transfund NEW ZEALAND
ARATAKI AOTEAROA

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21 August 2001

Ref 9/89/1

Tony Brennand
Wellington Regional Council
PO Box 11646
WELLINGTON

Dear Tony

REPORT FOR REGIONAL LAND TRANSPORT COMMITTEE

I enclose copies of recent Transfund newsletters which contain items which will be of interest to Committee members.
Particular activities that have a bearing on the functions of this Committee include:

ROADING PROJECTS

The Project Evaluation Manual Benefits Review project described in my last report to this committee is now underway. We expect to have the results of the consultant's research reported back by the end of this year.

PASSENGER TRANSPORT

By the time the Committee meets it is hoped that agreement will have been reached with the Regional and Wellington City Councils on the funding of the Wellington Transport Interchange.
Applications for Kick-Start funding for an wide range of passenger transport enhancements continue to be received from the Regional Council and Territorial authorities in the region. These applications cover everything from extensive improvements to bus and rail services to the upgrading of commuter carparks for park and ride users.

I will be happy to expand on any matters of interest to the Committee at the meeting.

Yours sincerely

Ian Hunter
Regional Manager

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Transfund News

A monthly newsletter published by Transfund New Zealand

May 2001 Issue 31

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Transfund approves additional PSMCs

The Transfund Board has approved a request from Transit NZ to increase the number of Performance Specified Maintenance Contracts (PSMCs) from three to seven, using the previously approved competitive pricing procedure (CPP).

Transfund had previously approved a CPP limited to three 10-year duration contracts. These contracts were duly awarded and resulted in tenders yielding annual savings ranging from 15% to 3 8% compared with previous actual costs.

The first of these PSMCs, covering maintenance on SH3 from Taranaki to Waikato, has been audited after two years of operation and continues to deliver the projected savings (approximately $1.65 million per year) as well as improved levels of service.

Transfund approval for the additional four PSMCs is subject to:

- Transit agreeing to any additional requirements for Transfund's competition monitoring system prior to the award of the next contract
- Transit advising how it proposes staging the award of the PSMCs to ensure that in future the effects of more than one PSMC (including those already awarded) falling due for renewal in any calendar year are minimised.

The first of the additional PSMCs is likely to be a combined State highway/local roads contract with the Western Bay of Plenty District Council. Transfund has agreed that the Council may use

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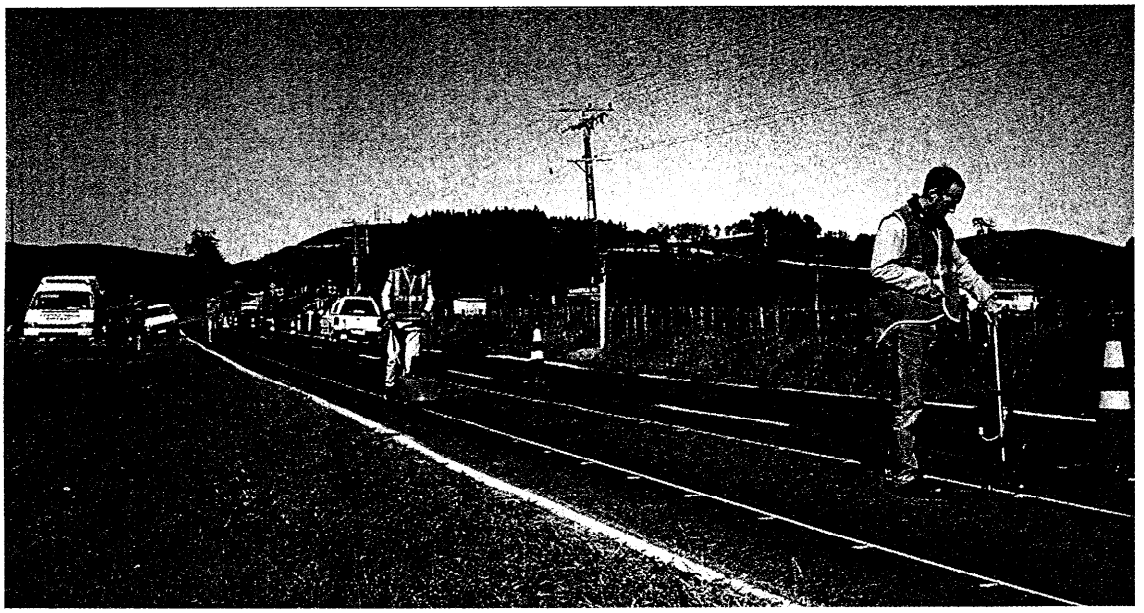

Validating maintenance standards on SH3 between Taranaki and Waikato. As well as providing significant savings, the performance based maintenance contract on this highway has delivered improved service levels.

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the CPP if it agrees to establish a joint contract with Transit covering State highways and local roads within its district boundaries.

A further two PSMCs are likely to be let for State highways in the Auckland region and one in the Wellington region.

Benefits of PSMCs

Performance based contracts are outcome-based, the measure of contractor performance being the achievement of specified pavement and environmental measures. Professional services and maintenance activities are combined in one lump sum contract, and the contractor is free to exercise innovation in selecting the treatment strategy.

PSMCs are consistent with Transit's Long Term Procurement Strategy, which obtained general industry approval last year after an extensive consultation process. This strategy is based on projections that PSMCs will generate the best value on networks with traffic volumes in excess of 10,000 vehicles per day, that is, mainly urban arterial networks.

A scan of international experience with long-term performance based roading contracts shows that PSMCs in New Zealand represent the leading edge in long-term asset management processes.

Transfund contact: Peter Wright, Performance Monitoring Manager, direct dial 04 495-3270, email peter: wright@transfund.govt.nz

Pilot surveys underway for PEM project

Stage 2 of Transfund's *Review of Benefit Parameter Values* is progressing on schedule and the consultants engaged by Transfund are currently conducting pilot willingness-to-pay surveys with members of the public, prior to commencement of the full surveys at the end of May.

As the benefit parameters provided in Transfund's project evaluation procedures are the core determinant of funding allocations, refining the benefit parameter values to make them as accurate as possible is critical to the efficient allocation of funds. The majority of the new benefit valuations will be based on users' willingness to pay, derived from stated preference surveys.

The survey designs were approved by the Transfund Board at its April meeting, and accord with best international practice. Considerable work has been undertaken to ensure that the surveys will generate robust benefit values. Any required design improvements highlighted by the pilot surveys will be made before the full surveys are conducted, scheduled for the period 28 May to 15 July.

The surveys have been designed to provide relative valuations for the following benefit parameters:

- revised values for work and non-work time, and new values for time spent commuting to work
- values for (improvements to) trip reliability
- improved New Zealand specific values for time spent in congested traffic
- values for ride quality (i.e. improvements in road quality and/or roughness)
- values for road users' perceptions of safety (e.g. road width, roadside hazards, consistency of geometry).

The latter issue emerged as a priority voiced during the initial surveys and industry consultation meetings held during Stage 1 of the review, and is one of several less tangible attributes that have not previously been considered in project evaluation calculations.

Following completion of the surveys and other desk studies the Transfund Board expects to receive a report on the results by September 2001, and to consider final recommendations on changes to the benefit parameter values by December 2001.

Transfund contact: Ian Melsom, Senior Policy Analyst, direct dial 04 495-3266, email ian.melsom@transfund.govt.nz

RCAs commence funding trials

Two key initiatives resulting from last year's report of the Major Projects Review – portfolio management and output funding (now known as block allocation) – are now underway, following close collaboration between Transfund and a number of selected road controlling authorities (RCAs) and regional councils.

Portfolio management aims to change the role of Transfund as a funder of specific projects to that of a "smart purchaser", purchasing a range of projects that directly contribute to broad regional outcomes and strategic transport solutions. This entails ensuring that roading, alternatives to roading, and passenger transport programmes are aligned with the transport outcomes identified in Regional Land Transport Strategies and the National State Highway Strategy.

Block allocation involves allocations of funding on a grouped basis under four output headings – Strategy Development, Scheme Assessment, Design, and Construction -- and is designed to reduce compliance costs for evaluating and funding relatively low-cost, low-risk projects.

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RCA trials

Transfund is now working closely with four groupings of RCAs to trial these initiatives. Those RCAs taking part in the trials are currently developing their roading programmes for 2001/02 and once approved by Transfund their funding allocations for the coming year will be based on the trial methods.

The groups of RCAs taking part in the trials are:

- **State highways –** Transit is currently trialling *block allocations* for fees projects. For 2001/02 the trial will be extended to construction projects costing less than $3 million.
- **Northland** – Northland Regional Council, Far North District Council, Kaipara District Council, Whangarei District Council, and Transit New Zealand. The Northland group is undertaking forward planning work – with particular emphasis on forestry, dairying and tourism – within the *portfolio management* framework.
- **Waikato** – a total of 10 Waikato RCAs, along with Transit, are trialling both *portfolio management* and *block allocations.*
- Bay of Plenty – the Access Group (comprising Tauranga City Council, Western Bay of Plenty District Council, and Transit) are trialling both *portfolio management* and *block allocations.* In this region there will be strong emphasis on six or seven key strategic projects now under development.
- **Southland** – the Southland District is trialling *block allocations* with a strong focus on a number of bridge renewals. As part of the Southland trial Transfund is working with the District to develop a very simple bridge renewal evaluation chart, which in due course could be made available to other RCAs.

The four groups of trials will run for one year, following which the results will be assessed with a view to introducing the new funding methods to all RCAs in the 2002/03 financial year.

Transfund contact: David Silvester, Senior Evaluation Analyst, direct dial 04 495-3282, email david.silvester@transfund.govt.nz

Revised funding policy for SH/local road connections

The Transfund Board last month approved changes to the *Programme & Funding Manual* to reflect a revised policy for determining cost responsibility in situations where State highways and local roads intersect or cross.

The changes follow a lengthy process of consultation between Transfund, a number of major urban local authorities, Transit, Ingenium (formerly ALGENZ) and Local Government New Zealand (LGNZ).

The previous policy had been written mainly for at-grade intersections and did not adequately cater for grade-separated intersections, where construction costs can be significant and where some territorial authorities believe they have been required to fund an unfair proportion of the connection costs.

The new policy embodies four key principles:

- Cost allocation must be in accordance with the provisions of the Transit New Zealand Act.
- It must reflect the relative benefits to the State highway and the local road networks.
- The agency that requires the work should have the primary responsibility for its cost, where there are no network benefits.
- Cost responsibility should be compatible with the responsibility for control of the asset involved.

The table below summarises the policy changes.

A number of major projects currently under development in the Auckland region will be affected by the new policy.

Transfund contact: Murray Riley, National Roading Programme Manager, direct dial 04 495-3263, email murray.riley@transfund.govt.nz

Situation	*Existing policy*	*New policy*
SH = State highways / LR = Local roads / TLA = Territorial local authorities		
Existing State highway, new local road	• all costs – **TLA**	• local road costs (including overpasses and underpasses), plus any SH upgrade costs – TLA • access ramps – **SH** (except where primary beneficiary of connection is private – then to be met by that private person)
Existing State highway, existing local road	• work within SH reserve – **SH** • work outside SH reserve – **TLA**	• work within SH reserve – **SH** • upgrading of LR road (unless to higher standard) – **SH**
New State highway, existing local road	• all costs to restore 'satisfactory junction' (regardless of location) – **SH**	• all work within SH reserve (including overbridges, underpasses, interchange ramps) – **SH** (unless to higher standard than that required by SH) • work outside SH reserve – **TLA**, unless otherwise agreed by Transfund

Draft energy efficiency strategy targets transport

In common with a number of other Government departments and agencies, Transfund is considering its possible role in the important task of increasing New Zealand's energy efficiency and reducing emissions of greenhouse gases.

A Draft National Energy Efficiency & Conservation Strategy, prepared by the Energy Efficiency and Conservation Authority (EECA), has proposed an overarching energy efficiency improvement target of 20% by the year 2012.

The transport sector has the potential to make a significant contribution to this target. Domestic transport accounts for 40% of New Zealand's total energy use, and 42% of all carbon dioxide (CO_2) emissions. In the transport sector alone, CO_2 emissions grew by 32% from 1990 to 1999.

Role of the transport sector

The draft strategy issued by EECA makes a number of specific proposals relating to the transport sector. Those that could impinge on future Transfund policy, should such measures be adopted as part of future Government strategy, include the following.

- **Improved provision of low energy transport options**

This could include greater investment in public transport and improved funding for other alternatives to roading (ATRs) such as ridesharing, teleworking, high-occupancy vehicle (HOV) lanes, and new initiatives for pedestrian and cycling projects,

- **Reduction of energy use through travel demand management**

This could potentially involve measures such as reducing travel demand (e.g. by supporting teleworking and congestion pricing); increasing vehicle occupancy; and mode-change education.

- **Improvements to traffic management and roading networks**

This could include techniques to improve traffic flows, traffic signal pre-emption for buses, dedicated bus lanes, and improving roading characteristics, eg. by reducing rolling resistance.

- **Increased use of more energy efficient and eco-efficient vehicles**

This could occur if Government introduced new efficiency and emission standards for public transport vehicles.

EECA has called for submissions on its draft strategy by 1 June 2001. Transfund encourages land transport industry stakeholders to consider making a submission, in order to ensure that industry views are represented. Copies of the strategy may be obtained from EECA, PO Box 388, Wellington, or their website at www.eeca.govt.nz

Transfund contact: Jayne Gale, Senior Policy Analyst, direct dial 04 495-7604, email jayne.gale@transfund.govt.nz

Talking Points

Transfund places a strong emphasis on consultations with industry stakeholders in all matters affecting its funding policies. Some of the policy initiatives on which we're currently consulting are:

Issue	Parties involved	Status/Timing	Transfund contact
Major Projects Review implementation.	Transit, MoT, Business Practices Working Group, RCAs	Currently developing performance measures, best practice guidelines, etc.	Pieter Burghout 04-495 3284
Trials of portfolio management, output funding/block allocations.	Specific RCAs, RCs (see this issue)	Trials ongoing in 2001/1002.	Pieter Burghout 04-495 3284
Patronage funding of passenger transport services	Regional councils	Working with councils on implementation.	Bob Alkema 04-495-3260
Review of benefit parameters used in Transfund's project evaluation procedures	RCAs, RC's, AA, Road Transport Forum, MoT	Pilot surveys now underway.	Ian Melsom 04-495-3266
Changes to CPPs (including changes to WAM and QPTO)	RCAs, contractors and consultants	Consulting with CPP Industry Working Group.	Bernie Cuttance 04-495 3273
Development of Transport Information System (TIS)	RCAs, RCs	Initiating communications with industry in mid-late May.	Fraser Cameron 04-495-3276

For Further Information

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Transfund News

A monthly newsletter published by Transfund New Zealand July 2001 Issue 32

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Financial assistance policy to be reviewed

The Transfund Board has agreed to review the policy and processes used to determine the financial assistance rate (FAR) applied to Transfund's funding of local roads.

The current policy dates from 1979/80 when the then National Roads Board (NRB) was responsible for road funding. The methodology was last reviewed in 1994, but that study resulted in few changes.

The precise timing of the review has yet to be determined, and will be influenced by the timing of the Government's decisions on land transport policy. The work is expected to commence with a series of consultation workshops and meetings with local authorities and other stakeholders. The object of this consultation will be to discuss the scope of the review and help identify the issues that need to be addressed.

Current policy

The current method of determining the FAR applying to each territorial local authority (TLA) is essentially based on an "ability to pay" formula, taking into account the size of each TLA's annual roading programme requirements and the rateable value of land within the TLA.

The formula is constrained to ensure that the weighted average FAR across the country as whole is 50 percent for local road maintenance and 55 percent for capital improvements. There are also currently minimum FARs of 43 percent for maintenance and 48 percent for capital works, which derive from historical NRB practices.

The present formula represents a compromise between the following:

- ensuring that the quality of roads is adequate and appropriate for the volumes and weights of vehicles that will use them
- taking account of local authority and community preferences
- ensuring consistency of standards across the country, so that roads of similar importance are built and maintained to a similar standard
- compensating local authorities, especially rural TLAs, for roading costs that benefit the nation as a whole – e.g. costs for arterial routes, tourist routes etc – as well as the local community.

Why review?

Recently there has been a reduction in the overall rate of investment in local roads, which may be partly due to the inability of some local authorities to fund their share of new projects. Increasing property rates is proving difficult in some districts, particularly where residents are relatively asset-rich (in terms of property values) but income-poor.

Apart from this declining investment rate for local roads, other reasons for reviewing the FAR policy include:

- increasing pressure on local arterials and feeder roads in areas of high growth
- difficulties faced by local authorities in regions such as Northland and East Cape, where imminent increases in forestry-related traffic are leading to a need to upgrade local roads
- apparent inequities for small local councils that have to fund roading facilities for "non-ratepayer" traffic, e.g. tourist, inter-regional, forestry and dairying-related traffic
- the view of some TLAs that ratepayers' contributions to local roads exceed the benefits that they receive as ratepayers (as opposed to as motorists).

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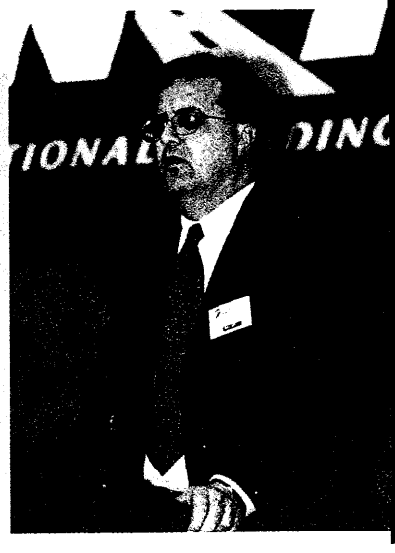

Minister of Transport Hon Mark Gosche speaking at the launch of the 2001/2002 NRP. (see page 2)

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Scope

The review will examine the rationale for the present policy. It will look at the balance between equity and efficiency, and study possible alternative funding methods to achieve different sets of objectives or balances between objectives, including the justification for including an "ability to pay" component.

The review will also examine how the FAR methodology might allow for increased capacity demands in different circumstances, whether or not special provisions should be made for "non-ratepayer" traffic, and how special purpose roads should be funded.

Because the Government is currently developing its land transport programme, Transfund will also liaise closely with the Ministry of Transport to ensure that any proposed changes to the financial assistance framework will dovetail with this programme when it is released.

For more information contact the Project Manager, Ross Weenink (Transfund Senior Policy Analyst) on 04 917-4447 or email ross.weenink@transfund.govt.nz

$950 million budget for 2001/2002 NRP

Transfund announced details of its 2001/2002 National Roading Programme (NRP) at a function in Wellington on 21 June, attended by MPs, regional and local council representatives, consultants, contractors and other roading industry stakeholders.

The Minister of Transport, Hon Mark Gosche, told guests that Transfund would spend $950 million during the coming year - $24 million more than the estimated final expenditure for 2000/2001. Just over half of this total would be spent on maintenance.

During his speech Mr Gosche referred particularly to the problems of congestion in the Auckland region. "The economic, social and environmental costs of that congestion impact not only on Auckland, but the whole country: Traffic congestion in Auckland is estimated to cost New Zealand as a whole $800 million per annum."

Mr Gosche said he was pleased to see funding allocated in Auckland up by $18 million, which would progress a number of key State highway projects.

He also confirmed that the Government was working in partnership with local government in Auckland to improve passenger transport, including negotiations to buy the region's rail corridors, and had also given extra funds and an additional judge to the Environment Court in order to speed up the backlog of outstanding cases, many of which were transport projects in Auckland and elsewhere.

"I am also pleased to note that Transfund will spend $9 million more on passenger transport (throughout New Zealand) next year, increasing total expenditure to $61 million."

Guiding principles

Transfund chairman Michael Gross said that in developing next year's programme, Transfund had been guided by three principles.

"We have endeavoured to retain a measure of stability in the benefit cost ratio threshold, we have optimised the level of expenditure without compromising known expenditure in out-years, and we have attempted to ensure flexibility in the event of changes to our revenue during the year."

Mr Gross also explained that although Transfund had been unable to increase construction funding for the first time since its inception, a large amount had been deliberately set aside for investigation, design and land purchase, which foreshadows a much higher level of expenditure in future years.

Some of the highlights of the 2001/2002 NRP are shown below.

Maintenance – up from $495.46 million in 2000/2001 to $517.13 million (54% of the total NRP budget).

Construction – down from $348.68 million in 2000/2002 to $314.57 million. This allocation includes $61.75 million for local roads and $252.82 for State highways.

Investigation & Design – $46.1 million (4.8% of the budget) has been set aside for investigation and design projects due to be commenced in the coming year.

Passenger Transport Services – the allocation of $61.5 million is a $9.2 million increase on 2000/2001, and includes funding of existing community and social services as well as patronage funding payments for public transport services.

Alternatives to Roading – an indicative allocation of $8 million has been set aside (up from $500,000), to allow for a number of projects for which indicative bids have been received.

New funding methods – following on from recommendations of the Major Projects Review, Transfund, Transit and other RCAs (in Northland, Bay of Plenty, Waikato and Southland) are this year trialling new approaches to funding allocation.

- *Portfolio Management* involves developing, managing and funding a portfolio of projects over a 3-5 year period that match strategic outcomes sought at the regional level. This will ensure alignment between roading programmes and the outcomes identified in the regional land transport strategies (RLTS).
- *Block Allocation* involves RCAs being allocated a total amount of "block" funding to cover a number of low risk construction projects costing less than $3 million. This simplifies systems and procedures for both Transfund and RCAs. Transit has been allocated $31.3 million of block funding (though not all projects included will necessarily proceed this year), while a number of trial RCAs also have the option of advancing qualifying projects by this means.

Benefit-cost ratio – Transfund has adopted a flexible approach to funding allocations for the coming year. All category 1 construction projects, as well as all investigation and design projects, will continue to be funded down to a BCR of 3. Category 2 projects will be funded down to a BCR of 4, with the option of lowering the threshold to below 4 at a later date subject to revenue and expenditure predictions.

SPECIAL NOTE: *In the publicity material accompanying the launch of the NRP several projects were listed as approved for funding when this was not the case. Some of the projects in question were those included in Transit's block allocution programme (see note above), but some of those projects will not in fact proceed in the coming year: Corrected regional NRP Highlight Sheets have been posted to Transfund's website at www.transfund.govt.nz and may be downloaded from there.*

Keen interest in TIS proposals

Transfund received a large number of requests for Expression of Interest (EOI) documents for the design and building of its proposed Transport Information System (TIS), and no fewer than 18 organisations subsequently responded with well thought-out expressions of interest.

The project (see *Transfund News, March 2001*) involves development of a central electronic system based on a geographic information system (GIS), to replace the existing National Traffic Database. The system would be linked to other databases in the transport sector.

The EOI responses included a number of high quality proposals from a wide variety of organisations. These included large international IT companies and smaller niche-market organisations, including several with experience of similar projects in other countries.

Transfund is now progressing the development of the request for proposal (RFP) documentation for design-and-build of the TIS system, which it plans to forward to short-listed respondents this month.

Industry consultation

Development of the RFP will feature considerable consultation with representative stakeholder groups to ensure that users' requirements will be met by the proposed system.

Draft documentation has been released to key stakeholders for their consideration and comment. As part of this process Transfund has arranged forums in July with the Road Information Management Systems (RIMS) Group and the TIS Industry Advisory Group (see *Transfund News, March 2001*).

A second work stream involves the selection of a survey designer for the traffic survey component of the project. To oversee this process Transfund has appointed Peter Davis of Traffic Systems & Surveys as the Traffic Survey Advisor. An RFP for the survey designer was released in June and proposals are expected later this month.

Key appointment

John Callcut of Callidus Consulting has been appointed as Technical Project Manager. Mr Callcut entered the IT industry in 1978 after several years of business experience, and has worked as a principal consultant in a variety of industries. He has held senior roles in several key projects in manufacturing, mining, defence, telecommunications and both central and local government. A key strength is his ability to translate business drivers into technology application.

The other members of the project team are Fraser Cameron, TIS Project Manager, and Andrew Body, Transfund's Policy & Strategy Manager. A Transfund management steering group, comprising Transfund's senior Group Managers, also supports the team and is providing valuable input.

A Transfund Board decision on whether to proceed to the next stages of the TIS project is likely to be made in September. In the event of a positive decision, Transfund will then finalise negotiations with a preferred vendor.

For 'more information contact Fraser Cameron on 04 495-3276, email fraser.cameron@transfund.govt.nz

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Left to right: Transfund Chief Executive Martin Gummer, Minister of Transport Hon Mark Gosche, Transfund Chairman Michael Gross.

Secretary for Transport Alastair Bisley (left) and MP Harry Duynhoven.

Rodney District Council Mayor John Law (right) and Councillors Christine Rose and Rob Thompson at the NRP launch.

John Callcut, Technical Project Manager for the TIS project.

Notice Board

Bus service wins top award

Environment Canterbury's Orbiter bus service won the transport category of this year's Energy-Wise Awards for its circular bus service linking key cross-suburban points in Christchurch. Transfund sponsored the award for this category, and also contributed funding for an extension of the service through the kick-start provisions of its patronage funding scheme.

The regional council developed the service, which aims to double public transport patronage over 10 years, as part of its public transport strategy. The Orbiter has already reduced the number of car trips by 200,000 a year, with associated safety, congestion and air pollution benefits.

Award judges praised Environment Canterbury for lifting the image of bus travel to attract people out of their cars with a "brilliantly-marketed service that is changing the perception of bus travel as a choice of last resort and delivering clear, energy efficient benefits".

The Energy Efficiency and Conservation Authority's (EECA) Energy-Wise Awards are an annual event held to recognise outstanding achievements in energy efficiency. EECA chief executive Heather Staley said that the Christchurch initiative was well thought out.
"It makes good environmental and practical sense to use buses," she said.

Board to visit Northland

As part of its regular programme of regional visits, the Transfund Board will visit the Northland Region and Rodney District from 28-30 August.

They will meet with regional and local councillors, roading engineers, and other key stakeholders to discuss future transport strategies and roading plans, and will inspect progress on selected projects in the region.

NZ Cycling Conference

The NZ Cycling Conference 2001 will be held from Friday 21st to Saturday 22nd September at the Chateau on the Park, Christchurch. The conference follows the successful symposiums held in Hamilton in 1997 and Palmerston North last year.

The conference is the major opportunity for cycling advocates to get together with transport professionals, land use planners, environmental and health practitioners and to discuss the role of cycling in today's transport environment.

Papers to be presented will include topics such as funding of the cycle infrastructure, urban design, engineering design, consultation issues, cycle tourism and cycle audits.
For more details write to NZ Cycling Conference, PO Box 237, Christchurch or email cycling@ccc.govt.nz

At the awards ceremony, from left: Emma Jamieson, Ian McChesney and Diana Shand, all of Environment Canterbury and Martin Gummer (Chief Executive, Transfund).

Transfund places a strong emphasis on consultations with industry stakeholders in all matters affecting its funding policies. Some of the policy initiatives on which we're currently consulting are:

Issue	Parties involved	Status/Timing	Transfund contact
Business practice improvements (arising from the Major Projects Review)	Transit, MoT, Business Practices Working Group, RCAs	Currently developing performance measures, best practice guidelines and protocols etc.	Pieter Burghout 04-495 3284
Trials of portfolio management, output funding/block allocations.	Specific RCAs, RCs	Trials ongoing in 2001/2002.	Pieter Burghout 04-495 3284
Patronage funding of passenger transport services	Regional councils	Working with councils on implementation.	Bob Alkema 04-495-3260
Review of benefit parameters used in Transfund's project evaluation procedures	RCAs, RC's, AA, Road Transport Forum, MoT	Pilot surveys now underway.	Ian Melsom 04-495-3266
Changes to CPPs (including changes to WAM and QPTO methods and changes to improve the management of alternative tenders)	RCAs, contractors and consultants	Consulting with CPP Industry Working Group and supplier representative organisations (Aug / Sept)	Bernie Cuttance 04-495 3273
Development of Transport Information System (TIS)	RCAs, RCs	Draft documents released for comment. Forums this month with RIMS Group and TIS Industry Advisory Group.	Fraser Cameron 04-495-3276

For Further Information

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Internet www.transfund.govt.nz

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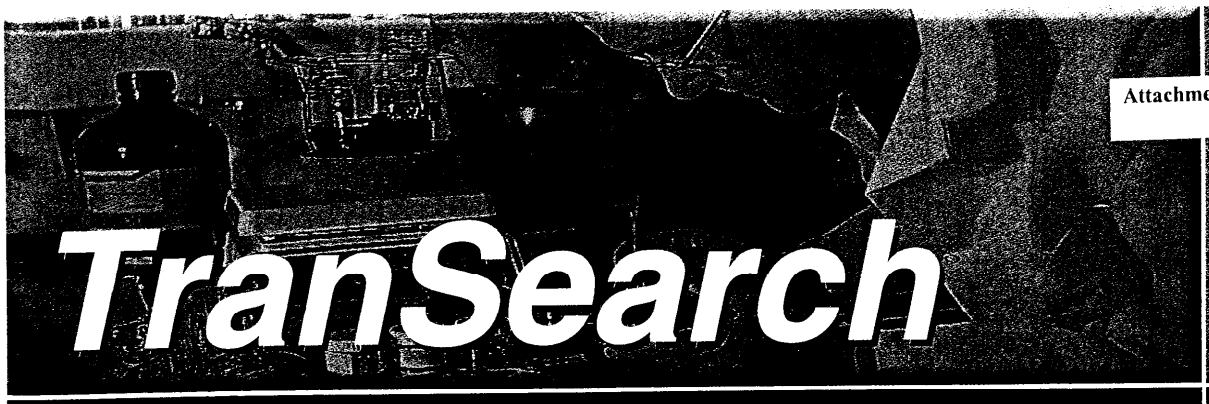

TranSearch

transfund NEW ZEALAND ARATAKI AOTEAROA

A newsletter published by Transfund New Zealand

July 2001 Issue 44

Transfund 2001/2002 research programme

Photo: Christine Prebble

The Transfund Board has approved a $2.09 million research programme for 2001/2002. The programme includes 23 new projects and 12 continuing projects.

"Generally, the quality of proposals was high and in a number of areas, difficult decisions were required to get the programme down to budget," Chief Executive Martin Gummer says.

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Editorial

This issue of TranSearch is of particular significance to researchers because it contains details of the coming year's research projects.

Transfund will spend $2.09 million on a programme that increases the emphasis on research into environmental effects of land transport and travel behaviour. Over 70 proposals were received and were evaluated by a team of almost 100 evaluators from New Zealand and Australia. While budget constraints mean that a number of worthwhile projects cannot be funded at this time, we are pleased with the generally high standard of proposals overall.

Full details of the programme are contained on pages 2-7.

In this issue you can also read about some Transfund projects that have been recently completed or are in the later stages of research.

Qualities looked for in a successful project include creativity, innovation, practicality and value for money. New Zealand's 'number 8 fencing wire' approach to problem solving is well known. An example in the area of transport research is the mechanism developed by TERNZ for rating 'road-friendly' vehicles. The prototype TERNZ mechanism is estimated to cost a fraction of similar overseas devices. Read about it on page 8.

We also report on an innovative new programme that ranks bridges according to their vulnerability to bridge scour and their importance to the roading network (page 9).

The ability of geosynthetic reinforced soils (GRS) structures to withstand damage in the Kobe earthquakes has led to a great deal of interest in this relatively new technique. GRS has also been used very effectively in local construction. Currently, however, there are no uniform guidelines governing their use in New Zealand. Draft guidelines have now been prepared and the authors are seeking comment before 31 October. Turn to page 10 for more information.

Please let us know of topics that you would like covered in TranSearch. We want this publication to be an active forum for your interests in the area of land transport research.

Martin Gummer
Chief Executive
Transfund New Zealand

CONTENTS

YOUR VIEWS

TRANSEARCH welcomes letters from readers. Letters should be addressed to:

**The Editor,
TRANSEARCH,
Transfund New Zealand,
PO Box 2331, Wellington.
www.transfund.govt.nz**

ISSN 1170-7321

TranSearch

Transfund contact: **Gary Milne**

Editor: **Diana Moir**

TranSearch is published quarterly by Transfund New Zealand. Its purpose is to report the results of research funded through the Transfund New Zealand Research Programme, and to act as a forum for passing on national and international information to aid collaboration between all those involved – to stimulate enquiry, discussion and solutions concerning road, traffic, safety and land transport problems in New Zealand.

Contributed articles are welcome, and should be typed in double spacing and not exceed 1000 words. Illustrations may be either black and white or colour, and must be of high quality. *TranSearch* reserves the right to edit, abridge or decline any article.

Advertisements of forthcoming conferences and workshops which are within the *TranSearch* field of interest may be published free of charge.

Enquiries on specific articles should be made to the author. Otherwise, all general correspondence, and those queries related to conference notices and mailing list requests, should be made to:

Transfund New Zealand, PO Box 2331,

Wellington, www.transfund.govt.nz

Phone: 04 916 4220 fax: 04 499 0733

Evaluation and decision making

The evaluation process is set out in the Research Strategy. The evaluators are selected from a pool of almost 100 experts with proposals allocated according to the topic area expertise of each evaluator. Every proposal is assessed and scored by three independent evaluators. The evaluators consider whether a proposal addresses a need or problem, has user support, achieves an adequate benefit/cost ratio, and will deliver a clear output with effective transfer of information to potential users.

The Research Strategy Group then considers all proposals together with the evaluator's scores and develops a list of projects for recommendation to the Transfund Board.

Two stage tender process

The next research tender round will have a two stage process. Later this year Transfund will advertise for Expressions of Interest (EOI) from researchers and seek brief outline research project proposals. These proposals will be evaluated and a shortlist created. Projects on the shortlist will be developed into a draft research programme that will be submitted to the Transfund Board for approval.

Researchers whose proposals are selected in the shortlist will be invited to submit detailed proposals for evaluation. After this evaluation, a final research programme for 2002/2003 will be approved.

"This change is intended to reduce the amount of work required by researchers on unsuccessful proposals and identify the research programme early in the Transfund planning and budgeting timetable," Martin Gummer says.

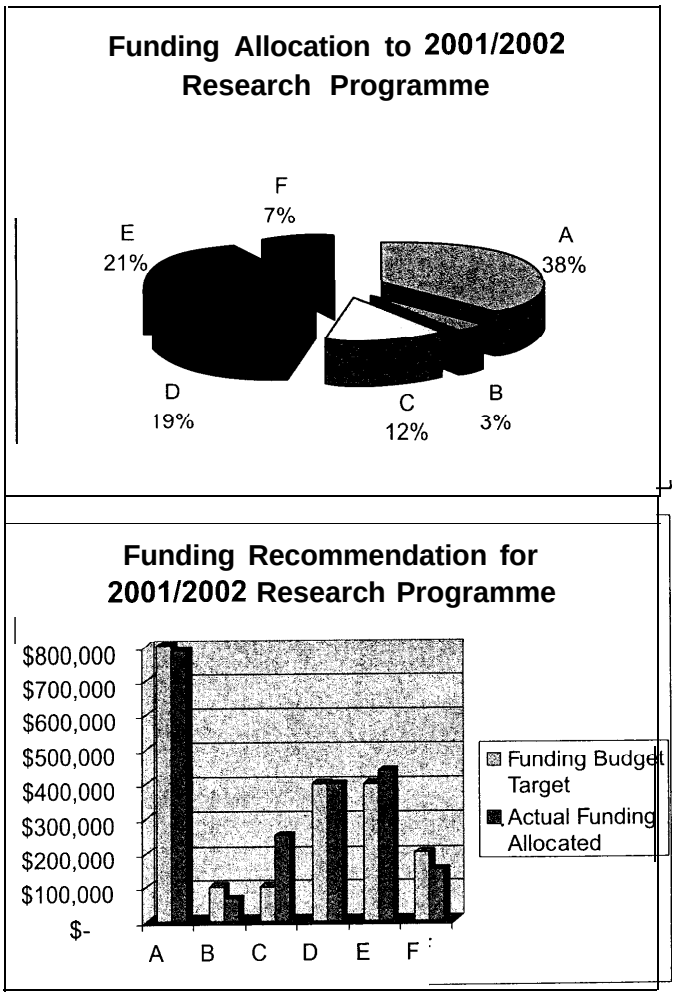
Co-funding

Transfund is keen to receive research proposals that include some funding from other sources.

"We are particularly interested in projects that are financially supported by end users of the research," Martin Gummer says.

' This gives the evaluators an indication of the level of support a project has and the likelihood of the findings being usefully applied.

"Co-funding does not need to involve payment of money to the researcher but may be through 'in kind' contributions of time, equipment or other resources."



KEY

A - Road Assessment Management

B - Natural Hazard Risk Management

C - Safety

D - Environmental Effects

E - Travel Behaviour

F - Traffic Management

2001/2002 projects

Key Topic Area: Road Asset Management

Project	Investigation of Long-life Pavements in New Zealand
Research Organisation	Bartley Consultants Ltd
Objectives	To investigate the concept of long-life pavements and their relevance in New Zealand.

Project	Relationship Between Pavement Design and Performance Predicted by HDM Models
Research Organisation	Opus Central Laboratories
Objectives	To combine the performance prediction relationships in HDM models with the mechanistic approach used to design pavements. The relationships will be validated by analysing the performance of a minimum of 50 road sections that have been investigated for rehabilitation.

Project	Cost Effective Remedial Techniques for Concrete Bridges
Research Organisation	Opus Central Laboratories
Objectives	To evaluate the long-term performance of proprietary patch repair/surface treatment systems and electrochemical techniques used to rehabilitate concrete bridges suffering from corroding reinforcements.

Project	Surfacing Selection Process for High Stress Corners
Research Organisation	Opus Central Laboratories
Objectives	To optimise the performance of chipseal surfacings on high stress corners by developing a process for categorising the severity of such sites and for selecting the most appropriate surfacing type.

Project	Reference Road Profiles for Profiler Validation
Research Organisation	Opus Central Laboratories
Objectives	To establish a statistically sound procedure for determining reference transverse and longitudinal road profiles against which non-contact vehicle based profilers can be validated on highly textured chipseal road surfaces.

Project	Comparison of Gyratory (Performance-Related) and Marshall Asphalt Mix Design Methods
Research Organisation	Fulton Hogan Ltd
Objectives	To provide publicly available data that will give pavement and asphalt mix designers confidence in adopting performance-related asphalt mix design procedures in New Zealand.

Project	Assessing Road Friendly Suspensions: Stage 2 – Implementation Feasibility Study
Research Organisation	TERNZ
Objectives	To estimate the cost and feasibility of building and running an operational scale heavy vehicle suspension testing facility for testing road friendliness.

Project	Guidelines for Geosynthetic – Reinforced Soil Structures (GRS).
Research Organisation	Beca Carter Hollings & Ferner Ltd
Objectives	To seek, collate and adopt comments on draft GRS design guidelines from New Zealand consultants, contractors and material suppliers, and to develop a set of final guidelines offering simplified recommendations/procedures.

Project	Harmonisation of Automated Rut Depth Measurements
Research Organisation	Data Collection Ltd
Objectives	To harmonise all rut depth measurements provided by different contractors to enable Road Controlling Authorities to change contractors without losing their investment in previous surveys.

Project	Increase in Mass Limits Effect on Pavement Wear - Stage 2
Research Organisation	Transit New Zealand
Objectives	To determine the relative damaging effect on pavement wear and chip seal life of increased vehicle loads and tyre pressures compared to the standard load (8.2 tonne dual tyred single axle and current maximum tyre pressures).

Key Topic Area: Safety

Project	Safety Implications of Flush Medians
Research Organisation	City Design
Objectives	Analysis of accidents at 54 Auckland sites prior to and following implementation of flush medians in order to assess actual accident savings.

Key Topic Area: Environmental Effects

Project	Road Traffic Noise: Determining the Influence of New Zealand Road Surfaces on Noise Levels and Community Annoyance
Research Organisation	Opus Central Laboratories
Objectives	To produce guidelines for use by roading authorities in selecting road surfaces, particularly in urban areas, so as to reduce road traffic noise and associated annoyance.

Project	NZ Road Network Integrated Stormwater Management Guideline
Research Organisation	Montgomery Watson NZ Ltd
Objectives	Research for and preparation of NZ Road Network Integrated Stormwater Management Guideline.

Project	Maximising the Roadside Native Vegetation Asset by Identifying Best Management Practices and Developing Low-cost Methods of Establishing Native Plants on Roadsides and Batters.
Research Organisation	Manaaki Whenua – Landcare Research
Objectives	To compile a Best Management Practice guide for road construction and maintenance that affects roadside vegetation, providing cost-benefit data for key practices, and to carry out a field-test in order to quantify the cost-benefit of two of the most promising low-cost methods for revegetation.

Project	Benefits, Cost & Alternative to Resource Consent Procedures for Minor Road Maintenance Works
Research Organisation	Environmental Management Services Ltd
Objectives	To examine and compare existing RMA controls on minor road maintenance works to determine to what extent these controls are contributing to better environmental outcomes and to assess whether other less costly non-regulatory methods could be used to achieve the same result.

Key Topic Area: Travel Behaviour

Project	Pedestrian Valuations
Research Organisation	Booz Allen & Hamilton (New Zealand Ltd)
Objectives	To improve understanding of why people choose to walk or not, and to develop a methodology for evaluating attributes of pedestrian schemes.

Project	Evaluation of Bicycle Counting Techniques
Research Organisation	Montgomery Watson NZ Ltd
Objectives	To research the international literature on 'state of the art' bicycle counting technologies, to test the most promising technologies in a variety of New Zealand settings, make recommendations, and publish findings of the research in a user friendly format.

Project	Research into Peak Spreading
Research Organisation	Booz Allen & Hamilton (New Zealand) Ltd
Objectives	To examine all available evidence on peak spreading, review current practice in modelling and evaluation of peak spreading, and make recommendations on how New Zealand modelling and evaluation can be improved.

Project	The Economics of Education Travel
Research Organisation	Booz Allen & Hamilton (New Zealand) Ltd
Objectives	To gain better understanding of travel to school and its contribution to urban traffic, examining alternatives to car use for travel to school and their likely costs and benefits, and to ascertain impediments to switching: mode.

Project	Employer Travel Plans
Research Organisation	Booz Allen & Hamilton (New Zealand) Ltd
Objectives	To review the employer travel plan approach in use overseas to identify the most appropriate approach for New Zealand; to undertake demonstration project(s) to assess its effectiveness in reducing single-occupant vehicle travel and encouraging use of alternative modes (including non-travel options) for the work journey.

Project	Individualised Marketing Demonstration Project
Research Organisation	Booz Allen & Hamilton (New Zealand) Ltd
Objectives	To develop and undertake an 'individualised marketing' demonstration project in an urban area in New Zealand, in order to assess the potential of this approach to reduce private car travel and increase the use of public transport and other environmentally friendly modes in the New Zealand situation.

Key Topic Area: Traffic Management

Project	Effectiveness of Variable Mandatory Speed Signs
Research Organisation	Montgomery Watson
Objectives	To assess the effectiveness of VMSS to control and regulate traffic during an incident.

Project	Assessment of Rural Road Simulation Tools
Research Organisation	Opus Central Laboratories
Objectives	To identify and assess suitable software packages for rural road simulation, and to consider the potential future application of such packages in New Zealand.

Committed funding from **2000/2001**

Key Topic Area: Road Asset Management

Project	Hard Binders for Chipsealing
Research Organisation	Opus Central Laboratories
Objectives	To extend chipseal lifetimes, by developing guidelines and methodology for use of hard chipseal binders in appropriate situations.

Project	Derivation of Appropriate Traffic & Loading Data, and Parameters for Road Asset Management
Research Organisation	Traffic Design Group
Objectives	To derive typical vehicle composition / commodities / types to enable the percentage of different vehicle types (e.g. RAMM vehicle classes) and their ESA to be established, related to the most common survey procedures for both short term and continuous surveys, and to determine associated pavement design parameters.

Project	Appropriate Subgrade Moisture Conditions for Pavement Design
Research Organisation	Bartley Consultants
Objectives	To determine 'if the current practice in New Zealand of using soaked subgrade parameters for design is overly conservative, and if so, recommend a more appropriate method of characterising the subgrade for design

Project	Performance Based Specifications Using FWD
Research Organisation	Tonkin & Taylor Ltd
Objectives	Validation of the Falling Weight Deflectometer as a tool used in Performance-Based Specifications, pavement rehabilitation design and prediction of residual life.

Key Topic Area: Natural Hazard Risk Management

Project	Standardisation of Design Flows and Debris Control Intake Structures
Research Organisation	Connell Wagner Limited
Objectives	Provision of Transfund standard for calculating design flows and designing cost-effective intake structures to reduce damage during extreme rainfall and reducing accident risk to drivers.

Key Topic Area: Safety

Project	Road Surfaces to Counteract the Loss of Skid Resistance from Frost and Thin Ice
Research Organisation	Opus Central Laboratories
Objectives	To identify New Zealand road surface types that can counteract the reduction of skid resistance from frost and ice and to produce guidelines for use by roading authorities that will identify situations where these surfaces should be effective in reducing accidents.

Key Topic Area: Environmental Effects

Project	Reduction of Road Runoff Contaminants
Research Organisation	Landcare Research
Objectives	To develop technologies to reduce contamination by treating road runoff before discharge to the receiving environment. The treatment will be achieved by relatively low-cost treatment wall systems (permeable barriers which allow the passage of water while prohibiting the movement of pollutants by employing such agents as chelators, sorbents and microbes in the barrier material).

Key Topic Area: Travel Behaviour

Project	Passenger Transport Demand Elasticities
Research Organisation	Booz Allen & Hamilton
Objectives	To provide a resource for regional councils to assist in identifying successful strategies for responding to patronage funding. Any information collected will contribute to the evaluation framework for patronage funding and Alternative to Roading projects.

Project	Analysis of Christchurch, Wellington and Auckland Passenger Transport Data
Research Organisation	Booz Allen & Hamilton
Objectives	To analyse the patronage and cost-effectiveness of selected changes made to the public transport systems in Christchurch, Wellington and Auckland within the last five years, and to draw conclusions to assist regional councils in the development and monitoring of future system changes.

Project	Mobility Benefits of Passenger Transport
Research Organisation	Booz Allen & Hamilton
Objectives	To review the latest research on mobility benefits of public transport services and to quantify the economic value of the mobility benefit of the existing base passenger transport network of major urban centres in New Zealand

Project	Commercial Vehicle Usage and Forecasting
Research Organisation	Opus Central Laboratories
Objectives	To develop recognised models and procedures for use in commercial vehicle usage forecasting, with the expectation that these models will be incorporated into the transportation models used in Auckland, Canterbury and Wellington regions.

Committed funding from **1999/2000**

Key Topic Area: Safety

Project	Improved Provision of Low and High Speed Skidding Resistance
Research Organisation	Opus Central Laboratories
Objectives	To determine how the geometry of macro texture impacts on the wet skidding resistance performance of New Zealand chipseal surfaces in order to identify desirable aggregate shape characteristics and the most appropriate means for monitoring and standardising skidding resistance levels of chipseal surfaces.

Carry over projects (unspent 2000/2001 funding)

Key Topic Area: Traffic Management

Project	Integration of Traffic Systems in Auckland Using AIMSUN2 and TRANSYT/10
Research Organisation	Manukau Consultants Limited & Worley Consultants
Objectives	To demonstrate and quantify benefits of an integrated approach to traffic signalisation and management across jurisdictional boundaries. Using modern traffic models, develop and integrated control system for selected sites in Auckland.

Key Topic Area: Road Asset Management

Project	Derivation of Appropriate Traffic & Loading Data, and Parameters for Road Asset Management
Research Organisation	Traffic Design Group
Objectives	To derive typical vehicle composition / commodities / types to enable the percentage of different vehicle types (e.g. RAMM vehicle classes) and their ESA to be established, related to the most common survey procedures for both short term and continuous surveys, and to determine associated pavement design parameters.

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Key Topic Area: Natural Hazard Risk Management

Project	Standardisation of Design Flows and Debris Control Intake Structures
Research Organisation	Connell Wagner Limited
Objectives	Provision of Transfund standard for calculating design flows and designing cost-effective intake structures to reduce damage during extreme rainfall events, and reducing accident risk to drivers.

Key Topic Area: Environmental Effects

Project	Environmental Impact Mitigation for Roading Development: A Reference Guide to Past Practice under the RMA
Research Organisation	Environmental Management Services Ltd
Objectives	To determine to what extent previous mitigation methods imposed on roading projects through EIA's and resource consents, through the RMA process, have been successful in achieving an improved environmental outcome, and to use the findings in the production a of a reference guide for use by present and future RMA practitioners.

Photo: Christine Prebble

Assessing road-friendly **suspensions**

A recent research project funded by Transfund New Zealand and undertaken at TERNZ has involved the development of a test apparatus to rate the 'road-friendliness' of a vehicle or, equivalently, the amount of road damage a vehicle is likely to cause.

Road User Charges in New Zealand are based on the 'fourth power law' which states that the amount of road damage a vehicle is responsible for is proportional to the fourth power of static axle load. This is, however, an approximation since road damage has also been related to other factors such as vehicle speed, road roughness and suspension type. In recognition of this, Australia and the European Union have already put concessions in place for heavy vehicles with road-friendly suspensions.

A number of studies have considered the effect of suspensions on road damage. The drop/bump test used in the European Union specifies that, to qualify as road-friendly, a vehicle suspension system must have a natural frequency of less than 2 Hertz. It must also have a damping ratio (a measure of the energy absorbed by the shock absorbers and friction in the other suspension components) of greater than 20 per cent. There is a further requirement that at least half of the damping be provided by the shock absorbers.

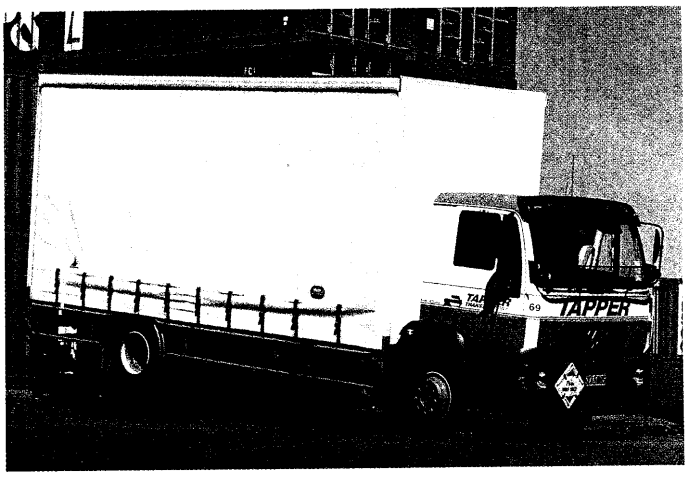
The validity of the European Community criteria has been verified by the OECD DIVINE study. These criteria have provided the basis for the test procedure and apparatus developed by TERNZ for determining the natural frequency and damping ratio for heavy vehicle suspension systems.

"Vehicles with road-friendly suspensions will generate less road wear without any reduction in payload," John de Pont of TERNZ says.

"Incentives to encourage their use could be through Road User Charges concessions, mass limit concessions or some other means."

John de Pont says that overseas researchers such as Woodrooffe in Canada (as part of the DIVINE project) and Sweatman in Australia have investigated the measurement of road-friendliness with encouraging results.

He also says that the testing apparatus developed by TERNZ is a lot cheaper and more portable than those used by Woodrooffe and Sweatman.



Testing the rear suspension of a 2-axle truck.

"When we enquired about purchasing Sweatman's air operated device in late 1999, we were quoted a price of A$130,000. A shaker facility such as the one used by Woodrooffe would cost in excess of $1 million. This compares with less than $15,000 for our prototype device, excluding design costs.

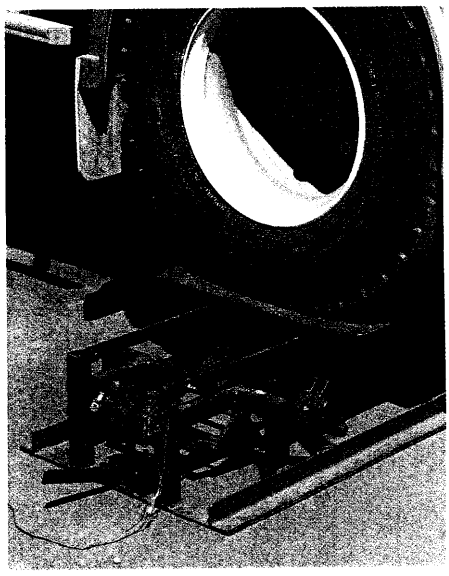
"We estimate that the manufacturing cost for our device would be around NZ$50,000."

A further advantage of the TERNZ mechanism is that it enables the suspension to be excited by a drop that is very close to free-fall, as required by the EC directive, John de Pont says.

The test device consists of a wheel platform for each wheel position of the suspension under test. Dropping is triggered electrically so that all wheels are dropped simultaneously. Instruments to measure the displacement between the axles and the vehicle chassis monitor the suspension response and these signals are analysed to determine natural frequency and damping ratio.

While modifications were necessary to overcome initial measurement difficulties, the test provided repeatable estimates of natural frequency and damping by the completion of the project, John de Pont says.

"We were able to demonstrate that the method works and could be used for type approval of suspensions and for in-service testing at a fixed facility such as a testing station."


The TERNZ suspension testing apparatus.

Costing of these options requires further investigation.

The researchers are grateful to Tapper Transport and Titan Plant Services for providing vehicles and facilities for the testing work.

Contact for more information:
John de Pont
Transport Engineering Research New Zealand Ltd (TERNZ)
Phone 09 262 2556
PO Box 97846, South Auckland Mail Centre
Email: info@ternz.co.nz

Screening for bridge scour

Floods cause enormous damage to bridges in this country. The main culprit is scour at bridge foundations, resulting in at least one serious bridge failure a year. Hundreds more are closed to traffic while damage is inspected and repaired. The cost of repairing or replacing these bridges is substantial, yet represents only a fraction of the impact on nearby communities and the travelling public.

Currently there is strong emphasis at both national and local government levels on ensuring effective management of public facilities. It makes sense, therefore, to look at ways of assessing bridge scour damage, as a means of reducing its occurrence and costs to the public purse.

An exciting new development has been the designing of a programme that ranks bridges according to the dual criteria of susceptibility to scour and importance to the roading network. The methodology involves both an office review of available information and a field review of bridges to be assessed.

"Examining office records, we systematically exclude any bridges that records show to be closed, scheduled for replacement or not over a waterway," Bruce Melville of the University of Auckland says.

"We then assign a significance rating of high, medium or low to the bridges, based on the importance of the route on which they are situated.

"We next assess the vulnerability of the bridge to scour according to a range of factors, giving ratings of high, unknown, medium or low. This assessment is made after field visits to the bridge. Based on the bridge-significance rating and bridge-vulnerability rating, we then assign an overall scour-susceptibility rating, with 1 indicating highest susceptibility and 4 the lowest susceptibility.

"We also indicate remedial actions that can be carried out for bridges identified as being susceptible to scour."

Pictorial guide

To ensure accuracy in reporting information in the, field, the data form includes a pictorial guide to conditions, an innovative feature not seen in existing guidelines elsewhere.

"We envisage the screening exercise to be a one-off event carried out approximately every 25 years in order to produce a national priority list of waterway projects," Bruce Melville says.

"Sites identified as susceptible to scour can then be monitored more frequently as required."

The office review is expected to take about one to one and a half hours and the field review about one hour. Screening forms can be filled out by hand in the field, and then entered into a computer database on a laptop, to save time in generating reports back at the office.

"The process is designed to rank bridges in priority order on the basis of vulnerability, risk and economic justification for remedial works, and will ensure that the large annual expenditure on scour-related works is consistently prioritised nationally," Bruce Melville says.

"We recommend that training be set up for bridge inspection teams so that the scour-screening methodology can be understood and effectively implemented. The teams should include an experienced bridge designer as well as bridge inspectors."

The Transfund report detailing the methodology comes with an electronic version of the data form on a floppy disc inside the back cover.

Contact for more information:
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Auckland
Phone: 09 373 7599
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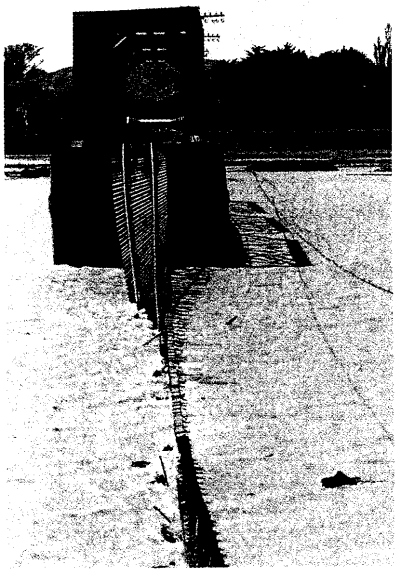
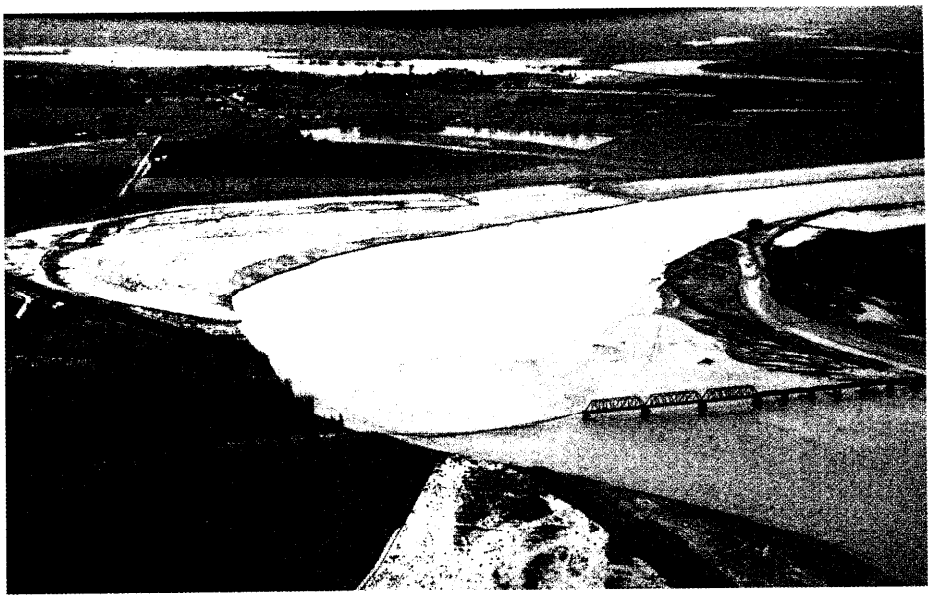
b.melville@auckland.ac.nz



Failure of the Wairoa river bridge, Wairoa township during Cyclone Bola, March 1988



Failure of the railway bridge over the Waipaoa river close to Gisborne during Cyclone Bola.

Seeking comments on **GRS guidelines**

Besides causing loss of life, the 1995 Kobe (Japan) earthquake resulted in widespread damage to roads, buildings and other structures.

Bridge abutments and embankments constructed of geosynthetic-reinforced soils (GRS), however, were found to be less prone to damage than conventional structures. Given that GRS structures are also less expensive than more conventional constructions, there has been growing interest in GRS research and application in New Zealand.

GRS is a comparatively new technique. The first project involving GRS took place in Japan in 1988 and the use of GRS on a wider scale started only in 1992.

Because design methods are not well established, New Zealand geotechnical engineers have been using several different overseas standards and design guidelines.

The need for uniform guidelines for this country has been recognised by the construction sector.

In one of the first Transfund projects to be co-funded by industry, researchers from Beca (Beca Carter Hollings & Ferner Ltd) have been working with Transfund to develop guidelines for GRS structures, both walls and slopes, for use in this country. Co-funders of the project were Anchor Wall Systems Ltd (US & Australia), Firth Industries Ltd (NZ), Geotech Systems Ltd (NZ), Ground Engineering Ltd (NZ), and The Reinforced Earth Company (Australia & NZ).

Stage 1 of the project was published as a Review and Discussion paper in 1998.

Stage 2 of the project, recently published as a Transfund report, presents draft comprehensive guidelines for use by New Zealand consultants, contractors and Road Controlling Authorities. The guidelines are presently in draft only, and comment is sought from all interested parties.

"GRS has widespread applications – for reinforced embankments supporting highways, retaining structures, bridge abutments and repair of slope failures," Alexei Murashev of Beca says.

"We're seeking comment on the draft guidelines from as many sectors of the industry as possible -both individuals and organisations."

The *Guidelines for Design and Construction of Geosynthetic-Reinforced Soils Structures in New Zealand (Draft for Comment)* can be obtained from Standards New Zealand.

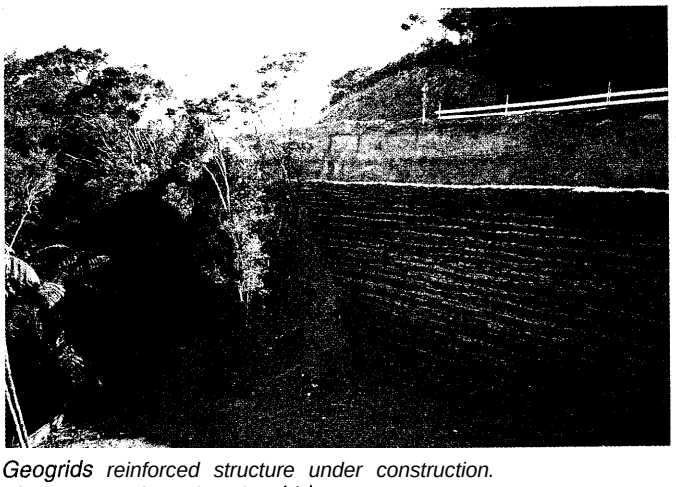
Comments should be submitted to Alexei Murashev, Beca, PO Box 3942,Wellington, by **31 October 2001.**

***GRS** use in **New** Zealand*

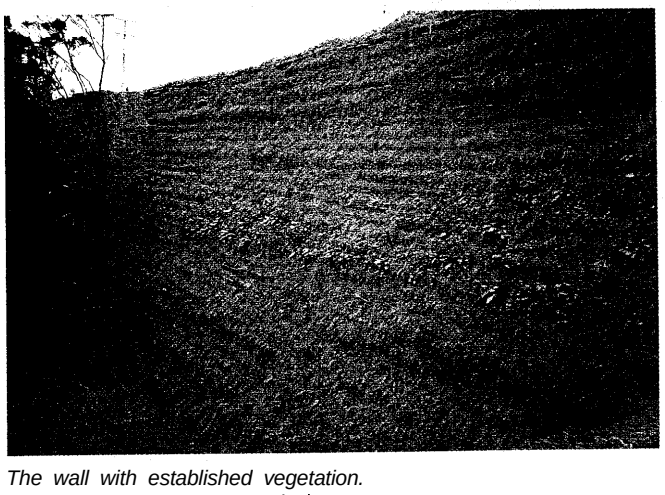
Successful examples of GRS use in New Zealand include remedial work carried out for Rodney District Council. When a slip undermined Mangawhai Road, threatening the main access road to the Mangawhai community, Opus International Consultants designed a Tensar Geogrid Reinforced Wall supplied by Ground Engineering Ltd. The 58 metre long wall has a face angle of 54 degrees and at its highest point is 13 metres tall.

When ground water was observed seeping out of the slip face, the designers incorporated a drainage blanket of aggregate wrapped in highly permeable geotextile material behind and beneath the wall.

Nearby clay silt material provided backfill for the reinforced fill block and Geogrid reinforcing layers extending 6.5 metres back into the slope were placed by contractors, Works Civil Construction Ltd. The front face of the wall was constructed using topsoil filled bags inside the Geogrid wraparound. The bags also contained grass seed and the surface was hydroseeded to give a quick start to vegetation.



Geogrids reinforced structure under construction.
Photo: Ground Engineering Ltd



The wall with established vegetation.
Photo: Ground Engineering Ltd

Transfund directory of researchers

- additional en try

Below is a further entry for our directory of research organisations and individuals, first published in October 2000. A complete list of those who have contacted us for inclusion will be published in November 200 1. Those interested in being included should contact Ineke Brockie at Deloitte Touche Tohmatsu on 04 470 3632 or email ibrockie@deloitte.co.nz

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r.greenaway@research.canterbury.ac.nz

Inter-disciplinary consulting and research for private companies, central and local government, by academics, postgraduates and research assistants.

Traffic Engineering:

Civil Engineering (Prof Nicholson/ Dr Saleh).

- Geometric design
- Intersection performance
- Traffic management, modelling/evaluation

Transport Planning:

Geography (Dr Johnston/ Dr Kingham), Civil Engineering.

- Social/Economic impacts
- Travel Plan development/ implementation
- Transport network planning/ management/ reliability

Pavement Engineering:

Forestry (Dr Douglas), Civil Engineering.

- Materials/ geosynthetics/ design/ management
- Urban/ rural/ forestry roads
- Flexible/ rigid pavements

Road Safety:

Psychology (Dr Owen), Civil Engineering

- Driver behaviour
- Accident investigations, reduction/ prevention strategies

Notices

3rd International Conference on Arch Bridges

Paris, FRANCE

19 - 21 September 2001

Contact: Conference Secretariat: Mrs. Francoise Bourgain, Service des Colloques, ENPC

28 Rue des Saints-Peres, F - 75343 Paris Cedex 07, France

Phone: +33-1 -44-58-28-22

Fax: +33-1-44-58-28-30

Email: bourgain@mail.enpc.fr

IPC- 1 I: 11 th International Pacific Conference on Automotive Engineering: Motor Vehicles for the 21st Century

Shanghai, CHINA

6 - 9 November 2001

Organized by Society of Automotive Engineers of China (SAE China

Contact: Secretariat, IPC-11, Society of Automotive Engineers of China

46 Fucheng Road, Beijing 100036, P.R. China

Phone: +86-10-88127156.

Fax: +86-10-88127156

Email: office@sae-china.org

COLLOQUIUM 2001

Canberra, AUSTRALIA

16 – 18 April, 2002

Organised by the Bureau of Transport Economics, within the Commonwealth Department of Transport and Regional Services

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Email: bte@dotrs.gov.au

Westsite: www.bte.gov.au

FISITA 2002: 29th World Automotive Congress

Helsinki, FINLAND

2 - 7 June 2002

Organized by FISITA

Contact: FISITA 2002 c/o CongCreator CC Ltd

PO Box 762, FIN-00101 Helsinki, Finland

Phone: +358-9-4542-190

Fax: +358-9-4542-1 930

Email: fisita2002@congcreator.com

Website: www.fisita2002.com

Abstracts due 31 May 2001

In terna tional Congress: Challenges of Concrete Construction

Dundee, SCOTLAND

5 - 11 September 2002

Organized by University of Dundee, Concrete Technology Unit

Contact: Professor R.K. Dhir, Director, Concrete Technology Unit

University of Dundee, Dundee DD1 4HN, Scotland, United Kingdom

Phone: +44-1382-344-347

Fax: +44-1382-345-524

Email: r.k.dhir@dundee.ac.uk.

Website: www.dundee.ac.uk/civileng/ctucongress/welcome.htm

New Transfund research publications

Prices include postage, handling and GST

The Effect of Link Reliability on Benefit/Cost Ratios

Transfund New Zealand Research Report No 159

G.F. Koorey, T.J. Mitchell

Opus Central Laboratories, Lower Hutt

Cost:$20.00

Develops project evaluation procedures to incorporate risk assessment of road link reliabilities.

Characterisation of Some New Zealand Subgrades

Transfund New Zealand Research Report No 187

D. Alabaster, G.J.Fairless, R. Bailey, J.E. Patrick

Opus International Consultants Ltd,
Opus Central Laboratories, Lower Hutt

cost: $40.00

The current AUSTROADS (1992) pavement design procedure used in New Zealand uses the basic assumption that a vertical compressive strain applied to any subgrade will cause the same amount of plastic strain to occur irrespective of the type of subgrade. This report suggests that the assumption is incorrect for volcanic soils.

Guidelines for Design & Construction of Geosynthetic-Reinforced Soil Structures in New Zealand: Draft for Comment

Transfund New Zealand Research Report No 194

A.K Murashev

Beca Carter Hollings & Ferner, Wellington

cost: $30.00

See article this issue

Bridge-Scour Screening Methodology for New Zealand Bridges

Transfund New Zealand Research Report No 196

S.E. Coleman & B.W. Melville

Auckland UniServices Ltd, University of Auckland

Cost: $60.00

See article this issue

Development of Benefit Parameter Research Approaches

Transfund New Zealand Research Report No 197

Booz Allen & Hamilton

Cost: $25.00

Provides market research techniques for deriving improved values for the unit benefit parameters specified by Transfund for use in transport project evaluation throughout New Zealand.

Methods for Determining Structural Number of New Zealand Pavements

Transfund New Zealand Research Report No 199

J.E. Patrick, D. Dongal

Opus Central Laboratories, Lower Hutt

Cost:$20.00

The Structural Number (SN) is a method for describing the strength of a road pavement in pavement deterioration models that are currently being calibrated for New Zealand road conditions. This project investigates the sensitivity and precision of current methods for obtaining the SN and makes recommendations for preferred methods for use in routine road network surveys and for long-term pavement monitoring studies.

Evaluating the Quality of Road Survey Data

Transfund New Zealand Research Report No 200

C.R. Bennett

HTC Infrastructure Management Ltd, Kumeu, Auckland

cost: $25.00

Describes the results of a project to investigate the quality of road survey data collected from road networks in New Zealand with the aim of establishing a statistical technique for identifying whether current data is consistent with data from previous years' surveys.

Obtaining research publications

Research publications of Transfund New Zealand, Transit New Zealand and the former National Roads Board can be obtained from:
Standards New Zealand
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Copy for the next issue of TRANSEARCH must be in the Editor's hands by 28 September 2001.

For Futher Information

Transfund New Zealand
PO Box 233 1
Wellington
www.transfund.govt.nz
ISSN 1170-7321

TranSearch

A newsletter published by Transfund New Zealand

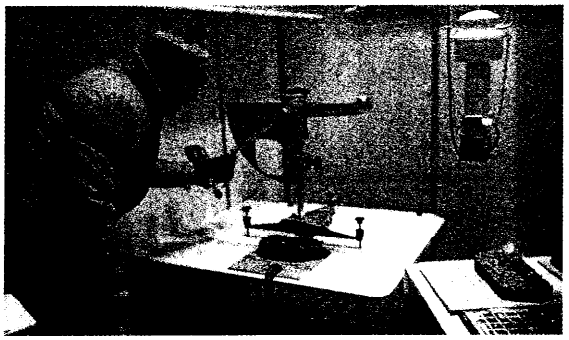
May 2001 Issue 43

Researching skid-free road surfaces

Estimates suggest that skidding due to ice, snow and frost causes up to 160 severe or fatal accidents a year and costs the country up to $32 million annually.

A recent study showed that 60% of these crashes occur away from areas of heavy winter conditions such as the Central Plateau and Central Otago.

continued over page



Taking measurements in sub zero temperatures in the National Climate Laboratories

Editorial

Applications to the Transfund 200 1/2 research programme are presently being evaluated and successful applicants will be notified by the end of June. As explained in the last issue of TranSearch, we intend to introduce a two-stage tender process to make tendering better for all involved. The timetable will be published in the August issue of TranSearch.

Travel Behaviour research topics were excluded from the normal research tender round in the 2000/200 1 research programme due to the difficulty research&s had in proposing suitable projects for this topic area. As a result, Transfund approved the allocation of funding for a project-based tendering trial. Successful applicants and their projects are listed on page 2.

In this issue, we profile some very interesting research on frost and ice formation on road surfaces currently taking place at the National Climate Laboratories in Palmerston North. The work will lead eventually to guidelines for road surfaces in areas where frost or thin ice occur in winter.

Nationwide there is a huge demand for guidance in predicting traffic growth, but very little uniformity in the methods used. A recent Transfund research project has looked at traffic growth prediction methods both here and overseas and recommended the development of a national traffic growth-forecasting programme. See page 3 for further details.

An inexpensive solution to road runoff, one of the major causes of stormwater pollution around the world, has received an innovation award at the Waikato Business and the Environment awards. The research was funded by Transfund with active participation by Hamilton City Council and the Waikato Regional Council. See page 4.

Transfund is keen to ensure that roading authorities and others interested in land transport issues are kept up to date with the latest research findings. To ensure wider awareness, Transfund researchers will be invited to present a series of seminars throughout the country at the REAAA (Road Engineering Association of Asia and Australasia) roadshow in August. To find out more, see page 5.

We also publish a list of all published Tranfund reports, and include contact details for a further five research organisations wanting to be included in Transfund's Directory of Transport Researchers. The full list of researchers will be published in the November issue of TranSearch.

Please tell us what kind of research you would like to read about in TranSearch. We are happy to print letters to the Editor.

Martin Gummer
Chief Executive
Transfund New Zealand

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YOUR VIEWS

TRANSEARCH welcomes letters from readers. Letters should be addressed to:

**The Editor,
TRANSEARCH,
Transfund New Zealand,
PO Box 2331, Wellington.
www.transfund.govt.nz**

ISSN 1170-7321

TranSearch

Transfund contact: Gary Milne

Editor: Diana Moir

TranSearch is published quarterly by Transfund New Zealand. Its purpose is to report the results of research funded through the Transfund New Zealand Research Programme, and to act as a forum for passing on national and international information to aid collaboration between all those involved – to stimulate enquiry, discussion and solutions concerning road, traffic, safety and land transport problems in New Zealand.

Contributed articles are welcome, and should be typed in double spacing and not exceed 1000 words. Illustrations may be either black and white or colour, and must be of high quality. *TranSearch* reserves the right to edit, abridge or decline any article.

Advertisements of forthcoming conferences and workshops which are within the *TranSearch* field of interest may be published free of charge.

Enquiries on specific articles should be made to the author. Otherwise, all general correspondence, and those queries related to conference notices and mailing list requests, should be made to:

Transfund New Zealand, PO Box 2331,

Wellington, www.transfund.govt.nz

Phone: 04 916 4220 fax: 04 499 0733

"Crashes are scattered throughout the country and occur in numerous small sheltered areas where sophisticated winter maintenance would be uneconomic," Opus Central Laboratories scientist Vince Dravitski says.

In a project funded by Transfund, a team from Opus Central Laboratories is carrying out research to find out which New Zealand road surfaces are least affected by frost. The research is taking place in a controlled environment at the National Climate Laboratories in Palmerston North.

The laboratories, which are operated by HortResearch, are the only ones of their kind in New Zealand and include rooms in which climate, humidity and temperature can be precisely controlled and measured. They are normally used to test the ability of new plant varieties to withstand varying conditions, and this is the first time they have been used for transport research. Vince says that they provide much better conditions than studying frost and skid resistance on the road.

"In the field there are logistical problems to deal with such as getting researchers to areas where frosting is likely to occur. Often enough nature can conspire against you and not form a frost when you need it.

"Another difficulty is that testing needs to happen in the early hours of the morning and this can be hazardous with traffic on the road."

While many factors influence the formation of ice on roads - including road surface type, the nature of the basecourse and sub-grades, and the moisture content of these layers – studies of the international literature show that the right road surface can be highly effective in limiting the loss of friction from ice and snow, Vince says.

"A report from the Swedish Road Research

Travel Behaviour research projects announced

The Transfund Board has announced funding for four research projects under the Travel Behaviour banner. These are:

Project 1:
Analysis of Christchurch, Wellington and Auckland Passenger Transport Data.
Booz Allen and Hamilton

Project 2:
Passenger Transport Demand Elasticities
Booz Allen and Hamilton

Project 3:
Mobility Benefits of Passenger Transport
Booz Allen and Hamilton

Project 4:
Commercial Vehicle Usage and Forecasting
Opus International Consultants

Project-based trial

Travel Behaviour research topics were excluded from the normal research tender round in the 2000/2001 research programme due to the difficulty researchers had in proposing suitable projects for this topic area. As a result, Transfund approved the allocation of funding for a project-based tendering trial in which, following a request to the land transport industry for suggestions, the above topics were chosen.

Response and evaluation

"We received 11 proposals from five research organisers," Transfund Chief Executive Martin Gummer says.

"Each proposal was scored by three evaluators, including one member of the Transfund Research Strategy Group (RSG).

"The approved funding allocation for 2000/2001 was $200,000.The sequential nature of projects 1 and 2, coupled with the tendering occurring later in the financial year than normal has resulted in some under expenditure of the allocation.

"Travel Behaviour has also been included as a topic area in the 2001/2002 Research Programme tender round that closed on 30 March."

Institute, which trialled 20 surfaces over a four year period, indicated that while the surface had little impact on skid resistance in heavy winter conditions, in mild conditions such as frost, thin ice or loose snow, some surfaces had markedly higher skid resistances. These tended to be surfaces such as chipseal or open graded asphalt and which also had good drainage.

"From a New Zealand perspective, we are using this report as a useful starting point because it indicates surface types which might counteract the effects of frost and thin ice."

Because frost is formed differently in the laboratory from outdoors, the first part of the project required the development of procedures for simulating the formation of frost on road surfaces in the laboratory. The techniques developed were then used to examine the influence of frost of varying intensity on a sample selection of the main types of New Zealand road surfaces.

The next steps will be to research frost development on different sections of the road (wheel track, side, centre) as well as extending the range of surfaces studied.

"We shall then know under what frost conditions road surfaces lose resistance and become unsafe."

Findings from the research will be incorporated into guidelines for use by roading authorities in areas where localised frost or thin ice occurs in winter.

"We hope to recommend different road surfaces for use in areas where frosts are likely to form," Vince says.

"The recommendations should be of widespread benefit because all non-coastal roads excluding Northland and Auckland come under this category."

Contact for more information:
Vince Dravitski
Opus Central Laboratories
Phone 04 587 0600
Email: vince.dravitski@opus.co.nz

Predicting traffic growth

Predicting the growth of traffic is not an exact science. Nor is there universal agreement as to how to go about it.

A recent Transfund project identifying factors having the most significant effect on traffic growth in this country included a review of traffic growth procedures both here and overseas.

"Traffic growth forecasting can be carried out at different levels of detail," researcher Steve Moynihan of Opus International Consultants says.

"The most general is the national level. This is also the easiest approach, but the forecasts are very coarse. Under the approach adopted in the UK, for instance, traffic growth is related to a small number of basic parameters such as population growth, GDP growth and fuel prices."

Regional and local estimates are based on the national forecasts, modified according to local car ownership and relative wealth, he says.

By contrast, each state in the USA has its own approach.

"These range from a super sophisticated model used in Michigan, to simple time series forecasting of the AADT (Annual Average Daily Traffic), the average taken from a traffic count survey over a fixed period, which has then been adjusted for seasonal and daily variations.

"The disadvantage with the Michigan type of model is that it requires an enormous effort to build and maintain."

The researchers also looked at Australian prediction models.

"In 1998, Australia's Bureau of Transport Economics described a model of all modes of passenger travel for inter-regional trips between cities, which explained 97% of the observed travel. The modelling of highway traffic was linked to this after separating into mode type (car or air travel)."

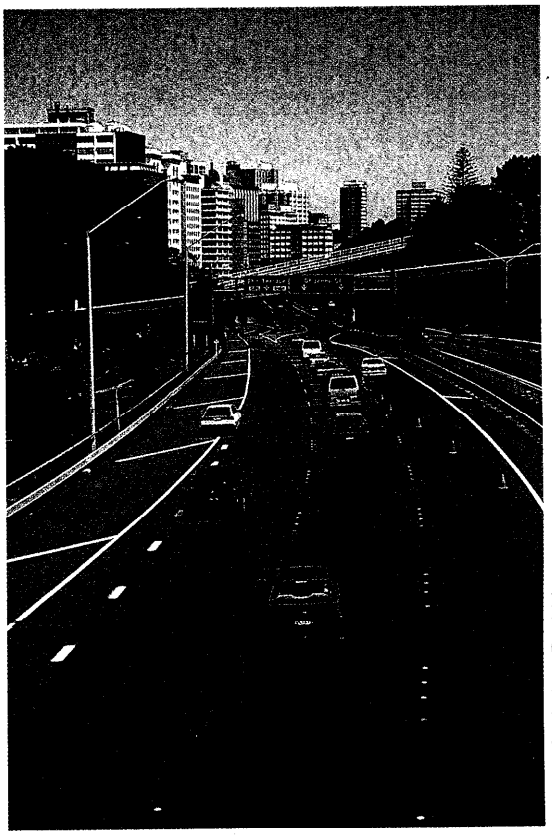


Photo: Christine Prebble

Besides reviewing the literature on traffic growth procedures overseas, the project also surveyed local traffic growth forecasting practices in New Zealand.

"There is a huge demand locally for guidance in traffic growth prediction, but there is no uniformity of approach by roading authorities and a lack of knowledge of how well the current methods work," fellow researcher Clement Fisk says.

A local practice survey of regional and road controlling authorities found that in some cases very simplistic approaches were being used.

"We also found there is no freight growth forecasting, and very little alternative-mode traffic forecasting carried out in New Zealand."

Clement believes that more needs to be done, particularly in areas where growth is significant, and where land use is changing and driving traffic growth.

Another objective of the research was to review the traffic growth procedures in the Project Evaluation Manual (the guideline for economic analysis of road

projects) and to identify the factors having the most significant effect on traffic growth

"About 70% of those we surveyed used the Project Evaluation Manual standard values and historical count data, but what has happened in the past is not necessarily an indicator of what can be expected in the future."

Not surprisingly the researchers found that cities are more involved in forecasting than regions or districts.

Urban traffic. growth is much more complex than 'big picture' forecasts, the researchers say.

" The important factors are the level of service provided by the roads in question, the choice of mode of travel available, the traffic restraint measures in operation, whether there is any spreading of peak traffic, and travel and work habits.

"When it came to identifying factors relevant to traffic growth on New Zealand roads, we found that data was poor. There is a clear need for more research."

Key conclusions of the research were as follows:

- There is a demand for guidance in traffic growth prediction
- The current guidance is simplistic, but there is so little data that there is no evidence to show it doesn't work
- There is no uniformity of approach by those who do additional work
- There is a lack of knowledge of how well the current methods work
- The Bayesian method, which combines local historic growth with national growth trends, has the potential to offer an improvement on current methods
- More needs to be done in areas where growth is significant and/or land use is changing and driving current growth. Freight traffic growth needs to be modelled and predicted.

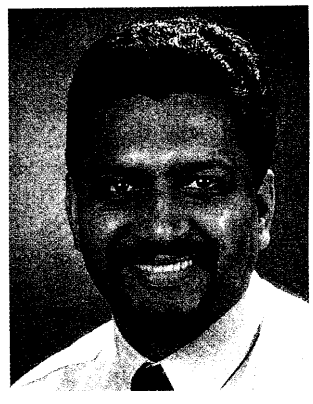
The recommended next steps are:

- Investigate the Bayesian method
- Develop a national traffic growth forecasting programme by road type and mode
- Show how to relate the national to regional and local traffic growth
- Investigate the effects of capacity improvements on traffic growth
- Investigate the effects of seal extension projects on traffic growth
- Develop methods of forecasting local traffic growth by vehicle type and time period

Contact for more information:
Steve Moynihan or Clement Fisk
Opus International Consultants
Phone 04 471 7000

Low cost solutions for road runoff

Landcare Research may have an inexpensive solution to road runoff, one of the major causes of stormwater pollution around the world.



Surya Pandey

Surya Pandey, project leader for the research programme, together with team members Matthew Taylor and Bob Lee, has created easy to install treatment walls which can be placed at existing sensitive transport corridors or during construction of new roads. The walls remove contaminants from a polluted stream through the inclusion of substrates that allow water to pass through but trap the contaminants before discharge to the stormwater collection system.

"We have carried out tests on a range of low cost or recycled materials such as sphagnum moss, crushed limestone, waste wood pulp and waste wool felt, " Surya Pandey says.

Tests have also been carried out on fly ash, a by-product of wood burning at the Kinleith pulp and paper mill.

Each product has been tested on its own and in combinations such as sphagnum/limestone and sphagnum/fly ash.

The results have been encouraging.

"All the substrates can remove heavy metals, nutrients and trace organics, which are the main ingredients of road runoff.

"Lime and fly ash were very effective in removing both heavy metals and polycyclic aromatic hydrocarbons (PAH) from artificial road runoff in laboratory based studies. Sphagnum moss was also very effective at removing heavy metals, but largely ineffective at removing PAH. Both the wood waste and wool felt removed over 60% of applied heavy metals, but were not as good as the other substrates."

Based on these laboratory results, the research team has constructed treatment walls at the corner of Hamilton's River Road and Wairere Drive and is currently testing a sphagnum/ fly ash mixture as the filter substrate. Initial monitoring results show that filter treatment walls are achieving similar results to those found in the laboratory studies.

"While treatment walls are not new, their use has been limited overseas, mainly for treating polluted groundwater sources.

"We believe these walls could have widespread use. They could be used around landfills, petrol stations and large car parks - wherever you have pollutants coming into contact with

rainwater. When road runoff gets into stormwater and becomes diluted, it is hard to treat. Treatment walls stop the problem at the start."

Environmental a ward

The research, funded by Transfund New Zealand with active participation by Hamilton City Council and Waikato Regional Council (Environment Waikato), has recently been recognised at the Waikato Business and the Environment Awards in Hamilton. The project was awarded the Degussa Innovation Award, which 'recognises efforts by business to develop innovations aimed at enhancing the quality of our environment'.

The award, a suitably inscribed piece of recycled glass, mounted on a small block of recycled rimu, is now proudly displayed on the reception desk at Landcare Research Hamilton.

Contact for more information:
Surya Pandey
Landcare Research Hamilton
Phone 07 858 3738
Email: pandeys@landcare.cri.nz

Presenting the findings – transport roadshow

A series of seminars designed to bring land transport practitioners and researchers up to date with land transport issues will take place throughout the country from 15 – 21 August. Topics mooted at this point include Austroads Guide to Selection of Road Surfaces, Transit's New Design Guidelines, Transfund Research Projects and Alternative Funding. The day-long seminars will include time for discussion.

The workshops will be held in Auckland, Taupo, Wellington, Christchurch and Dunedin.

The roadshows will be conducted under the auspices of the Road Engineering Association of Asia and Australasia (REAAA New Zealand Chapter Inc).

Contact for more information:
The Secretary
REAAA New Zealand Inc
PO Box 12647, Wellington
Phone 04 496 3271, fax 04 496 3272
Email: lyn@bitumen.org.nz

Transfund directory of researchers

- further additional entries

We have received more entries for our directory of research organisations and individuals, first published in the October 2000 issue of TranSearch. As previously stated, only those researchers who have submitted proposals to Transfund were sent notification of the directory's compilation. We are aware, however, that there are many more individuals and organisations not on Transfund's database who may have specialist research capabilities that should be listed in the directory. Relevant topics may range from transportation and roading issues to related areas such as environmental or social impacts.

We are keen to make our directory as complete as possible. For those who did not receive our questionnaire, please contact Ineke Brockie at Deloitte Touche Tohmatsu on 04 470 3632 or email ibrockie@deloitte.co.nz.

A complete list of those who have contacted us for inclusion will be published in the November 2001 issue of TranSearch.

We are pleased to add the following additional organisations to the list:

Beca Carter Hollings & Ferner

Level 3, PricewaterhouseCoopers Centre
119 Armagh Street
Christchurch

PO Box 13960
Christchurch

Phone: 03 366-3521
Fax: 03 366-3188

Contact: Shane Turner
Email: sturner@beca.co.nz

Beca is New Zealand's largest privately owned multi-disciplinary engineering consulting practice. It has 1200 employees in offices in NZ, Australia, Singapore, China, Indonesia, Brazil and affiliate offices in Brunei, Fiji, PNG, and Malaysia. Beca provides research services in road construction and transportation to Transfund and Transit, amongst others. Staff are multi-disciplinary so although they work on research projects, they also work on general engineering consultancy projects thus staying in touch with industry concerns.

Beca has strong research capability across a wide range of disciplines. These include geotechnical engineering of road construction and structures, traffic and transportation modelling, travel behaviour, environmental effects of road construction projects, vehicle fleet emissions modelling, traffic accidents and safety research, transport asset management modelling, pavement deterioration modelling, seismic risk of road structures, risk management, and transportation economics.

Egis Consulting Australia Pty Ltd

1st Floor, South Tower, The Interchange,
67 Albert Ave
Chatswood NSW 2067

AUSTRALIA

PO Box 201
Chatswood NSW 2057
AUSTRALIA

Phone: 0061 2 9412 9945
Fax: 0061 2 9412 9898

Contact: Dr Robert Smith
Email:
smithrb@syd.egisconsult.com.au

Robert Smith is skilled in the areas of road asset management, materials evaluation, pavement design and road pavement performance modelling. He has considerable experience in outsourcing of maintenance.

Harrison Grierson Consultants L td

429 Parnell Rd
Parnell
Auckland

PO Box 5760
Wellesley St
Auckland

Phone 09 917 5000
Fax 09 917 5001

Contact: David Willetts
Email: diw@ak.hgcl.co.nz

Harrison Grierson has a team of over 200 engineers, planners, ecologists and scientists. The team's skills and research capabilities relevant to Transfund include:

- Engineering and environmental scientific service. As well as providing comprehensive geotechnical, laboratory and environmental analysis (air quality, water and land), our team has assisted regional councils in the design of effective regulations to allow innovative approaches to stormwater/sediment control and the mitigation of other environmental effects.
- Social Science research. Members of the team have particular skills in community based research such as social severance studies and social impact assessments.
- Planning and Resource Management Services. Skills include strategic and policy planning, community consultation programmes, environmental impact assessments, infrastructure planning, landscape assessments and urban design.
- Environmental Policy advice. Specialists within the company have combined to research and develop policy issues including Climate Change.

Higgins Contractors L td

22 Roxburgh Crescent
Palmerston North

Private Bag 11411
Palmerston North

Phone: 06 3571026
Fax: 06 357 8547

Contact: Sean Bearsley
Email: s.bearsley@higgins.co.nz

Sean Bearsley has a research interest in bituminous binders used in road surfacing materials. This interest extends to polymer modified binders and emulsions and how their composition affects performance.

Hughes Rea Consulting Ltd

Level 15, Axon House
1 Willeston Street
Wellington

PO Box 3069
Wellington

Phone: 04 471 1851
Fax: 04 471 1852

Contact: Robert Hughes
Email: info@hughesreaconsult.co.nz

Hughes Rea Consulting occupies a specialist niche in the consulting market. We take a unique approach to helping our clients solve the challenging strategic issues facing their organisation. Our analytical, research and strategic skills are complemented by a strong streak of pragmatism.

Published research reports

A full list of the research reports published by Transit New Zealand and Transfund New Zealand grouped under their key topic areas.

A. Road Asset Management

No.	Title
1	Use of Non-standard Road Aggregates from Wanganui and Taranaki Regions
2	Communicating About Use of Road Aggregates
6	Geotextiles
8	Urban Road Traffic Models for Economic Appraisal
11	Emulsified Bituminous Materials in Road Maintenance and Construction: A survey of Current New Zealand practice
12	Quantification of Intangibles: A Review of Intangible Factors for Transit New Zealand's Project Evaluation Manual
13	Evaluation Sensitivity Analysis
16	Economic Disbenefits of Dust from Unsealed Roads
17	Aggregates for Road Pavements
21	Investigation into the Use of Solvents for Bitumen Testing
22	Safaniya Bitumen - Verification of Chemical Properties
23	The Reliability of Capital Cost Estimates
25	Investigation into the High Incidence of Pavement Chip Loss
26	Highway Permits Programme Review
29	Road Profile Characterisation
32	Site Design for Heavy Vehicle Facilities
32A	Annex: Site Design for Heavy Vehicle Facilities
33	Investigation into Bitumen Heating
34	Bridge Maintenance Management Systems
37	Vehicle Operating Costs on Unsealed Roads
38	Effect of Dust Palliatives on Unsealed Roads in New Zealand
40	The Engagement of Professional Services
41	Strength Testing of Bridge Beams Affected by Alkali Aggregate Reaction
42	The Bonding of New to Old Concrete Bridge Decks as Affected by Vehicular Traffic
43	Stabilisation of Soils Using Randomly Distributed Fibre Reinforcement: A Review
44	Heavy Transport Routes: Their Identification, and Evaluation of a Pilot Route
45	Tourism Benefits from Sealing Roads: User Survey of Milford Sound Road
46	Maintaining the Porous Nature of Friction Course
49	Assessment of Torsional Braid Analysis Technique for Polymer-modified Bitumens
50	Antioxidants for Roading Bitumen
51	Freeze-Thaw Effects in New Zealand Pavements
52	Unsealed Road Condition Rating System for RAMM: Literature Review
55	A Model to Predict Logging Traffic and Associated Pavement Loadings from New Zealand Forests
58	Seismic Assessment of New Zealand Highway Bridges: Development and Testing of Preliminary Screening Procedures
59	Development of the RAMM System: Summary of Responses to Discussion Document and Recommendations Arising
60	Assessing Passing Opportunities: Literature Review
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62	Use of Tyre Rubber in Bituminous Pavements in New Zealand
63	Review of Instruments for Measuring the Texture Profile of Road Surfaces
64	Stabilisation for New Zealand Roads: A Review
66	Ground Penetrating Radar for Pavement Investigation
67	Fatigue Resistance of Thin Modified Bituminous Layers: A Literature Review
68	Sealed Unbound Granular Pavements
70	Dynamic Load Effects of Heavy Vehicles on NZ Highway Bridges
71	Non-Volatile Flux for Chipsealing: Laboratory Study Interim Report
72	Construction and Maintenance of Unsealed Roads
73	Assessing Road Surface Friction with the British Pendulum Tester in NZ
74	Non-traditional Materials for Trench & Bridge Abutment Backfill
75	A Framework for an Ideal Road Structures Design Manual
77	Seismic Evaluation & Retrofit Technology for Bridges
78	Seismic Testing & Behaviour of a 1936-designed Reinforced-concrete Bridge
81	Tourism Benefits from Sealing Unsealed Roads: Perceptions of Discomfort & Risk

82 Protection from Scour of Bridge Piers Using Riprap

84 Replication of VTI's Stationary Laser Profilometer

86 Tourism Benefits from Sealing Unsealed Roads: Survey of Users of Waipoua Forest Road

87 Review of RAMM Treatment Selection Process for State Highways & Local Authority Roads in New Zealand

88 Waterway Design Parameters

90 Some Operational Limitations of the NAASRA Roughness Meter

94 Friction and Tyre Abrasion Characteristics of New Zealand Surfaces

95 Assessing Heavy Vehicle Suspension for Road Wear

98 Monetary Valuation of Intangibles

99 Bitumen Emulsion Sealing: New Zealand Field Trials

100 Pavement Density

101 Pavement Temperature Models

102 Recycling of Waste Oil Distillation Bottoms in Asphalt

106 Sealed vs Unsealed Road Speeds

110 Alternative to Sand Circle Test for Measuring Texture Depth

111 Moisture in Pavements: Directions for New Zealand Research

112 Use of Melter Slag as Aggregate in Open-graded Emulsion Mixes

117 Pavement Deflection Measurement & Interpretation for the Design of Rehabilitation Treatments

118 Vehicle Repair and Maintenance costs

122 Flushing Processes in Chipseals: Effects of Trafficking

123 Design and Construction of Geosynthetic-reinforced Soil Structures in NZ: Review and Discussion Paper

124 Loadman Portable Falling Weight Deflectometer: Development of Testing Procedures

126 Surfacing for High Stress Areas

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164 Small Diameter Tyres And Pavement Wear

165 Health Monitoring of Superstructures of New Zealand Road Bridges: *Big Wainihinihi Bridge, West Coast*

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Notices

Science and Society Seminar

20 June 2001

Museum of **New Zealand Te Papa Tongarewa, WELLINGTON**

Organised by the Royal Society of New Zealand in conjunction with the Ministry of Research, Science and Technology.

This one-day workshop will be the first in a series of workshops that explore the interface between the scientific community and the general public.

Participation is sought from the science community and also some community-based organisations. The workshop is intended primarily for researchers, but will also be of interest to those working in management or communications.

Contact: Tasha Black,

Phone: 04 470 5759

Email: black. t@rsnz.govt.nz

Moving through the Millennium: 8th International Conference on Automated People Movers

San Francisco, California, USA

7 - 11 July 2001

Organized by American Society of Civil Engineers (ASCE)

Contact: ASCE - World Headquarters

1801 Alexander Bell Drive, Reston, Virginia 20191-4400, USA

Phone: + 1-703-295-6300

Fax: +1-703-295-6144

Website: www.asce.org/conference/apm8

In terna tional Symposium on Transportation Technology Transfer

St Petersburg, Florida, USA

29 July - 2 August 2001

Organized by United States Federal Highway Administration (FHWA)

Contact: 2001 International Symposium

Office of International Programs, Federal Highway Administration

400 Seventh Street, SW Suite 3325, Washington DC 20590 USA

Phone: +1-202-366-9636

Fax: + 1-202-366-9626

Email: 2001symposim@fhwa.dot.gov

Website: www.international.fhwa.dot.gov

Fifth International Conference on Managing Pavements

Seattle, Washington, USA

11 August - 14 August 2001

Organized by Washington Department of Transportation

Contact: Conference Secretariat, Engineering Professional Programs, University of Washington

13030 Meridian Avenue North #301, Seattle, WA 98133-9482, USA.

Phone: +1-206-543-5539

Fax: +1-206-543-2352

Email: pavements@engr.washington.edu

Website: www.engr.washington.edu/epp/pavements

IATR Quebec 2001 Conference: International Conference on the Regulation of Transport Services

Quebec City, CANADA

9 - 12 September 2001

Organized by International Association of Transportation Regulators (IATR)

Contact: IATR Quebec 2001 Transports Quebec

700, boulevard Rene-Levesque Est, 24ieme etage, Quebec (Quebec), Canada, G1R SH1

Phone: +1-514-864-1637

Fax: +1-514-873-0435

Email: iatr@mtq-gouv.qc.ca.

Website: www.mtq-gouv.qc.ca/iatr2001

3rd International Conference on Arch Bridges

Paris, FRANCE

19 - 21 September 2001

Contact: Conference Secretariat: Mrs. Francoise Bourgain, Service des Colloques, ENPC

28 Rue des Saints-Peres, F - 75343 Paris Cedex 07, France

Phone: +33-1-44-58-28-22

Fax: +33-1-44-58-28-30

Email: bourgain@mail.enpc.fr

IPC-11: 11th International Pacific Conference on Automotive Engineering: Motor Vehicles for the 21st Century

Shanghai, CHINA

6 - 9 November 2001

Organized by Society of Automotive Engineers of China (SAE China

Contact: Secretariat, IPC-11, Society of Automotive Engineers of China

46 Fucheng Road, Beijing 100036, P.R. China

Phone: +86-10-88127156.

Fax: +86-10-88127156

Email: office@sae-china.org

COLLOQUIUM 2001

Canberra, AUSTRALIA

16 - 18 April, 2002

Organised by the Bureau of Transport Economics, within the Commonwealth Department of Transport and Regional Services

Contact: Tracy Svensson

Bureau of Transport Economics, GPO Box 501, Canberra ACT 2601,Australia

Phone: +61-2-6274-7312

Fax: +61-2-6274-6816

Email: bte@dotrs.gov.au

Westsite: www. bte.gov.au

FISITA 2002: 29th World Automotive Congress

Helsinki, FINLAND

2 - 7 June 2002

Organized by FISITA

Contact: FISITA 2002 c/o CongCreator CC Ltd

PO Box 762, FIN-00101 Helsinki, Finland

Phone: +358-9-4542-190

Fax: +358-9-4542-1 930

Email: fisita2002@congcreator.com

Website: www.fisita2002.com

Abstracts due 3 1 May 200 1

In terna tional Congress: Challenges of Concrete Cons truc tion

Dundee, SCOTLAND

5 - 11 September 2002

Organized by University of Dundee, Concrete Technology Unit

Contact: Professor R.K. Dhir, Director. Concrete Technology Unit

University of Dundee, Dundee DD1 4HN, Scotland, United Kingdom

Phone: +44-1382-344-347

Fax: +44-1382-345-524

Email: r.k.dhir@dundee.ac.uk.

Website: www.dundee.ac.uk/civileng/ctucongress/welcome.htm

New Transfund research publications

Prices include postage, handling and GST

The Effect of Link Reliability on Benefit/Cost Ratios

Transfund New Zealand Research Report No 159

G.F. Koorey, T.J. Mitchell

Opus Central Laboratories, Lower Hutt

cost: $20.00

Develops project evaluation procedures to incorporate risk assessment of road link reliabilities. Current Transfund evaluation procedures and recent work in this area are reviewed and suggested directions discussed. Simple link reliability theory is then developed, as well as typical examples of how this theory could be applied.

Characterisation of Some New Zealand Subgrades

Transfund New Zealand Research Report No 187

D. Alabaster, G.J. Fairless, R. Bailey, J.E. Patrick

Opus International Consultants Ltd

Opus Central Laboratories, Lower Hutt

cost: $40.00

This report gives the results of tests carried out on New Zealand subgrades, which provide evidence that current AUSTROADS (1992) pavement design procedures in relation to pavement design procedure are incorrect for volcanic soils. A review of international literature provides examples of 'best-fit' comparison models.

New Transfund research publications continued

Traffic Noise Guidelines for Low Noise Areas in New Zealand

Transfund New Zealand Research Report No 190

V. Dravitzki, J Mitchell, W. Wood, A. Hyndman, S. Collins & P. Kerslake

Opus International Consultants, Lower Hutt

cost: $20.00

This study investigates whether New Zealand's current allowable increases in traffic noise levels are acceptable levels for areas that previously had low traffic noise. The research includes four case studies of roads where the area had been developed as a residential subdivision but a corridor had been planned for the road. The case studies include surveys of residents' attitudes to road traffic noise in comparison to general amenities and also include findings concerning the influence of increased traffic noise on house prices and frequency of sales.

Traffic Growth Prediction

Transfund New Zealand Research Report No 191

G.F. Koorey, T.J. Mitchell

Opus Central Laboratories, Lower Hutt

C.R. Fisk, S.F. Moynihan

Opus International Consultants, Wellington

M.K. Mara, Wellington

cost: $20.00

See article this issue.

Accident Prediction Models

Transfund New Zealand Research Report No 192

Shane Turner

Beca Carter Hollings & Ferner

cost: $25.00

Accident and flow data from over 1000 sites throughout New Zealand have been used to develop accident prediction models for rural and urban intersections and links. The report discusses application of the models in economic evaluation along with changes that would need to be made to the Project Evaluation Manual to incorporate the models.

Valuation of Travel Time Savings – Market Research

Transfund New Zealand Research Report No 193

Booz Allen & Hamilton

Cost: $25.00

This project involved market research among motorists in New Zealand to establish unit behavioural values of travel time savings under a range of conditions, for application in the evaluation of transport projects.

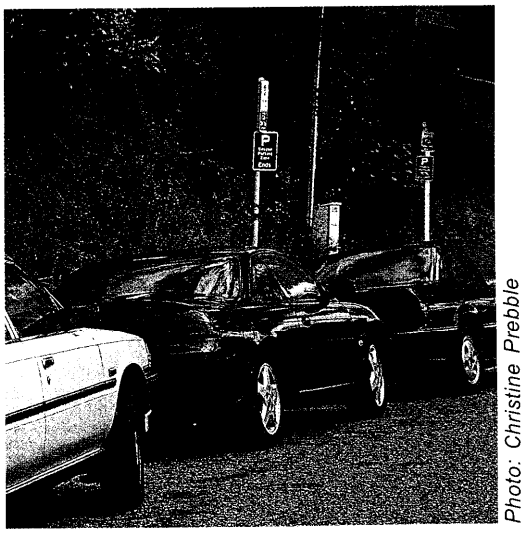
Emulsion Modification of Unsealed Road Pavements

Transfund New Zealand Research Report No 195

Montgomery Watson (NZ) Ltd

cost: $20.00

This report reviews recent South African experience of modifying unsealed pavements with bitumen, and provides information on trials using bitumen modified pavement in Central Otago.



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Deadline for next issue

Copy for the next issue of TRANSEARCH must be in the Editor's hands by 30 June 2001.

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Transfund New Zealand
PO Box 2331
Wellington
www.transfund.govt.nz
ISSN1170-7321

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