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The LINZ Statement of Intent (SOI) for 2006/07 focuses on achieving the agency's vision to be "valued as Government's centre of electronic land information and expertise".

NEW AGREEMENT BRINGS SURVEY EFFICIENCIES

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An earlier MOU, dating back to the formation of LINZ in 1996, expired last year.

At the centre of the agreement is HMNZS *Resolution*, the Navy's primary hydrographic survey vessel. The *Resolution's* Commander, Dave Mundy, says the new agreement covers the seven years to 2012.

"With the use of newer hydrographic survey technology we can cover the same ground more efficiently than before," Dave explains.

"Under the previous agreement, LINZ effectively 'hired' the vessel for a set number of days per year. With the new MOU, the agreement is initially for a mix involving number of days hired and line miles covered. After three years, we expect to complete the transition to an entirely output-based agreement, where the only measure will be the line miles required."

Dave says the new agreement gives the Navy far greater flexibility in the way it delivers services, while the two parties will share the risks and benefits.

"If the weather in one survey area is unsuitable, we will steam to another area where the conditions are better, and thus make better use of the available time. Carrying out a rolling programme like this is vastly preferable to struggling to make progress in one spot for weeks, waiting for the conditions to clear."



Rear Admiral David Ledson (left) signs the Memorandum of Understanding with LINZ Chief Executive Brendan Boyle.

Improved survey technology will also mean more efficient use of resources and time, Dave adds.

"The new-generation multi-beam echo sounders we plan to install at the end of this year can be used in slightly rougher conditions, and improved reliability is expected to reduce down time. It is also planned to install a new moving vessel profiler (MVP) that cuts down the time it takes to do sound velocity probes."

The re-usable probe, which hangs off the back of the vessel, is an essential calibrating tool, Dave explains. It measures water conditions such as salinity and temperature, which affect sound velocity through water and thus the accuracy of the readings from the echo sounders.

Dave says that under the earlier agreement, the *Resolution* would complete about 110 days surveying a year to cover around 4,000-5,000 line miles. "The output will remain the same, but the days at sea required will definitely fall. It's a smarter way of working."

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HMNZS RESOLUTION: FACT FILE

The 68-metre, 2262-tonne *Resolution* is named after the vessel used by Captain James Cook on his second and third voyages to New Zealand in 1772 and 1779 – a link with the hydrographic work carried out by Cook and his team.

Formerly the US Navy ship, *Tenacious*, where her duties included towing underwater listening equipment, the *Resolution* was commissioned into the Royal New Zealand Navy in 1997.

She has a speed of 11 knots, a range of 21,500 nautical miles and carries a core complement of 41 officers and ratings. The diesel-electric propulsion is provided by four Caterpillar D398B generators (3200 hp).

The exact height of features like Mount Taranaki will be able to be calculated within centimetres rather than metres using GPS, thanks to work being done by LINZ on conversions between our heighting systems.

A QUESTION OF HEIGHT

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This is especially true with height information. For a start, there is not one main system for defining height positions above the Earth's surface, but two. The more familiar of these is height above mean sea level. For New Zealand, sea level is determined by readings taken at 13 separate tide gauges at ports around the country, but even these are not totally in sync – there is a variation of up to 30 centimetres among them.

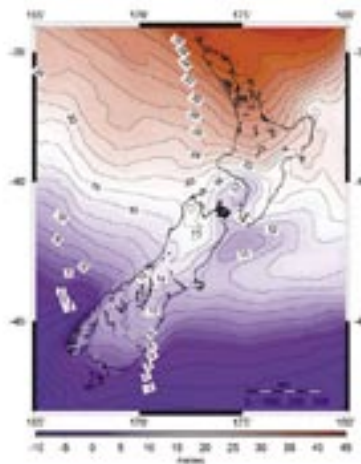
The other reference system used for height data is a mathematical surface that defines the Earth's shape (i.e. that of a slightly squashed sphere or ellipsoid). GPS uses this system. Until now, we have used a global model to convert between these height systems, but this only gives us accuracy to within 1–2 vertical metres. According to Nic Donnelly of LINZ's Customer Services Group, that level of accuracy isn't good enough for some 'high-end' applications, such as large scale topographic mapping or managing water flow.

He says LINZ has developed a geoid model (the true shape of the earth is called a 'geoid') of our part of the globe that will provide a reliable and accurate link between the positioning available through GPS and actual height above mean sea level.

Interestingly, Nic explains, if you are in Southland there is little difference between the two height systems. "In Invercargill, the squashed sphere model of the Earth's surface puts you pretty much at mean sea level. But as you go north, a discrepancy starts to appear, until you reach Northland, where the model puts you about 40 metres above sea level, even though you're standing on the beach!"

Understandably, this can be a little inconvenient for those requiring precise height information. The New Zealand-specific geoid model LINZ has developed will provide the necessary conversion – accurate to within just 10 centimetres.

The work for this has been carried out by Matt Amos of the LINZ Surveyor-General's group. Matt has developed the model as part of a PhD project.



The south-to-north discrepancy between the two main systems for height data is anything but uniform, as this map shows. The distortions are caused by minor variations in gravitational force.

Nic explains that the south-to-north discrepancy between the two main systems for height data doesn't run as a smooth continuum. Thanks to minor variations in gravity caused by the shape of our land mass, there are distortions which must be factored into the model (see map).

He says the preliminary model for converting GPS readings into accurate height data is now available on the LINZ website.

"It's a fairly simple matter to input your data and receive the converted heights. The model can accept free text files, and can convert data from multiple points."

He says Geographic Information System (GIS) managers, who have literally thousands of pieces of height data, and surveyors will be major beneficiaries of the more accurate height conversion model.

The current web-based service can be updated easily as the model developed by Matt Amos is further fine-tuned. Nic says that ultimately the model will be made available to third party suppliers who may incorporate it directly into their own software.

"Ultimately, the conversion calculations could be available within your own GPS receiver.

"Heights can be converted between any of the major height systems used in New Zealand. As long as the height converter knows where you are and what system you used to get your height reading, you'll get accurate and reliable height data."

For more on the New Zealand Vertical Datum:
www.linz.govt.nz/projectionsanddatums

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TEN YEARS OF “DEFINING MOMENTS”

Ten years might seem like a small blip on the timeline of a department whose origins go back to the 1870s, but the past decade has been marked by a series of key “defining moments” marking a fundamental change in the way LINZ does business.

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Reflecting on LINZ’s first ten years, Chief Executive Brendan Boyle says the LINZ of 2006 is built on a proud tradition of quality and excellence. “We certainly respect our past, and our core values are built on that. But we also must acknowledge there has been a big change in the way we define and protect New Zealand’s information infrastructure. This requires new approaches to risk and new mixes of skills.”

Brendan says the \$140 million investment in Landonline has been one of the highest profile developments during LINZ’s first 10 years, but just as important has been the investment in management and leadership.

“Historically, people have come to leadership roles through a technical career pathway. That continues, but we now draw on a much wider range of expertise. This has given us a healthy diversity of thinking, based on different backgrounds and life experience.

“We’ve worked hard to ensure our people stay well connected with our operating environment, and understand the various external forces that affect our business.”

The way LINZ relates to customers has changed fundamentally, with ‘over-the-counter’ interactions being replaced by online transactions, Brendan says. “That kind of personal link has gone, but we’re conscious we must re-establish personal contacts in different ways, and maintain good channels for customer feedback. We’re working closely with our both our client groups and our suppliers. We also need them to understand how we operate and how they can help us offer a better service.”

He says that historically, LINZ regional offices were given autonomy in the way they interpreted rules and regulations because it took too long to constantly refer decisions to a central authority. “That led to regional variations. Since 1996 we’ve been able to standardise the way we interpret the rules and that’s been welcomed by our clients who want consistency.”

And what have been some of LINZ’s key defining moments during its first 10 years?

The Internet: The launch of LINZ coincided with the rapid spread of Internet access. Brendan says LINZ was the first



STRATEGISING 2025

What challenges might LINZ face 20 years from now? There are a vast array of possibilities, but the world is likely to be a very different place.

That’s prompted LINZ to begin a project aimed at developing a long-term strategy and vision that looks well beyond the usual 1–3 year strategic planning cycles – ahead to 2025.

Looking at the big picture and developing a long-range vision is, according to Kevin Kelly, LINZ’s General Manager Policy, essential for an organisation that’s been perched on the leading edge of change since it was established 10 years ago.

Led by LINZ’s Policy Group, a large cross-section of LINZ staff and leading thinkers from other key organisations have been involved in the exercise, which is based on ‘scenario planning’.

Information has been gathered about domestic and global trends – like what is known about the world’s freshwater resources, demographic trends and regional politics – and drawn together into a series of plausible future scenarios for the shape of LINZ and its working environment in 2025.

The scenarios touch on some major domestic and global trends, though Kevin says the actual future may include elements from several scenarios.

Three scenarios are based around a “business as usual” model for the “familiar future”. In one, there is closer integration with Australia, coupled with a greater role for local government

government department to seize on the potential it offered – a process that will culminate in July 2008, when all land title and survey transactions will be done exclusively online.

Managing risk: Although not a ‘big bang’ change, it has still been a fundamental one. In past years, the biggest threat to our land information system was fire or natural disaster (the effects of land records lost during the 1931 Napier earthquake are still felt today). Today, the risk management focus is on maintaining online access to records.

The Crown Pastoral Land Act 1998: This was the catalyst for tenure review, a huge undertaking for LINZ, working with DOC, lessees and other groups to ensure the Government’s high country objectives are being achieved.

Welcoming new functions to LINZ: In 1998 the Office of the Valuer-General was established within LINZ after the former Valuation Department was dis-established. And just last year, the Overseas Investment Office – formerly attached to the Reserve Bank – became part of LINZ.

Brendan says the list is far from comprehensive, but it does highlight some of the major forces that will continue to shape LINZ over the next decade.

“If there is a common theme looking ahead, it is the way government departments are now beginning to collaborate far more closely. Our leadership of Ocean Survey 20/20 and the geospatial strategy are examples of how we can ensure that land information resources aren’t duplicated but are accessible.

“Land information is absolutely crucial for a whole range of decisionmaking right across government – health planning, land access, conservation, biosecurity, infrastructure planning and much more. We’ll be helping make sure those decisions are well informed.”

in delivering services. A second scenario focuses on greater collaboration between government and private sectors, and iwi. The third in this set envisages New Zealand taking greater international leadership in protocols for data management.

An “Associated Land Information (NZ)” scenario puts New Zealand in 2025 within an international Asian alliance, based on increasing trade within the region. “Urban Gloom” is a scenario which sees an increasing focus on the infrastructure and urban environment of our major cities. “Farm Pacifica” sees New Zealand’s future swinging more towards its marine resources.

A final “Alpine Fault” scenario adds some spice to the mix introducing the possibility of a disastrous earthquake within the next 20 years.

LINZ’s senior managers will be considering these scenarios at a workshop this month, and taking a hard look at the strategic questions they raise.

This will create a ‘scenario space’. “We’ll be identifying indicators that we can monitor to show us in years ahead if we are moving forward within that total space,” Kevin says. “The trajectory we’ll be plotting is not a straight linear process.”

LINZ – THE PAST 10 YEARS

1 July 1996	DOSLI split into Land Information New Zealand and Terralink
1996	Land Title Link became available The Automation Strategy, later rebranded Landonline, approved
1997	Responsibility for Continental Shelf transferred to LINZ
1998	Office of Valuer-General transferred to LINZ Automation Project introduced to Parliament Crown Pastoral Land Act 1998 enacted
2000	Landonline launched in Dunedin office
2002	Last branch office closed in New Plymouth NZ TopoOnline launched
2004	LINZ begins All of Government Geospatial Strategy
2005	LINZ launches Ocean Survey 20/20 programme Overseas Investment Office transferred to LINZ Topographic Information Strategy published
2006	100% e-lodgement announced Continental Shelf boundaries lodged with United Nations

An environmental scanning system has been designed to help manage this monitoring in a structured way. Regular scans will be keeping tabs on global trends through channels as diverse as the Internet, key media outlets and various think tanks. While LINZ’s Policy Group will be trialling the scanning process, a much wider group within LINZ will be eventually involved.

Quarterly and annual summaries will be used to inform the long-term vision for LINZ on a rolling basis, while also feeding in to the department’s three-year strategic planning cycle.

The scenario learning and environmental scanning project is both challenging and exciting for LINZ, Kevin says. “It’s providing an excellent platform for our long-term vision, and the experience we’re gaining we’ll readily share with other organisations going through the same process.”

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100% E-LODGE MENT UPDATE

The first compulsory deadlines for electronic lodgement of survey and title transactions are in May and September next year. LINZ is preparing to engage closely with law and survey firms in the lead-up to this, to ensure firms are prepared.

The Government announced in February 2006 that all survey and land title transactions in New Zealand will be processed electronically by July 2008. The first compulsory dates are as early as May and September next year:

- discharges – 1 May 2007
- routine transfers and mortgages – 1 August 2007

- survey transactions – 1 September 2007
- all remaining title transactions – 1 July 2008.

Sharon Cottrell, LINZ General Manager Customer Services, said that LINZ recognises that electronic lodgement of survey and title transactions presents a significant challenge to many law and survey firms.

“We are gearing up to provide as much support as possible, as firms make the transition.”

TRAINING OFFERED

LINZ will ensure that all law and survey firms who want formal training in the electronic products e-dealing and e-survey will receive this. Training for law firms ends in November. Seventy one percent of all survey firms are already trained. A range of

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TENURE REVIEW AND MARGINAL STRIPS DISCUSSED WITH HIGH COUNTRY FARMERS

In his first public appearance as Minister for Land Information, David Parker delivered a speech to the conference of the South Island High Country branch of Federated Farmers in Dunedin last month. His address covered progress with tenure review and proposals for marking marginal strips on topographic maps – two topics of strong interest to the rural sector.

Mr Parker said most of the 304 leases eligible to enter the Crown Pastoral Land Act tenure review programme had now done so. To date, 53 of the reviews, involving more than 300,000 hectares, are at or near completion.

The Minister acknowledged that inevitably not everyone would get everything they wanted from the review; the Crown would not get to protect all areas it wanted to, and some lessees may not be able to freehold as much land as they would like. LINZ’s role in the review was to consult with all parties to find acceptable results.

Changes to the process now mean lessees can be involved in discussions before formal preliminary proposals commence. Mr Parker thanked the South Island High Country Committee for their suggestions to improve the process.

“The preliminary proposal will now be a much more robust document to consult on, and it should lead to outcomes that lessees and the Crown can agree upon,” he said.

The Minister also talked about the consultation process regarding access for walkers and reminded the audience that the process was about access to water, not access to land. He acknowledged it was sometimes an emotive process.

“New Zealanders have a real affinity with the great outdoors, but there is sometimes disagreement between landholders and outdoor enthusiasts about how and where access should be allowed,” he said. “A crucial part of our national identity is our traditional relationship with, and attachment to, our public lands and waters.”

As legal custodian of a lot of land and water, LINZ is responsible for identifying legal rights of public access. One of the areas LINZ is working on is the identification and recording of marginal strips – strips of land generally 20 metres wide adjoining waterways – on topographic maps.

Marginal strips are created whenever the Crown disposes of land or when pastoral leases are renewed. Mr Parker said they are public, not private property, and he expects people to respect the right of the public to use them.

Because not all marginal strips were identified in the past, LINZ and the Department of Conservation are now looking at ways of identifying them. This will most likely be achieved by depicting the strips on topographical maps – no small task. Over 130,000 parcels of land have a marginal strip notation on the title, and an estimated 16,000 of these contain or adjoin qualifying waterways.

Minister for Land Information David Parker addresses the high country conference (Otago Daily Times).



self-help tools are also available now and in the future for any firms who don't want formal training.

LINZ will also provide as much support as possible to firms who need to address business process issues when implementing electronic lodgement. LINZ will provide more details of this in the near future.

PROGRAMME OFFICE

LINZ has established the 100% e-lodgement programme office. Its role is to plan, manage, integrate and deliver all the work necessary to achieve 100% electronic lodgement on time.

The law and survey sectors will continue to be represented on LINZ's Survey and Titles Advisory Committee, which carries out a monitoring role on the 100% e-lodgement programme.

"We welcome the opportunity to work closely with law and survey firms, as well as professional representative groups such as the New Zealand Law Society, the New Zealand Institute of Surveyors and the Institute of Cadastral Surveyors," Sharon said.

"We value their input and feedback, and we will continue to use it to inform our work programme and support the law and survey sectors to achieve 100% e-lodgement."

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The Minister said LINZ and DOC are looking at ways to inform landowners and members of the public where the marginal strips are and what their rights and responsibilities are, in a way that "doesn't cost an arm and a leg".

As a lawyer, Mr Parker said he recognised pastoral leases as legal contracts, which set out the rights and responsibilities of each party.

"It is important that both parties respect the contractual rights of the other party as well as complying with their own contractual responsibilities," he said. "I will be ensuring that the Crown conforms with the law and its legal obligations. It is my duty to require the same from the lessees."

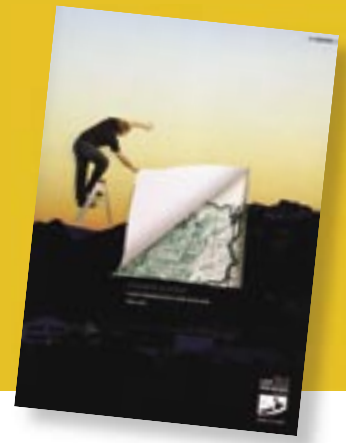
TENURE REVIEW UPDATE

A total of 53 pastoral leases have now passed through tenure review, and 31 of these have so far been fully implemented. This represents around 13.9 percent of the total area of the South Island originally in Crown pastoral leases. A further 162 pastoral leases are engaged in earlier stages of tenure review.

TENURE REVIEW PROGRESS AS AT 30 JUNE 2006	NUMBER OF LEASES	LAND TO CROWN (HA)	LAND TO FREEHOLD (HA)	TOTAL (HA)
Tenure review complete; freehold title issued and transfer to DOC effected	31	80,683	87,487	168,170
Final Proposal (substantive proposal) accepted by lessee; implementation under way	23	60,650	74,296	134,945
Final Proposal (substantive proposal) put to leaseholder for consideration	5	11,044	12,637	23,681
First cut of proposal (preliminary proposal completed and advertised for public and iwi submissions)	21	79,051	61,544	140,595
Consultation with leaseholder under way prior to formulation of first cut of proposal	71	–	–	470,975
Invitation to carry out review received and lease accepted into programme; initial research under way	42	–	–	299,551

STATEMENT OF INTENT EMPHASISES ROLE IN ECONOMY

The LINZ Statement of Intent (SOI) for 2006/07 focuses on achieving the agency's vision to be "valued as Government's centre of electronic land information and expertise".



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The Government announced earlier this year that its priorities for the next decade will include an emphasis on economic transformation. By providing certainty and confidence in land rights, LINZ contributes greatly to confidence in New Zealand's economy.

In 2006/07, LINZ will enhance Landonline to support the transition to 100% electronic lodgement of all titles and survey plans by 2008.

LINZ will also continue identifying and developing e-channels for other core services. Over the last year the department has researched customer needs for topographic and hydrographic products and services and this knowledge will be applied over the coming year.

Other key LINZ initiatives detailed in the SOI include:

- supporting the Government's objectives for the South Island high country through the tenure review programme.
- development of a Geospatial Information Strategy
- LINZ's coordinating role in the Government's Ocean Survey 20/20 programme

- the installation of new sea level gauges and the upgrade of existing gauges for detecting tsunamis
- development of a biosecurity strategy for LINZ-administered Crown land
- the Maori Land Title Registration Project
- developing LINZ's customer relationship management capability
- implementing a regulatory framework ensuring consistent practices across regulatory regimes.

The SOI can be viewed online at www.linz.govt.nz/publications/index.html

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