

**NZ Transport Agency's
Approach to Research
2009-12**

GPS activity class: sector research

October 2008

Currently under review

Currently under review

NZ Transport Agency's Approach to Research 2009-12

GPS activity class: sector research

October 2008

Currently under review



NZ TRANSPORT AGENCY
WAKA KOTAHI

© 2008, NZ Transport Agency
Private Bag 6995, Wellington 6141, New Zealand
Telephone 64 4 894 5400; Facsimile 64 4 894 6100
Website: www.nzta.govt.nz

Abbreviations and acronyms

Austrroads	Association of Australian and New Zealand Road Transport and Traffic Authorities
EOI	Expression of Interest
FRST	Foundation for Research, Science and Technology
GPS	Government Policy Statement on Land Transport Funding
LTMA	Land Transport Management Act 2003
NLTP	National Land Transport Programme
NZTA	New Zealand Transport Agency
NZTS	New Zealand Transport Strategy
RFP	Request for Proposal
RRG	Research Reference Group
TMIF	Transport Monitoring Indicator Framework

Contents

Foreword	5
Enquiries	6
Part A Strategic context	
1 The NZTA's strategic approach to research.....	8
1.1 The New Zealand Transport Strategy 2008.....	8
1.2 Government Policy Statement on Land Transport Funding.....	9
1.3 Transport Monitoring Indicator Framework	10
1.4 Transport Research Strategy.....	10
1.5 Implications of the NZTS, GPS and TMIF for transport research priorities in the future	11
2 The NZTA's approach to managing research.....	12
2.1 The NZTA's definition of research.....	12
2.2 National Land Transport Programme context.....	12
2.3 Purpose of research - outputs	13
3 Targeting the research.....	14
3.1 Key research areas	14
3.2 Target funding allocations	17
Part B Application, assessment and management process	
4 Introduction.....	20
4.1 Types of research.....	20
4.2 Research funding	20
5 Industry-generated research.....	22
5.1 Introduction	22
5.2 Research Reference Group.....	22
5.3 Application process.....	22
5.4 Annual research timetable.....	23
6 Directed research.....	24
7 Applying for funding	25
7.1 Application forms and other documentation	25
7.2 Things to consider when formulating a proposal.....	25
8 Assessment and selection of proposals	28
8.1 Assessors.....	28
8.2 Assessment criteria and process	28
9 Management of research process	29
9.1 The NZTA's role	29
9.2 Procurement.....	31
Appendix A: Research Reference Group.....	32
Appendix B: Research proposal assessment.....	33
Appendix C: Research proposal timeline	44

Currently under review

Foreword

I am very pleased to introduce the *NZ Transport Agency's Approach to Research 2009–12*. It revises and replaces *Land Transport NZ's Research Strategy* and sets out the detail of the research programme that the NZ Transport Agency (NZTA) manages in accordance with the Land Transport Management Act 2003.

The importance of innovative and relevant land transport research cannot be overstated, as it plays a critical role in contributing to the government's goal of achieving an affordable, integrated, safe, responsive and sustainable transport system.

The government has set out its commitment to addressing the challenges facing the transport sector in the *NZ Transport Strategy* (NZTS) and the *Government Policy Statement on Land Transport Funding* (GPS), which guide the direction of the transport sector and land transport funding. With the release of these strategic documents, along with the formation in August 2008 of the NZTA from the merger of Land Transport NZ and Transit NZ, the time is right to take a fresh look at the NZTA's Research Programme and at the goals and objectives we want to achieve through it.


This resulting document, *NZ Transport Agency's Approach to Research*, is in two parts: Part A sets out the strategic context underpinning the research programme and the transport sector's priority research needs; while Part B explains the funding application process, how applications are assessed, and how the programme is managed.

Researchers are encouraged to read both parts carefully, as there are a number of changes from previous years. Those familiar with the programme will note that the key research areas have been revised to reflect the priorities set out in the NZTS, the GPS, and the *Transport Research Strategy*. The key research areas are now: integrated land and transport systems; transport demand management; activity management; sustainable land transport; safety, security and public health; environmental impacts of land transport; and economic development. The *NZ Transport Agency's Approach to Research* also reflects the government's new three-year funding cycle for the National Land Transport Programme, which is the mechanism for land transport planning and funding and of which the research programme is a component.

The NZTA continues the proud history of its legacy organisations in commissioning and publishing innovative and relevant research for the transport sector. The research programme has operated since 1989, managed first by Transit NZ, which took over stewardship of government-funded transport research, and then by Transfund NZ on its creation in 1996. In 2005 the mantle passed to Land Transport NZ, which was formed from the merger of Transfund NZ and the Land Transport Safety Authority, and now the NZTA leads the research programme into a bright and exciting future.

I encourage researchers to help to create a more affordable, integrated, safe, responsive and sustainable transport system by participating in the NZTA's Research Programme.

I commend the *NZ Transport Agency's Approach to Research* to you.



Geoff Dangerfield
Chief Executive

Enquiries

For enquiries relating to the NZTA's Research Programme, please contact:

Research Programme Analyst
NZ Transport Agency
Victoria Arcade
44 Victoria Street
Private Bag 6995
Wellington 6141
New Zealand

Email: research@nzta.govt.nz

Phone: 04 894 6160 or 04 894 6218

Full information on the NZTA's Research Programme is available at:
www.landtransport.govt.nz/research/index.html

Currently under review

Part A

Strategic context

Currently under review

1 The NZTA's strategic approach to research

New Zealand's transport sector has an important part to play in contributing to the government's goal of economic transformation and energy conservation for New Zealand, and will therefore need to increase its level of innovation and implementation. Research will be central to achieving this, as it is at the core of knowledge that informs and supports public policy and decision-making.

The NZ Transport Agency (NZTA) research approach seeks to fund applied research that delivers strategic outcomes for the land transport sector. This document outlines the approach that provides greater clarity and coherence about the overall direction and development of its publicly funded land transport¹ research. This approach is guided by several strategy documents that provide broad context and high-level direction for specific areas of research by setting out the government's vision, priorities and intended outcomes for transport in the short-term and into the future.

1.1 The New Zealand Transport Strategy 2008

The *New Zealand Transport Strategy 2008* (NZTS 2008) sets out the government's vision for transport to 2040, the strategic approach to be taken to achieve that vision, and a set of targets to enable us to measure progress towards its achievement. The vision is that:

People and freight in New Zealand have access to an affordable, integrated, safe, responsive and sustainable transport system.

The vision is supported by five objectives for transport:

- ensuring environmental sustainability
- assisting economic development
- assisting safety and personal security
- improving access and mobility
- protecting and promoting public health.

The NZTS 2008 identifies the following challenges to achieving the 2040 vision:

- responding to climate change
- energy security and cost
- investment in infrastructure and services while keeping transport affordable
- increases in the environmental and social impacts of transport
- changing demands arising from the ageing of our population
- land-use development and its impact on transport demand
- global terrorism.

The NZTS states that a 'business-as-usual' approach will not be adequate to achieve that vision, and sets out seven key components to which increased emphasis needs to be applied.

¹ Land transport, as defined in the Land Transport Management Act, comprises transport on land by any means as well as coastal shipping.

These will need to guide how transport is planned and delivered as they are designed to enable the New Zealand transport sector as a whole to attain the targets and vision, by addressing the key challenges. The seven key components are:

- integrated planning
- making best use of existing networks and infrastructure
- investing in critical infrastructure and the transport sector workforce
- increasing the availability and use of public transport, cycling, walking and other shared and active modes
- considering options for charging that will generate revenue for investment in transport infrastructure and services
- using new technologies and fuels
- maintaining and improving international links.

The message from the NZTS 2008 is that the transport system needs to change. The government is seeking gradual but accelerating change to give the transport sector, businesses and individuals time to adapt. Major changes are anticipated in order to meet the challenges ahead, and small preparatory changes need to be made now.

1.2 Government Policy Statement on Land Transport Funding

The 2008 Amendment to the Land Transport Amendment Act 2003 (LTMA) introduced a *Government Policy Statement on Land Transport Funding (GPS)*, which is now the primary instrument for directing funding in relation to land transport. The GPS sets out the government's intended outcomes and funding priorities for land transport and outlines the funding that central government will make available through the National Land Transport Programme (NLTP). The first GPS covers the period of the financial years 2009/10 to 2014/15 and, more indicatively, a further four years out to 2018/19. It includes the impacts the government wishes to make in the land transport sector, how it will achieve these by funding certain activity classes, how much funding will be provided for land transport, and how this funding will be raised.

The research programme is described in the GPS as activity class: sector research. This activity class supports the development of the knowledge base that will guide the land transport sector's development.

1.2.1 GPS targets

The GPS targets have been directly shaped by those in the NZTS 2008. If the land transport sector achieves the shorter-term GPS targets, it will be making progress towards achieving the longer-term NZTS 2008 targets.

The GPS also has a narrower range of targets than the NZTS 2008, focusing on those areas of land transport on which funding is most likely to have a positive impact in the short-to-medium term.

GPS targets have been developed in the following areas:

- reducing greenhouse gas emissions
- freight mode shift
- travel times and reliability on critical routes
- road safety
- public transport use
- walking and cycling use.

1.3 Transport Monitoring Indicator Framework

The Transport Monitoring Indicator Framework (TMIF) released in 2008 provides a framework for robust and consistent monitoring of the land transport system. There are 10 indicator sets for measuring progress against the objectives, outcomes and targets in the NZTS and GPS:

- transport volume
- network reliability
- transport contribution to economic transformation
- access to the transport system
- travel behaviour
- transport safety and security
- public health effects of transport
- lifecycle management of vehicles and infrastructure
- environmental impact of transport
- transport system resource use.

1.4 Transport Research Strategy

The Transport Research Strategy, released in 2007, identifies the following strategic research themes as representing the key areas in which additional knowledge is needed for the transport sector to achieve the original NZTS's vision and objectives:

- targeted data collection and analysis
- understanding the cost of transport
- investigation of future energy supply and use
- ensuring integrated planning for transport in the future
- improving safety and security in the network
- transport and the community
- managing transport demand
- transport, the environment and climate change
- transport and public health.

The Transport Research Strategy will be 'refreshed' regularly in consultation with transport research funders and providers, to take account of the work undertaken in the implementation of the NZTS, GPS and the TMIF. Thereafter it will be updated from time to time to reflect the availability of new and better data, and any additional knowledge gaps identified as new strategic issues emerge.

1.5 Implications of the NZTS, GPS and TMIF for transport research priorities in the future

New Zealand's research community will need to give continuing attention to the shift in the government's priorities for transport when developing and considering research projects. Although there will be an increased emphasis in the future on improving sustainable transport choices for all New Zealanders, particularly in terms of moving people and freight using an optimal mix of transport modes, this does not mean that the more 'traditional' areas of land transport research (eg asset management and road safety) are of lesser importance, as we also need to keep in mind the need to maintain, or indeed enhance, research capability in those areas.

This document describes the NZTA's approach for allocating sector research funding, which comprises industry-generated research and a small amount of directed research (see section 4.1). The NZTA and other agencies perform transport research as part of internal policy development, and future revision of this approach will need to identify the activities across the sector to better coordinate these efforts.

Currently under review

2 The NZTA's approach to managing research

2.1 The NZTA's definition of research

The NZTA requires a specific definition of research tailored to its functions and responsibilities, especially as the NZTA focuses on applied research for the domestic land transport sector. Therefore, NZTA research is:

Research undertaken to acquire new knowledge and information of land transport sector issues applicable to the New Zealand context.

For the NZTA, the results of research must be applicable to interventions that can be applied in New Zealand in the short-to-medium term for longer-term impacts.

Research funded by the NZTA will also:

- have multiple potential end users
- not provide commercial gain for a sole supplier or single product
- not exclusively benefit a single organisation to achieve its own operational needs or business objectives (if research on technical issues, such as a trial of a product, is likely to produce benefits for more than one end user, this could qualify)
- have strong support by end users to address information gaps.

The NZTA's definition of research is intended to complement the approach of the Foundation for Research, Science and Technology (FRST), a Crown entity that invests over \$450 million in innovation, fostering the creation of new knowledge and allowing for more 'blue skies' research.

Research funding is available to any suitably qualified and experienced researcher. Funding has in the past been awarded to research organisations, consultancies, contractors, universities and individual researchers. Funding is not available to government agencies, although they may co-fund.

2.2 National Land Transport Programme context

The LTMA provides for the NZTA to include research activities in the National Land Transport Programme (NLTP). As from 2009–12, the NLTP moves to a three-year cycle rather than the previous annual cycles.

While it is intended that the research programme will set out a rolling three-year plan of research activity to align itself with the new three-year NLTP funding cycle, various factors (such as changing economic circumstances, data availability and findings from other previous research) will inevitably impact on the timing and content of the research programme. In order to maintain flexibility and ensure value for money, the research programme will be refreshed yearly via a supplementary annual application process. We do welcome longer-term proposals with the increased funding certainty from the three-year cycle.

2.3 Purpose of research – outputs

For New Zealand to benefit from the knowledge gained through research, and for society to appreciate the value of such research, it is important that this knowledge be widely disseminated to as many end users as possible. Therefore, the following principles apply to research funded by the NZTA:

- results are widely disseminated, free of charge
- results are applicable to multiple end users
- results are applicable to interventions that can be applied in New Zealand in the short-to-medium term for longer-term impacts.

The NZTA publishes the research reports on its website, sells hard copies, emails notification of recently published reports to a nationwide contact list, and distributes a quarterly newsletter that profiles recently completed research projects. The NZTA also encourages researchers to disseminate the knowledge gained from research through:

- workshops/seminars (eg government, sector organisations, industry groups, tertiary institutions, academics and other appropriate organisations)
- commissioned reports to users
- trade journal/magazine articles
- promotional campaigns for the utilisation of research outputs
- sector capability development.

Currently under review

3 Targeting the research

3.1 Key research areas

The NZTS 2008, GPS, TMIF and the Transport Research Strategy have been influential in shaping the NZTA's research approach. The NZTA has distilled the relevant components, targets and themes from the documents into seven key research areas that direct the focus of the NZTA's research needs. Research proposals must sit within one or more of the key research areas, and may address one or more of the suggested research needs detailed within each area². However, to provide for innovation, the research needs under each key research area should be regarded as a guide to the suggested content of the overall research programme rather than a prescription of research topics. Note that land transport, as defined in the LTMA, comprises transport on land and on water.

The key research areas and suggested research needs in the New Zealand context are:

1. Integrated land use and transport systems

Research need: to more efficiently manage transport and integration with land use including by:

- a improved planning and urban design methods to integrate land use, and transport networks and modes
- b quantifying and evaluating the effectiveness of different land-use patterns to reduce transport demand and/or increase use of active and shared modes
- c improving the efficient use of the existing transport infrastructure (eg network optimisation)
- d identifying best local planning practice in guidance, legislative process, funding mechanisms and/or governance to achieve integrated land use and transport planning processes and outcomes
- e identifying participatory approaches that better integrate land use and transport planning and delivery
- f developing performance indicators for integrated networks.

2. Transport demand management

Research need: to manage the people and freight demand for transport and provide impetus for changing transport choices including by:

- a improving the design and evaluation of transport modelling techniques
- b identifying and quantifying the effect of pricing on freight logistics and transport choices
- c identifying the barriers to, and factors influencing, switching/choosing between transport modes

² However, researchers must choose the ONE key research area to which their proposal most relates and submit their proposal within that category.

- d maximising network efficiency including the use of information and new transport technologies
- e increasing vehicle occupancy
- f improving freight movements and logistics
- g identifying and evaluating appropriate demand management techniques
- h improving the quantification and evaluation of induced travel effects.

3. Activity management

Research need: to improve the performance of land transport activities and assets including by:

- a quantifying benefits from the use of alternative materials (eg recycled materials)
- b quantifying and managing the impacts of climate change on land transport
- c developing risk mitigating measures for design/maintenance/operation/construction
- d improving the handling of significant risk (including natural hazards and crashes)
- e minimising disruption to transport due to construction/maintenance
- f measuring and monitoring asset performance/deterioration, including regional variations
- g improving load-carrying capacities of structures and pavements
- h reducing the impact of loads on pavements and structures (eg dynamic loading, vibration, tyre interaction)
- i identifying and mitigating the effects of moisture and drainage
- j minimising the impact of utility use of the corridor
- k improving activity management systems
- l improving data-capture technology
- m improving the quality assurance of land transport systems.

4. Sustainable land transport

Research need: to improve the sustainability of the land transport system including by:

- a quantifying end-user willingness and ability to use and pay for sustainable transport options
- b identifying the broader benefits/impacts/user expectations of sustainable transport
- c developing techniques to increase the use of active and shared modes
- d improving accessibility and mobility for communities (including the passenger transport dependent and New Zealand's ageing population)
- e quantifying the future use of renewable resources and energy efficiency
- f quantifying the contribution of urban design
- g identifying barriers to influencing, and understanding means to influence, transport user behaviour
- h developing demand responsive transport solutions.

5. Safety, security and public health

Research need: to improve the safety, security and public health of users, communities and the sector workforce through improvements to the land transport system including by:

- a quantifying techniques to improve safety performance of transport infrastructure
- b identifying effective speed control or management techniques
- c improving techniques to influence transport user behaviour
- d measuring the impact of land transport design, operation and maintenance
- e improving vehicle safety (including maintenance and operation)
- f identifying and measuring the perceived and actual safety and personal security requirements of active and shared modes.
- g quantifying methods to improve enforcement strategies
- h understanding the risk profiles of transport modes
- i identifying and evaluating community severance effects
- j measuring, predicting, mitigating and monitoring the health impacts of air quality, particulates, noise and/or vibration
- k promoting active modes to achieve public health objectives (eg walking school buses)
- l quantifying and addressing the needs of the transport disadvantaged (eg the accessibility of an ageing population to essential health and community services)
- m assessing/understanding the impacts of social exclusion on accessibility.

6. Environmental impacts of land transport

Research need: to measure the impact of land transport construction, operation and maintenance emissions/pollutants on the natural and built environment including by:

- a determining acceptable levels of environmental impact (setting environmental baselines/indicators)
- b mitigating the impact of land transport operation and maintenance on the environment
- c developing techniques to mitigate greenhouse gas emission impacts
- d reducing the impact of land transport emissions/pollutants on ecosystems.

7. Economic development

Research need: to improve the valuation of economic benefits of land transport activities including by:

- a developing forecasting techniques
- b establishing techniques for measuring a wider range of costs and benefits
- c quantifying wider social, economic, cultural and environmental benefits
- d developing sustainable revenue streams for land transport
- e calculating the economic impact of freight logistics
- f improving the efficiency of freight logistics

- g forecasting the impact on transport choices of the future availability and price of energy for transport
- h identifying the linkages between liveable communities and economic transformation
- i identifying and evaluating the effects of transport infrastructure on transport demand and flows.

3.2 Target funding allocations

The NZTA has translated its analysis on priority research areas into a table of target funding allocations. In doing so it has considered issues such as New Zealand's capacity to deliver research in emerging areas. The allocations are indicative only and funds will be distributed only as appropriate. Note that these percentage allocations include forward commitments for multi-year projects funded in previous years.

Table 1 Key research areas and target funding allocations 2009–12³

Key research area	Target allocation (% of funding)
Integrated land and transport systems	10 to 15
Transport demand management	10 to 15
Activity management	20 to 30
Sustainable land transport	15 to 25
Safety, security and public health	10 to 15
Environmental impacts of land transport	10 to 15
Economic development	10 to 15

These target allocations will be reviewed annually and may be revised as appropriate.

³ See section 4.2.1 for historic actual allocations

Currently under review

Part B

Application, assessment and management process

Currently under review

4 Introduction

Part B sets out the process for applying for the NZTA's research funding; criteria used to assess research proposals and formulate the research programme; and how the programme is managed.

Part B should be read in conjunction with Part A and with the information and documentation provided on the NZTA website: www.landtransport.govt.nz/research/funding-process.html

4.1 Types of research

The research programme consists mostly of industry-generated research, with a small amount of directed research.

4.1.1 Industry-generated research

Industry-generated research comprises research projects developed by researchers in conjunction with end users. This can also be called 'bottom-up' research. Industry-generated research funding is awarded on a contestable basis via a two-stage application process.

4.1.2 Directed research

New Zealand has a comparatively diminutive market that cannot always fulfil the NZTA's research needs. Directed research comprises research projects that the NZTA has commissioned and requested researchers to submit a proposal on. This 'top-down' approach is designed to fill the gaps not covered by industry-generated research.

Section 5 details the process for applying for industry-generated research funding. Section 6 provides more information about directed research.

4.2 Research funding

For 2009/10, 2010/11 and 2011/12, approximately \$5 million per annum will be available for research⁴, the majority of which will be invested in industry-generated research. The amount spent on directed research varies from year to year depending on what gaps are identified in the industry-generated programme.

Note that this funding includes forward commitments from previous years, therefore the actual available amount for new projects in a given year will be less than \$5 million

The NZTA, together with the Research Reference Group (RRG – see section 5.2), has the option of recommending to the Board that additional funding be provided if the quality of the bids is very high. The Board will consider this request against its other business priorities during the compilation of the NLTP.

⁴ The *Government Policy Statement on Land Transport Funding 2009/10–2018/19* indicates a funding range of \$5–6 million for the Research Programme in each of the years 2009/10–2011/12.

4.2.1 Historical trends of actual funding allocations

Allocation trends over recent years are set out below.

See section 3.2 for target funding allocations for 2009–12.

Table 2 Historical trends of actual funding allocations.

Key topic area	2003/04 %	2004/05 %	2005/06 %	2006/07 %	2007/08 %	2008/09 %
Environmental effects	19	11	17	14	10	4
Sustainable land transport		14	7	14	18	30
Travel behaviour	16	9	15	20	14	11
Safety and personal security	13	16	17	10	15	19
Risk management	4	1	2	2	3	3
Network management	8	9	5	7	7	8
Asset management	40	40	38	32	33	26

Currently under review

5 Industry-generated research

5.1 Introduction

Industry-generated funding is awarded via a competitive two-stage application process that is detailed in the following pages.

5.1.1 Who may apply for funding?

Research programme funding is available to any suitably qualified and experienced researcher. Funding has in the past been awarded to research organisations, consultancies, contractors, universities and individual researchers. The funding is not available to other government departments, although they may co-fund.

All researchers receive the same information via the application documents.

5.2 Research Reference Group

The NZTA uses a Research Reference Group (RRG) to advise it on research proposals. The RRG is chaired by the NZTA and comprises persons from key stakeholder groups with appropriate expertise. The stakeholder groups represented include territorial authorities, regional councils, consultants, contractors, universities, road users, pedestrians/cyclists, the government transport sector, environmental interests, public health interests, land transport policing, New Zealand transport research funders and the Australian research community. More information on the RRG's current composition is in appendix A.

The RRG's main role is to oversee the assessment of research proposals and compile a recommended research programme for consideration and approval by the NZTA Board. The RRG may also assist the NZTA to determine the strategic direction of the research programme and contribute to the development of the application and assessment process.

5.3 Application process

The application process for industry-generated research consists of the following steps:

- a **Expressions of Interest (EOIs):** Researchers are invited to express their interest by submitting a short research proposal summary for each project (on the approved EOI form – see appendix 1 of EOI documentation) that outlines the research objectives, explains why the research is needed and identifies end users. An indicative budget only is required at this stage.
- b **Shortlisting of EOIs:** The RRG and NZTA staff assess and prioritise each EOI and produce a shortlist of research proposals.
- c **Requests For Proposal (RFP):** Researchers with shortlisted proposals are requested to submit detailed proposals that expand on the information contained in their EOIs.
- d **Assessment of full proposals:** Full proposals are assessed by members of the RRG and NZTA staff who have expertise in the relevant topic areas.

- e **Consideration by RRG:** The RRG uses the assessments to rank research proposals within each key topic area and prepares a research programme for recommendation to the NZTA Board.
- f **Approval of research programme:** The NZTA Board approves the research programme for the coming year.

5.4 Annual research timetable

The annual timetable for the industry-generated research programme:

Stage 1

October:	EOI documentation released on the NZTA website
November:	EOIs due
January:	Short-listing of EOIs by the RRG; researchers advised of outcome

Stage 2

February:	RFP documentation sent to short-listed researchers
March:	Full proposals due
March–April:	Full proposals assessed by members of the RRG and NZTA staff
April:	RRG and NZTA staff consider the assessment results and meet to prepare a programme for recommendation to the NZTA Board for approval
May:	NZTA Board approves the research programme
June:	Researchers advised of outcome, and research programme published in the NLTP ⁵

This process is shown diagrammatically in appendix C, and actual dates for the specific year are shown on the research programme website, at www.landtransport.govt.nz/research/funding-process.html

5.4.2 Balancing the programme

The NZTA is keen to receive research proposals from a wide representation of the land transport industry. After the research programme is compiled, the NZTA will analyse the spread of organisations/individuals that have submitted bids and those that were successful/unsuccessful to determine whether any sectors are not participating or not able to meet its criteria. This information will be used to determine any refinements to the proposal process.

A balanced research programme is one that spreads funding appropriately within each key research area to address research needs.

⁵ The NLTP sets out the NZTA's approved funding for land transport.

6 Directed research

The NZTA allocates most research funding through the industry-generated programme, but where it considers that important research needs have not been addressed through the industry-generated programme, a small amount of directed research funding is available. This top-down process consists of the following steps:

- a **Identification and consideration of research needs:** The NZTA identifies, considers and scopes possible directed research topics. Proposals are assessed using the same criteria that apply to industry-generated proposals and, after due process, a list of approved directed research projects is formulated.
- b **RFPs:** NZTA managers with approved directed research projects prepare technical specifications and invite tenders from researchers.
- c **Contracting:** The NZTA identifies preferred researchers for projects, using approved procurement procedures, and develops and agrees contracts.
- d **Management of directed research projects:** The NZTA manages the projects, which are carried out by researchers in accordance with the NZTA's standard research programme procedures.

Consideration and approval of directed research generally occurs shortly after the finalisation of the industry-generated programme. This is followed by the development of RFPs, tendering and contracting.

7 Applying for funding

7.1 Application forms and other documentation

An Expression of Interest application form is available on the research programme website at www.landtransport.govt.nz/research

Researchers should also read the other important information and documentation on the website. This includes:

- the research programme timetable, including application due dates
- the peer review documentation
- the research agreement
- the list of projects funded in previous years
- published research reports
- past editions of the *Land Transport Research* newsletter (now *NZTA Research*).

7.2 Things to consider when formulating a proposal

7.2.1 Key research areas

Researchers must choose the ONE key research area (see section 3.1) to which their proposal most relates and submit their proposal within that category. However, research proposals will often sit within one or more of the key research areas and address one or more of the priority research topics detailed within each area. Researchers are encouraged to specify all the priority research topics to which their proposal applies.

To preserve the opportunity for further innovation, the suggested research topics in each key research area are not exhaustive and should be regarded as a guide to the preferred content of the overall research programme rather than a rigid prescription.

7.2.2 Size and value of research proposals

Within the constraints of the \$5 million research programme budget, research projects of any value, small or large, will be considered. Funding may be granted for multi-year projects, and researchers who have received funding for a project may apply for funding in subsequent years to undertake a further stage of the project. Doctorate or post-graduate projects may also be eligible for funding.

7.2.3 Co-funding

The NZTA encourages the use of co-funding in its research programme. This in part signals the commitment of other organisations to the outcome of the research. The NZTA also encourages bids from industry group strategic alliances and collaborative bids from road controlling authorities or regional councils and researchers. Proposals with co-funding may receive preference at the assessment stage over other equally ranked proposals.

7.2.4 Information transfer

Research proposals should address information transfer or implementation. The NZTA's information transfer activities (see section 9.1.2) are intended to complement any information transfer funded through the research programme. The success of the research programme depends on the results of its research reaching end users and being understood and applied.

7.2.5 User support

It is very important that the NZTA funds research that will be used, so proposals should have evidence of support from potential end users. Support may be shown in several ways, such as in the form of a letter(s) of support or through giving a practical example of a problem.⁶ It would be advantageous if researchers could identify organisations that have agreed to apply the research results. In order to ensure user support and understanding of the proposal, it is desirable for end users to be involved in an advisory capacity throughout the research, such as by inclusion on the project steering group.

7.2.6 Project steering groups

All research projects must include a project steering group unless there is a good reason not to. Research proposals must provide details of the composition of the project steering group or state why a project steering group is not required.

Project steering groups will include an NZTA staff member with appropriate expertise. The staff member to be included in the project steering group will be decided after the project has been approved for funding.

7.2.7 Peer review process

The participation of peer reviewers in research projects is integral to the success of the research programme. All draft final research reports must be externally peer reviewed by two or more peer reviewers. The NZTA will not publish a report that has not been peer reviewed. The researcher is responsible for arranging the peer reviewers, who must not be members of project steering groups. Research proposals must include a clear description of the peer reviews that will be undertaken during the course of and at the end of the project and state by whom they will be completed. The project budget must include the cost of the peer reviewers.

The NZTA has issued guidelines to clarify the role of peer reviewers (these may be viewed at www.landtransport.govt.nz/research/funding-process.html). Researchers are also issued with a peer review form that is to be signed by both the researcher and peer reviewers at the completion of the project to certify that the peer reviewers are satisfied the research is technically sound and delivers the agreed project objectives.

Peer reviewers work, ultimately, for the NZTA and can contact the NZTA if they have concerns.

⁶ The NZTA understands that there may be occasions when researchers believe their proposal would be beneficial but users are not in a position to offer support as they do not yet recognise the issue as a problem or need. If this is the case, researchers must explain this in their proposal.

7.2.8 Feedback from the RRG

Following the consideration of proposals received in recent years, the RRG provided the following feedback:

‘To ensure that proposals have the best possible chance of being included in the programme, the RRG recommends that all researchers be sure to:

- explain why the research is needed and its links to the sector’s strategic targets
- define the research question(s) clearly
- provide specific and sufficient detail of the methodology
- include details of the relevant specialisations of the research team
- define clearly the project stages and milestones
- explain the project’s output value, including end user support.’

Currently under review

8 Assessment and selection of proposals

8.1 Assessors

Proposals in each key research area are considered for funding based on the results of assessments carried out by RRG members and NZTA staff with appropriate expertise.

8.2 Assessment criteria and process

Research funded through the NZTA's Research Programme will:

- meet the NZTA's definition of research, as set out in section 2
- score highly against the research proposal assessment set out in appendix C.

EOIs and RFPs must supply sufficient information to enable the assessment to be completed. The application documents indicate to researchers what information is necessary.

Once each proposal has been assessed, the scores and recommendations put forward by each assessor form the basis of the RRG's considerations and prioritisations in preparing a research programme. The RRG may also consider the track record of researchers involved in the research programme in previous years.

In selecting projects for the research programme, the RRG may impose conditions of funding that researchers must satisfy before being confirmed for inclusion in the programme. The RFP may need to be revised and resubmitted in order to accommodate these conditions.

9 Management of research process

9.1 The NZTA's role

The NZTA's National Office manages the research programme. This involves:

- consulting on, setting and receiving NZTA Board approval of the strategic direction of the research programme
- communicating the strategic direction of the programme and identified research needs through the *NZ Transport Agency's Approach to Research* and application documents
- preparing for and managing the application process, including Expressions of Interest and Requests for Proposal
- preparing for and managing the assessment process, including coordination of the RRG
- proposing the RRG's recommended research programme to the NZTA Board for approval
- processing and managing the research contracts
- administering and managing the research projects through the programme cycle
- managing the editing, publication and dissemination of completed research reports (see section 9.1.1)
- facilitating information transfer and application (see section 9.1.2)
- auditing and evaluating the research programme (see section 9.1.3)
- liaising with other transport research funders (see section 9.1.4).

The NZTA will also involve itself in the research process by placing an NZTA staff member with appropriate expertise on a project steering group and/or by acting in a peer review capacity.

9.1.1 Editing and publication of research reports

When a project's peer reviewers have certified that the researchers have met the agreed project objectives and the research is technically sound, the NZTA will publish the research report on its website. Reports are edited and formatted by the NZTA to ensure consistency and usability.

All research reports include the following disclaimer:

The NZ Transport Agency is a Crown entity established under the Land Transport Management Amendment Act 2008. The objective of the NZ Transport Agency is to undertake its functions in a way that contributes to an affordable, integrated, safe, responsive, and sustainable land transport system. Each year, the NZ Transport Agency invests a portion of its funds on research that contributes to this objective.

The research detailed in this report was commissioned by the NZ Transport Agency.

While this report is believed to be correct at the time of its preparation, the NZ Transport Agency, and its employees and agents involved in its preparation and publication, cannot accept any liability for its contents or for any consequences arising from its use. People using the contents of the document, whether directly or indirectly, should apply and rely on their own skill and judgement. They should not

rely on its contents in isolation from other sources of advice and information. If necessary, they should seek appropriate legal or other expert advice in relation to their own circumstances, and to the use of this report.

The material contained in this report is the output of research and should not be construed in any way as policy adopted by the NZ Transport Agency but may be used in the formulation of future policy.

9.1.2 Information transfer

For the research programme to be effective, the results of the research must be disseminated to, and understood by, the right audience.

The NZTA facilitates information transfer through initiatives such as:

- publishing research reports and making them freely available on its website: www.landtransport.govt.nz/research/reports/index.html
- publishing the *NZTA Research* magazine on a quarterly basis, which profiles published research reports, gives notification of recently released research reports and describes each of the projects approved for funding
- holding seminars/workshops on key research findings in conjunction with professional and industry organisations
- increasing the links between the NZTA's research programme and its education and capability development initiatives.

The NZTA will also build on this work by:

- investigating other information dissemination options, such as journal articles, summary sheets, or forums – such as the Road Controlling Authorities Forum – to raise the profile of the programme and its results
- looking at the incentives necessary for research to be utilised
- considering whether a research output could contribute to standards or guidelines.

Researchers are also obliged to address information transfer in their proposals.

9.1.3 Monitoring and evaluation

The NZTA will monitor and evaluate the effectiveness of the *NZTA's Approach to Research* and the research programme by:

- setting performance indicators
- monitoring the uptake of the research reports and use of the research
- conducting user-satisfaction surveys
- surveying/consulting focus groups
- gaining feedback from the NZTA Board and the RRG.

The NZTA may also audit a sample of research to check for compliance with the project brief.

9.1.4 Liaison with other transport research funders

The NZTA is one of a number of organisations in New Zealand that fund transport-related research. It is vital that these groups collaborate to ensure their research strategies are complementary and coordinated. The NZTA currently pursues this in a number of ways. The

most significant is the inclusion of the other main relevant funding organisations on the RRG. The NZTA fosters ties with other research organisations both here and overseas to improve the knowledge of, and contribution to, each other's programmes. This helps remove the risk of duplication and assists the NZTA in its information transfer role.

9.2 Procurement

The two-stage procurement process for industry-generated research described in section 5 has been approved by the NZTA Board as a procurement procedure under section 25 of the LTMA.

The procurement for directed research described in section 6 uses the NZTA's standard procurement procedures for professional services. This has also been approved by the NZTA Board as a procurement procedure under section 25 of the LTMA.

Currently under review

Appendix A: Research Reference Group

Stakeholder group	Representative nominated by
NZ Transport Agency - Chair	NZ Transport Agency Chief Executive
NZ Transport Agency research management	NZ Transport Agency Chief Executive
NZ Transport Agency Strategy and Performance Group	NZ Transport Agency Chief Executive
Territorial authorities	Local Government NZ
Regional councils	Local Government NZ
Consultants	Association of Consulting Engineers New Zealand (ACENZ)
Contractors	Roading NZ
Universities	Auckland and Canterbury universities
Road users - light	NZ Automobile Association
Road users - heavy	Road Transport Forum
Pedestrians/cyclists	Cycling Advocates Network (CAN) / Living Streets Aotearoa
Government transport sector, including rail and coastal shipping	Ministry of Transport
Environmental interests	Ministry for the Environment
Public health interests	Ministry of Health
Land transport policing	NZ Police
NZ research funders	Foundation for Research Science and Technology (FRST)
Australian research community	Austrroads

As at October 2008 the composition of the 2009/10 RRG had not been finalised. Up to two additional stakeholders may be represented on the group.

Appendix B: Research proposal assessment

Research assessment factors

Introduction

The NZTA's research activities are assessed using factors under:

- seriousness and urgency
- effectiveness
- cost-effectiveness
- feasibility/capability.

An overview of these is given in the rest of this section. More detailed assessment criteria are given in subsequent sections of this appendix.

Seriousness and urgency

This table shows the assessment factors for seriousness and urgency.

Criteria	Considerations
Knowledge gap	<ul style="list-style-type: none"> • Is the knowledge gap causing undesirable trends in the performance of the land transport system? • How significant is the knowledge gap? • Does research need to be done now? • Does new research need to be undertaken or can it be adapted from elsewhere? • What is the level of confidence that the issue or problem is serious and urgent?
Rating	H/M/L

cont

Research assessment factors, continued

Effectiveness

This table shows the assessment factors for effectiveness.

Criteria	Considerations
Effectiveness of the research in addressing the knowledge gap	<ul style="list-style-type: none"> • Will the proposed research significantly address the knowledge gap? • Does the proposed research take account of the evolving transport environment? • Will the proposed research provide an effective solution over the long term? • How well does the proposed research contribute to the land transport objectives, goals and trends set out in the NZTS, the GPS and the NZTA's <i>Approach to Research 2009-12</i>? • What is the level of confidence that the research output will be used?
Rating	H/M/L

Cost-effectiveness

This table shows the assessment factors for cost-effectiveness.

Criteria	Considerations
The cost of achieving the desired result	<ul style="list-style-type: none"> • Is the proposal efficient in its use of scarce resources? • Is there a lower cost way of achieving the same or similar effect? • Is there any external funding source available, in full or in part, and will it be used? • Is the proposal dependent on any other funding for completion and if so are the funding constraints compatible with NZTA criteria? • What is the level of confidence about the estimated costs?
Rating	H/M/L

cont

Research assessment factors, continued

Feasibility/ capability

This table shows the assessment factors for feasibility/capability

Criteria	Considerations
The practicality/ feasibility of the research and the capability of the researchers	<ul style="list-style-type: none"> • Is the proposed research methodology and timetable clear and feasible? • Is the proposed composition of the research team suitable for this project? • Does the proposed research team have a good track record? • Does the proposed research team have competent project management skills? • What is the level of confidence that the research will be completed on time and to an appropriate quality?
Rating	H/M/L

Currently under review

Assessment questions: seriousness and urgency

Introduction	<p>The questions in this section must be considered when determining the assessment for seriousness and urgency. The questions are listed under the following headings:</p> <ul style="list-style-type: none"> • seriousness of knowledge gap • urgency of the problem • strategic alignment.
Sufficient information	<p>Research proposals should provide sufficient information to enable these questions to be answered.</p>
Seriousness of knowledge gap	<p>Consider these questions when assessing the seriousness of the knowledge gap:</p> <ul style="list-style-type: none"> • What is the background to the proposal and has it been adequately explained? • What is the user need or knowledge gap being addressed? • What is the seriousness of the knowledge gap or issue? Provide evidence related to the strategic context. • Does the research aim to address any additional issues?
Urgency of the problem	<p>Consider these questions when assessing the urgency of the problem:</p> <ul style="list-style-type: none"> • Has research been done, or is it being done, on this or an associated knowledge gap or issue? • How is previous research taken into account in the project? • Why does new research need to be done now? • Has a literature search been done, and if so what did this show? • What are the consequences of delaying the proposed research?
Strategic alignment	<p>Consider these questions when assessing strategic alignment:</p> <ul style="list-style-type: none"> • What are the relevant trends in the condition or performance of the land transport system that identifies the knowledge gap? • What importance is given to the knowledge gap in national, regional and local strategies? • What importance is given to the knowledge gap in the NZTS and GPS? • Are there any additional aspects of strategic context?
Overall seriousness and urgency	<p>What is the overall seriousness and urgency rating? H/M/L</p>

Assessment questions: effectiveness

Introduction

The questions in this section must be considered when determining the assessment for effectiveness. The questions are listed under the following headings:

- optimisation
- contribution to objectives, targets and trends
- implementation
- evidence.

Sufficient information

Research proposals should provide sufficient information to enable these questions to be answered.

Optimisation

Consider these questions when assessing the optimisation:

- What consultation has been carried out with stakeholders?
- How does the proposed research take account of the evolving transport environment?
- Will the need/issue still be relevant in the next 5–15 years?
- What options and alternatives to the proposed research have been considered and what are the reasons for choosing the proposed research?
- Is the research fundamental or applied?
- How will the proposed research provide an effective solution over the long term?
- What collaboration is proposed with stakeholders during the research?
- Who are the likely/potential end users of the research?
- How useful will the research be to:
 - the industry in general?
 - the end users?
- How transferable is the research or is it inherently local in focus?
- What proportion of road users/road user groups will benefit (eg all, light/heavy vehicles, pedestrians/cyclists, school children)?
- How has the usefulness of the research been assessed (eg requests or feedback from the industry or end users)?
- Have external clients signed up to using the research?
- What are the incentives for users to take up the research result?

cont

Assessment questions: effectiveness, continued

Contribution to objectives, targets and trends Consider these questions when assessing the contribution to objectives, targets and trends:

- How does the research contribute to the purpose of the LTMA and the NZTA's objectives and responsibilities?
- How does the research contribute to the NZTS objectives and the GPS targets?
- How does the research relate to the key topic areas and issues in the NZTA's research strategy?

Implementation Consider these questions when assessing the implementation:

- How does the research produce a useful output?
- How well are the end results and their effects specified?
- Is there an implementation/information transfer programme?
- How realistic/appropriate is the implementation/transfer programme?
- How soon will research results be available for implementation?
- How long will it take to implement the research results?

Evidence Consider these questions when assessing the evidence:

- What sources of evidence are used to support the contributions and impacts described above?

Overall effectiveness What is the overall effectiveness rating? H/M/L

Assessment questions: cost-effectiveness

Introduction	<p>The questions in this section must be considered when determining the assessment for cost-effectiveness. The questions are listed under the following headings:</p> <ul style="list-style-type: none">• cost• co-funding.
Sufficient information	<p>Research proposals should provide sufficient information to enable these questions to be answered.</p>
Cost	<p>Consider these questions when assessing the cost:</p> <ul style="list-style-type: none">• What is the expected total cost?• What is the cost to the NZTA?• Is the proposal efficient in its use of scarce resources?• Is there a lower cost way of achieving the same or similar effect?• Has an assessment of the 'at-risk' costs been performed and is it acceptable?
Co-funding	<p>Consider these questions when assessing co-funding:</p> <ul style="list-style-type: none">• Is there any external funding source available, in full or in part, and will it be used?• Is the proposal dependent on any other funding for completion and if so are the funding constraints compatible with NZTA criteria?
Overall cost-effectiveness	<p>What is the overall cost-effectiveness rating? H/M/L</p>

Currently under review

Assessment questions: feasibility/capability

Introduction

The questions in this section must be considered when determining the assessment for feasibility/capability. The questions are listed under the following headings:

- methodology
 - co-funding.
-

Sufficient information

Research proposals should provide sufficient information to enable these questions to be answered.

Methodology

Consider these questions when assessing the methodology:

- Is the purpose of the research clear?
 - Will the research proposal achieve its stated purpose?
 - How well are the objectives of the research proposal defined?
 - How specific/well scoped are the deliverables?
 - Will the research as outlined meet the objectives?
 - Is the project technically sound?
 - Is the field mature or developing?
 - Has a realistic programme to carry out the work been identified?
 - Has the cashflow been determined, and if so how feasible is it?
 - Are the milestones appropriate?
 - Are the review points built into the project practical and reasonable?
 - Is the quality of the research appropriate for the outputs specified?
-

cont

Assessment questions: feasibility/capability, continued

Researcher's competency

Consider these questions when assessing the researcher's competency;

- Is/are the principal researcher(s) technically competent in the area of the proposed research?
 - What is the evidence of this competence/experience?
 - Are the skills of the project team comprehensive enough?
 - What is the evidence of project management skills?
 - Is the project leader a clear champion for this project?
 - What is the track record of the research project leader for delivering the goods on time and within budget?
 - Do the principals have the ability to produce useful, well-constructed information?
 - What is the probability of the research project being successfully completed and the results implemented?
 - Is the researcher likely to meet the appropriate commitments in terms of completion of the project, timeliness and within budget?
-

Confidence

Consider these questions when assessing the confidence:

- What is the level of confidence that the research will be completed on time and to an appropriate quality?
-

Overall feasibility/capability

What is the overall feasibility/capability rating? H/M/L

Currently under review

Research: overall assessment

Overall assessment required	Assessors must give an overall assessment of the proposal and can suggest that the RRG includes, considers for inclusion, or rejects the proposal from the research programme.
Factors other than rating	<p>Even if a proposal achieves a high/low rating according to the standard assessment factors, other factors may influence the overall recommendation.</p> <p>These factors may include:</p> <ul style="list-style-type: none"> the proposal could fall more appropriately within the ambit of another agency's research programme, eg Ministry for the Environment's Public Good Science Fund. If so, has any external funding source been identified? the proposal may be dependent on other funding for completion and the proposer has not explained how funding cycles from different organisations will be reconciled constraints imposed by other sources of funding may not be compatible with the NZTA's criteria the project may only meet the needs of a single user (such as the NZTA) rather than those of multiple-end users end users may not recognise that there is a need/problem in the research area the proposal may provide knowledge in a very important area, but may be time consuming and not cost-effective the proposal could be clearly commercial.
Comments encouraged	Assessors are encouraged to provide general comments about the proposal to support the assessment or overall recommendation. Comments are especially important where the assessment rating is very low (or high), but the overall recommendation is to approve (or decline).
Note clarification needed	Assessors are also encouraged to note aspects that need further clarification or refinement before funding is approved, such as the need for further details on the budget, milestones or end user support.
Conditions may be recommended	Assessors may recommend conditions to be satisfied before funding approval is given.

Standard form for research programme assessment

Introduction	The form on the next page is to be used by NZTA staff and members of the Research Reference Group for the assessment of research proposals.
Not necessary for rejections	An assessor need not fill out the form if he or she considers that there is an overriding reason why the project should not be funded.

Research programme assessment form

Assessor's name				
Proposal name				
Reference no.		Organisation		
Assessment profile				
Assessment Factor	Seriousness and urgency: Focus on the issue or problem	Effectiveness: Focus on the effectiveness of the research in addressing the issue or problem	Cost-effectiveness: Focus on the cost of achieving the desired effect	Feasibility/capability Focus on the practicality/feasibility of the research and the capability of the researcher
Comment				
Rating*				
* H/M/L				
Overall assessment		Include	Consider	Reject
Overall recommendation (please tick):				
Suggested conditions on researcher:				
Overall comment:				

Appendix C: Research proposal timeline

