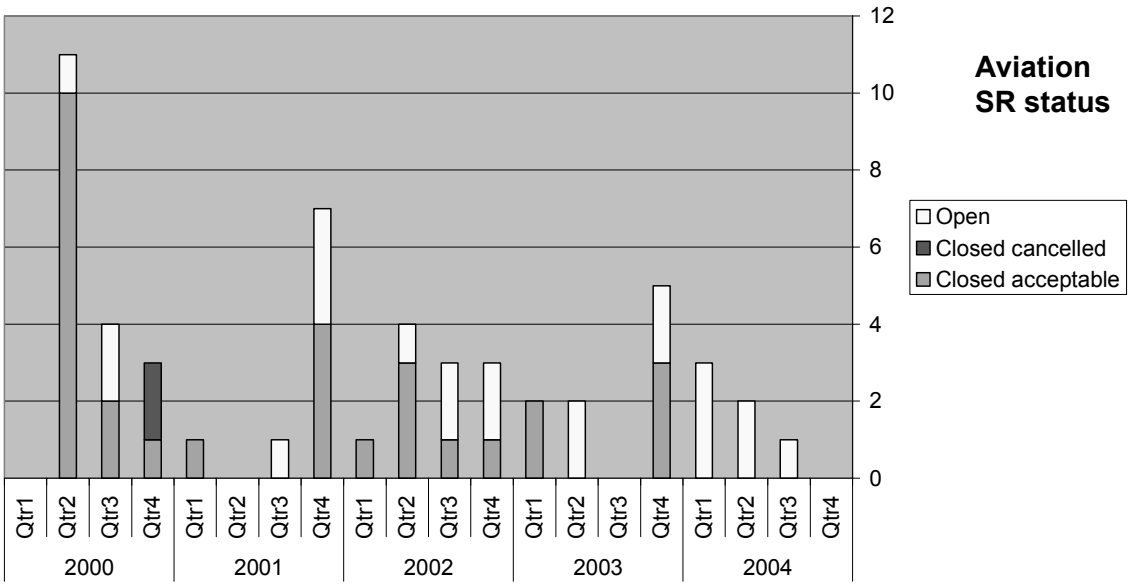
Eighteen of the 66 SRs are to MSA, at least 10 of which have probably been implemented or are no longer relevant. The Commission expects to close these following due process. Five other SRs have been formally declined by the MSA. The 3 remaining SRs to MSA are under action. One of these is a very important SR issued in 1999 for the formulation of maritime rules for management and prevention of fatigue. MSA has policy work under way and advises that the SR will be considered in any future rule amendment. The remaining 48 SRs are to a mix of port companies, territorial authorities and operators. Seven of these are unlikely to be implemented.

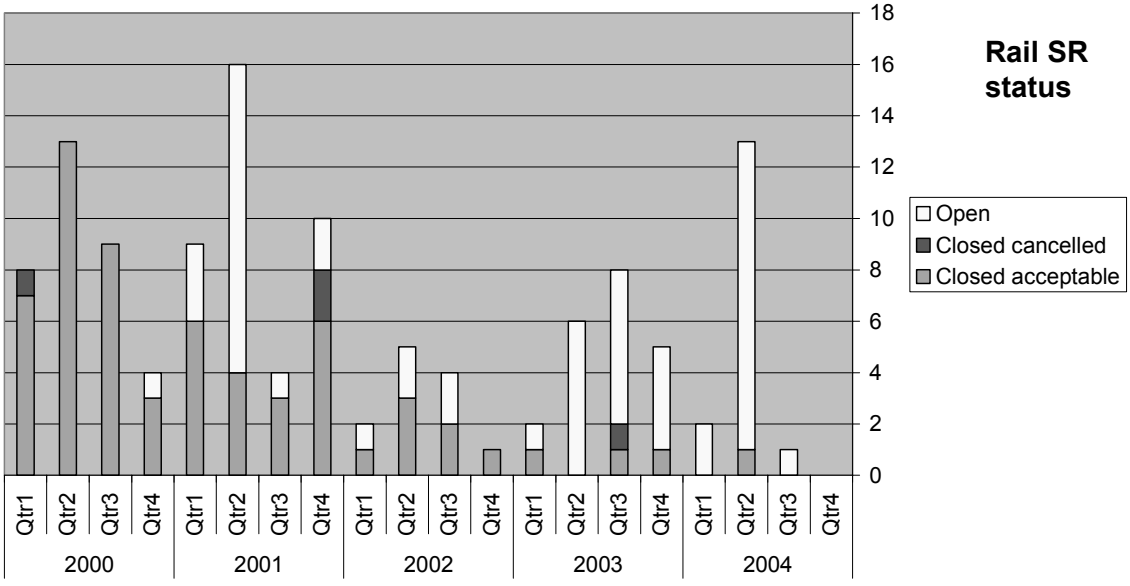
Chart representation of SR implementation over time

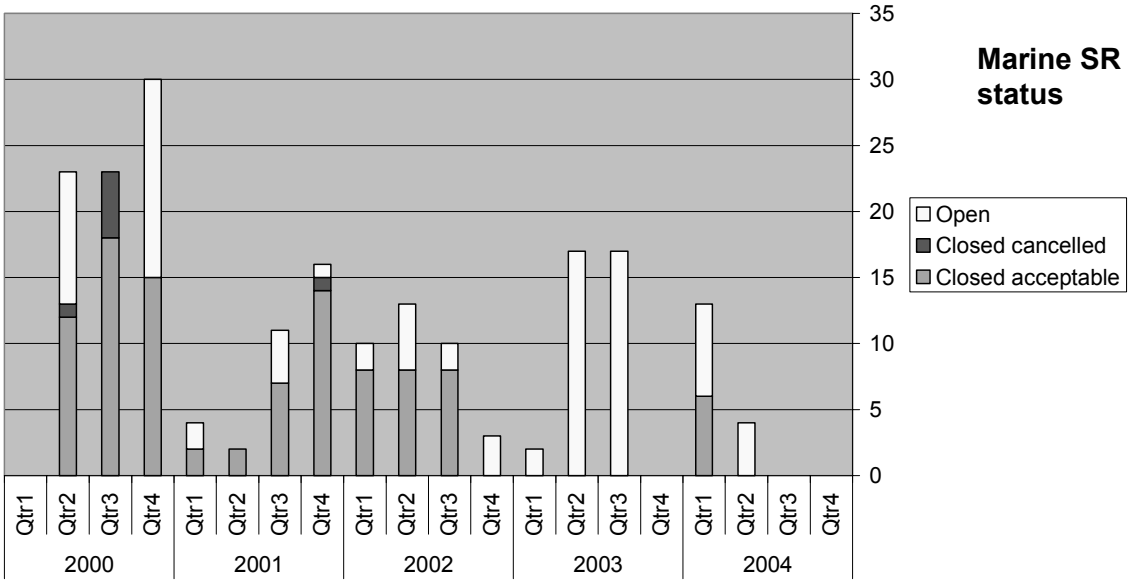
The following page shows in chart form the numbers of SRs issued each quarter since 2000 (represented by the height of each column), and how many of those have been implemented or cancelled (represented by the different colours within each column).

Safety recommendation implementation over time

(Refer bottom of previous page for explanation)







Transport Accident Investigation Commission

Statement of Responsibility

For the Year Ended 30 June 2004

In the financial year ended 30 June 2004, 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 August 2004

Financial statements

Transport Accident Investigation Commission

Statement of Accounting Policies
For the year ended 30 June 2004

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 in which New Zealand has a specific interest, conducted by overseas authorities, 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 that materially affect the measurement of financial performance and financial position have been applied:

(a) Budget figures
The budget figures are those approved by the Commission at the beginning of the financial year.

The budget 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 that 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 except for those payables with suppliers and receivables from customers.

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

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

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.

(g) Provision for employee leave entitlements
Provision of employee leave 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. All policies have been applied on the basis consistent with the previous years.

Transport Accident Investigation Commission
Statement of Financial Position
As at 30 June 2004

	Note	Actuals 30/06/04 ($)	Budget 30/06/04 ($)	Actuals 30/06/03 ($)	Change
Assets					
Fixed assets	1	104,283	159,000	120,045	(15,762)
Current assets					
Cash at bank		214,965	132,000	141,986	72,979
Short-term deposits		300,000	300,000	300,000	-
Receivables	2	-	5,000	2,673	(2,673)
Accrued interest		3,619	-	2,455	1,164
Prepayments and advances		16,837	15,000	18,834	(1,997)
Total Current assets		535,421	452,000	465,948	69,473
Total Assets		639,704	611,000	585,993	53,711
Represented by:					
Liabilities and Taxpayers' funds					
Current liabilities					
Payables and Accruals	3	151,184	130,000	227,954	(76,770)
Provision for employee leave entitlements	4	102,885	90,000	97,354	5,531
Total Current liabilities		254,069	220,000	325,308	(71,239)
Taxpayers' Equity		385,635	391,000	260,685	124,950
Total Liabilities and Taxpayers' funds		639,704	611,000	585,993	53,711

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 2004

	Note	Actuals 30/06/04 ($)	Budget 30/06/04 ($)	Actuals 30/06/03 ($)
Revenue				
Crown revenue		2,172,444	2,172,000	1,758,222
Other income		7,242	4,000	6,514
Profit on sale of fixed assets		2,068	-	-
Interest earned		23,396	21,000	19,464
Total Revenue		2,205,150	2,197,000	1,784,200
Expenditure				
Audit fees		8,632	8,000	8,450
Commissioners' fees		72,430	65,000	60,566
Depreciation		-	45,000	-
Buildings		894	-	894
EDP equipment		19,869	-	23,654
Office furniture, fittings and equipment		10,292	-	9,386
Motor vehicles		6,073	-	6,073
Lease, rentals and outgoings		133,016	125,000	105,196
Capital charge	5	24,062	28,000	21,635
Personnel costs		1,239,539	1,316,000	1,063,858
Other operating costs		659,393	572,000	476,458
Total Expenditure		2,174,200	2,159,000	1,776,170
Net Surplus/(Deficit)		30,950	38,000	8,030

Transport Accident Investigation Commission
Statement of Movements in Equity
For the year ended 30 June 2004

	Note	Actuals 30/06/04 ($)	Budget 30/06/04 ($)	Actuals 30/06/03 ($)
Opening Taxpayers' equity at 1 July 2003		260,685	260,685	252,655
Plus:				
Net Surplus/(Deficit)		30,950	38,000	8,030
Capital Injection		94,000	94,000	-
Total recognised revenues & expenses for the year		124,950	132,000	8,030
Closing Taxpayers' equity at 30 June 2004		385,635	392,685	260,685

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 2004

	Actuals **30/06/04**	Budget **30/06/04**	Actuals **30/06/03**
Cash flows from operating activities	($)	($)	($)
Cash was received from:			
Crown revenue	2,172,444	2,172,000	1,758,222
Other income	6,727	2,000	6,514
Interest received	22,232	21,000	19,464
	2,201,403	2,195,000	1,784,200
Cash was disbursed to:			
Payments to suppliers and employees	2,179,064	2,187,000	1,636,733
Capital charge	24,062	28,000	21,635
Net cash flows from operating activities	(1,723)	(20,000)	125,832
Cash flows from investing activities			
Cash was received from:			
Sale of fixed assets	2,068	18,000	280
Cash was applied to:			
Purchase of fixed assets	21,366	103,000	54,986
Net cash flows from investing activities	(19,298)	(85,000)	(54,706)
Cash Flows from Financing Activities			
Cash provided from:			
Capital Contribution from the Crown	94,000	94,000	-
Cash disbursed to:			
Payment of Surplus to the Crown	-	-	-
Net Cash Flows from Financing Activities	94,000	94,000	-
Net movement in cash for the period	72,979	(11,000)	71,126
Opening bank balance	441,986	326,000	370,860
Closing bank balance	514,965	315,000	441,986

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 2004

	30/06/04 ($)	30/06/03 ($)
(Deficit)/Surplus from Statement of Financial Performance	30,950	8,030
Add Non-Cash Items		
Depreciation	37,128	40,006
(Profit)/loss on sale of fixed assets	(2,068)	0
	35,060	40,006
Add/(Less) movements in Working Capital Items		
Decrease (increase) in Receivables	2,673	(1,259)
Decrease (increase) in Accrued interest	(1,164)	(550)
Decrease (increase) in Advances and Prepayments	1,997	271
Increase (decrease) in Creditors and Accruals	(76,770)	70,201
Increase (decrease) in Provisions	5,531	9,133
Total working capital items	(67,733)	77,796
Net cash flows from operating activities	(1,723)	125,832

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 2004

1. Fixed assets

	Cost ($)	Accumulated Depreciation ($)	Book Value ($)
2004			
	29,798	13,277	16,521
Buildings	93,069	68,849	24,220
EDP equipment	216,650	168,626	48,024
Office furniture, fittings and equipment	33,737	18,219	15,518
Motor vehicles	373,254	268,971	104,283

	($)	($)	($)
2003			
	29,798	12,383	17,415
Buildings	159,883	120,975	38,908
EDP equipment	202,701	160,570	42,131
Office furniture, fittings and equipment	33,737	12,146	21,591
Motor vehicles	426,119	306,074	120,045

2. Receivables

	30/06/04	30/06/03
	($)	($)
Gross Receivables	-	2,673
Less: Provision for doubtful debts	-	-
Net Receivables	0	2,673

3. Payables and Accruals

	30/06/04	30/06/03
	($)	($)
Trade creditors	59,109	43,776
Accrued expenses	92,075	184,178
Total Payables and Accruals	151,184	227,954

4. Provision for employee leave entitlements

	30/06/04	30/06/03
	($)	($)
Annual leave	73,610	68,079
Retirement leave	29,275	29,275
	102,885	97,354

5. Capital charge

Levied at 8.5% on the taxpayers' funds for 2004. For the 2003 year the rate was 8.5%.

6. Financial instruments

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

Financial instruments that 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 and the National Bank of New Zealand. Investments and funds are invested pursuant to 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	2004	2003
$100-$110	1	1
$110-$120	0	0
$120-$130	1	1
$170-$180	0	1
$180-$190	1	0

The Chief Executive's total remuneration and benefits is in the $180,000 -$190,000 band.

8. Commission members

Commission members earned the following fees during the year:

Member	Fees	
	2004	2003
Hon WP Jeffries (Chief Commissioner)	$31,500	$24,000
Ms PA Winter	$20,578	$12,298
Mr NA Macfarlane	$20,352	$22,268

9. Statement of commitments

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

	30/06/04	**30/06/03**
	($)	($)
Less than 1 year	75,100	82,139
1 - 2 years	23,950	43,969
2 - 5 years	7,983	1,741
5+ years	-	-
	107,033	127,849

Note: Seaview warehouse lease was renegotiated in March 2004. The monthly rental is $1995.83 plus GST.

Christchurch office lease is currently on a month-to-month basis at a rate of $717.67 per month.

A Sub-lease for two offices on Level 9, 114 The Terrace, Wellington was signed to take effect from July 2003 until March 2004 with a right of renewal every three months from that date. Rental is $ 1,300 per month plus GST.

The Wellington office lease has a right of renewal due March 2005.
TAIC has not yet finalised any new lease terms and conditions.

10. Statement of contingent liabilities

There were no contingent liabilities existing at balance date.
(2003: Nil.)

Statement of Objectives and Service Performance

For outputs in the Year Ended 30 June 2004

Output

This output class covers the investigation and reporting on certain aviation, rail, and marine accidents and incidents in New Zealand and the waters over which it has jurisdiction. Investigations for safety are conducted 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 30/6/04 $000	Actual 12 months to 30/06/03 $000	Statement of Intent with the Minister 12 months to 30/06/04 $000
Revenue			
Crown	2,172	1,758	2,172
Other	33	26	25
Total revenue	2,205	1,784	2,197
Expenditure	2,174	1,776	2,159
Surplus/(Deficit)	31	8	38

Service performance

Service measured	Note	Actual 12 months to 30/06/04	Actual 12 months to 30/06/03	Statement of Intent 12 months to 30/06/04
Aviation Accidents/Incidents				
New investigations begun		7	11	15
Investigations finalised		7	14	n/a
% of investigations that were finalised within 12 months		100%	93%	n/a
Investigations ceased without publishing a final report	1	1	3	n/a
Rail Accidents/Incidents				
New investigations begun		22	24	20
Investigations finalised		21	17	n/a
% of investigations that were finalised within 12 months		24%	47%	n/a
Investigations ceased without publishing a final report	1	4	1	n/a
Marine Accidents/Incidents				
New investigations begun		15	12	20
Investigations finalised		14	10	n/a
% of investigations that were finalised within 12 months		93%	70%	n/a
Investigations ceased without publishing a final report	1	3	3	n/a

Service measured	Note	Actual 12 months to 30/06/04	Actual 12 months to 30/06/03	Statement of Intent 12 months to 30/06/04
Timeliness (across all modes)				
% of aviation, rail and marine investigations finalised in the year completed within 9 months		60	68	90
Months to produce a "preliminary report" after a major accident	2	n/a	n/a	12
Availability of Accident Investigators (hrs/day per year)		24/365	24/365	24/365
Quality				
Investigation reports (and supporting file) will meet specified criteria such that external review will be possible		Achieved	Achieved	As specified
The TAIC CEO attests that all investigations fully comply with the criteria		Procedures are in place to ensure investigations comply with the criteria	Procedures are in place to ensure investigations comply with the criteria	As specified
The Commission will provide an opinion on the implementation status of each safety recommendation	3	Achieved	Achieved	As specified
Ministerial Servicing				
Number of draft responses to Ministerial correspondence	4	1	n/a	10
Number of draft replies provided within 10 working days of the Commission being asked to respond to the correspondence	4	100%	n/a	100%

1. 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.

2. There were no major accidents to be investigated in 2003/04. (2002/03: nil).

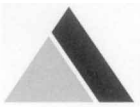
   A major accident is defined as:

   "An accident that is expected to be one in which the demands are of such a scale and complexity as to make demands on TAIC and non-TAIC resources that are substantially greater than normal, requiring use of the group system."

3. Refer to section "Safety Recommendation Implementation", (pages 33 to 34).

4. Not a measure adopted in 2002/03.

Report of the Auditor General



Audit New Zealand

AUDIT REPORT

TO THE READERS OF THE TRANSPORT ACCIDENT INVESTIGATION COMMISSION'S FINANCIAL STATEMENTS FOR THE YEAR ENDED 30 JUNE 2004

The Auditor-General is the auditor of the Transport Accident Investigation Commission (the Commission). The Auditor-General has appointed me, Stephen Lucy, using the staff and resources of Audit New Zealand, to carry out the audit of the financial statements of the Commission, on his behalf, for the year ended 30 June 2004.

Unqualified opinion

In our opinion the financial statements of the Commission on pages 36 to 47:

- comply with generally accepted accounting practice in New Zealand; and
- fairly reflect:

  the Commission's financial position as at 30 June 2004;

  the results of its operations and cash flows for the year ended on that date; and

  its service performance achievements measured against the performance targets adopted for the year ended on that date.

The audit was completed on 30 August 2004, and is the date at which our opinion is expressed.

The basis of the opinion is explained below. In addition, we outline the responsibilities of the Commissioners and the Auditor, and explain our independence.

Basis of opinion

We carried out the audit in accordance with the Auditor-General's Auditing Standards, which incorporate the New Zealand Auditing Standards.

We planned and performed our audit to obtain all the information and explanations we considered necessary in order to obtain reasonable assurance that the financial statements did not have material misstatements, whether caused by fraud or error.

Material misstatements are differences or omissions of amounts and disclosures that would affect a reader's overall understanding of the financial statements. If we had found material misstatements that were not corrected, we would have referred to them in the opinion.

Our audit involved performing procedures to test the information presented in the financial statements. We assessed the results of those procedures in forming our opinion.

Audit procedures generally include:

- determining whether significant financial and management controls are working and can be relied on to produce complete and accurate data;
- verifying samples of transactions and account balances;
- performing analyses to identify anomalies in the reported data;
- reviewing significant estimates and judgements made by the Commissioners;
- confirming year-end balances;
- determining whether accounting policies are appropriate and consistently applied; and
- determining whether all financial statement disclosures are adequate.

We did not examine every transaction, nor do we guarantee complete accuracy of the financial statements.

We evaluated the overall adequacy of the presentation of information in the financial statements. We obtained all the information and explanations we required to support the opinion above.

Responsibilities of the Commissioners and the Auditor

The Commissioners are responsible for preparing financial statements in accordance with generally accepted accounting practice in New Zealand. Those financial statements must fairly reflect the financial position of the Commission as at 30 June 2004. They must also fairly reflect the results of its operations and cash flows and service performance achievements for the year ended on that date. The Commissioners' responsibilities arise from the Public Finance Act 1989 and the Transport Accident Investigation Commission Act 1990.

We are responsible for expressing an independent opinion on the financial statements and reporting that opinion to you. This responsibility arises from section 15 of the Public Audit Act 2001 and section 43(1) of the Public Finance Act 1989.

Independence

When carrying out the audit we followed the independence requirements of the Auditor-General, which incorporate the independence requirements of the Institute of Chartered Accountants of New Zealand.

Other than the audit, we have no relationship with or interests in the Commission.

S B Lucy
Audit New Zealand
On behalf of the Auditor-General
Wellington, New Zealand

Matters relating to the electronic presentation of the audited financial statements

This audit report relates to the financial statements of the Transport Accident Investigation Commission (the Commission) for the year ended 30 June 2004 included on the Commission's website. The Commissioners are responsible for the maintenance and integrity of the Commission's website. We have not been engaged to report on the integrity of the Commission's web site. We accept no responsibility for any changes that may have occurred to the financial statements since they were initially presented on the web site.

We have not been engaged to report on any other electronic versions of the Commission's financial statements, and accept no responsibility for any changes that may have occurred to electronic versions of the financial statements published on other websites and/or published by other electronic means.

The audit report refers only to the financial statements named above. It does not provide an opinion on any other information which may have been hyperlinked to/from these financial statements. If readers of this report are concerned with the inherent risks arising from electronic data communication they should refer to the published hard copy of the audited financial statements and related audit report dated 30 August 2004 to confirm the information included in the audited financial statements presented on this web site.

Legislation in New Zealand governing the preparation and dissemination of financial statements may differ from legislation in other jurisdictions.

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