



Delivering the New Zealand Geospatial Strategy - Issues and Opportunities in Support of Lifeline Utilities

2008 National Lifelines Forum : 7-8 October, Wellington

Geoff O'Malley, Senior Analyst, New Zealand Geospatial Office



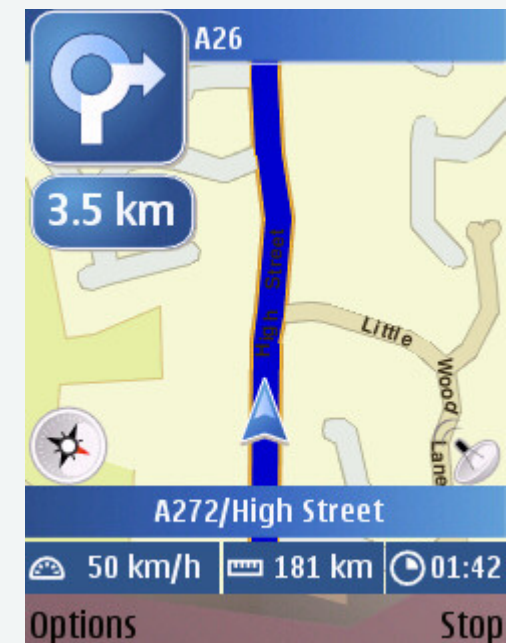
- Trends in geospatial information
- What is the NZ Geospatial Strategy?
- Geospatial issues and opportunities for lifeline networks



Nokia and the N95

“Your device, the internet and the world become one with the Nokia N95's integrated GPS and maps”

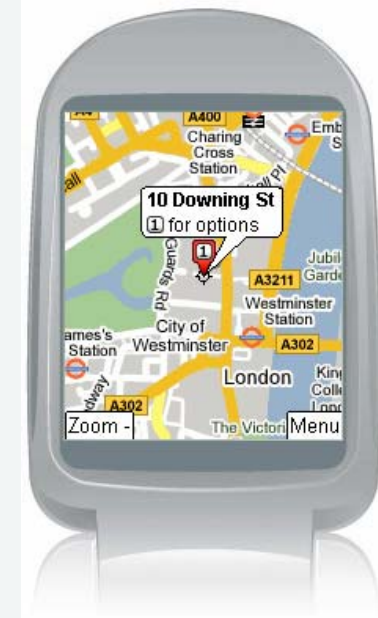
See: www.nokia.co.uk/A4275003





Maps you on your mobile phone.

- **Interactive maps & search** - orient yourself visually.
- **Satellite imagery** — get a bird's eye view of your desired location.





Utilize a 3D GPS System Through Toshiba's New Phone

<http://www.dlimg.com/1074/utulize-a-3d-gps-system-through.html>

Commercial Investment

New Zealand
Geospatial Office



Google: Where2, Keyhole 2004

Microsoft: Geotango 2005; Vexcel 2006

Leica Geosystems: ER Mapper, Ionic, Navtel 2006/7

Pitney Bowes: MapInfo {GDC} 2007

TomTom: TeleAtlas 2007

Nokia: Navteq <\$8.3b> 2007

Demand & visibility



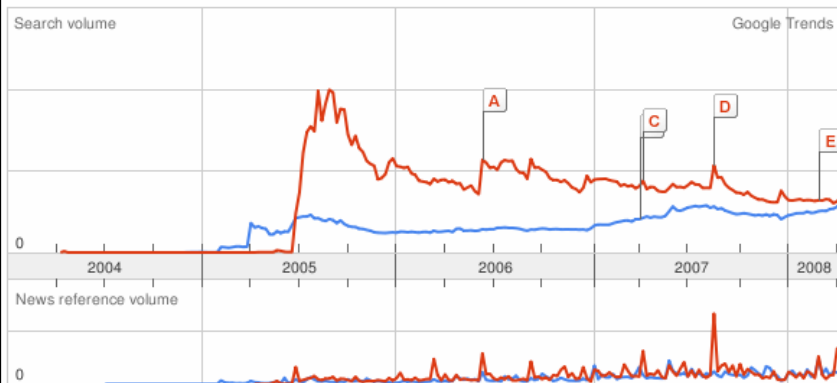
google maps,google earth

Search Trends

Tip: You can compare searches by separating with commas.

Trend history

● google maps ● google earth



- A** [Google Updates Google Earth, Google Maps, Google Maps API](#)
IT News Online - Jun 13 2006
 - B** [Your Maps are My Maps says Google Maps](#)
Inquirer - Apr 5 2007
 - C** [Google Earth focuses on Darfur atrocities](#)
Aftenposten - Apr 11 2007
 - D** [Google adds Google Sky feature to Google Earth](#)
TechWhack - Aug 22 2007
 - E** [Pentagon bans Google Earth teams from military bases](#)
ABC12.com - Mar 7 2008
 - F** [UN links up with Google Earth to help refugees](#)
New Straits Times - Apr 8 2008
- [More news results »](#)

All regions All years

Regions

1. Canada	
2. Spain	
3. United Kingdom	
4. Portugal	
5. Australia	
6. United States	
7. Italy	
8. Netherlands	
9. Germany	

Cities

1. Toronto , Canada	
2. Montreal , Canada	
3. London , United Kingdom	
4. Madrid , Spain	
5. Manchester , United Kingdom	
6. Brentford , United Kingdom	
7. San Francisco , CA, USA	
8. Sydney , Australia	
9. Los Angeles , CA, USA	

Languages

1. English	
2. Italian	
3. Dutch	
4. German	
5. Portuguese	
6. Spanish	
7. Polish	
8. French	

Supply – new sources

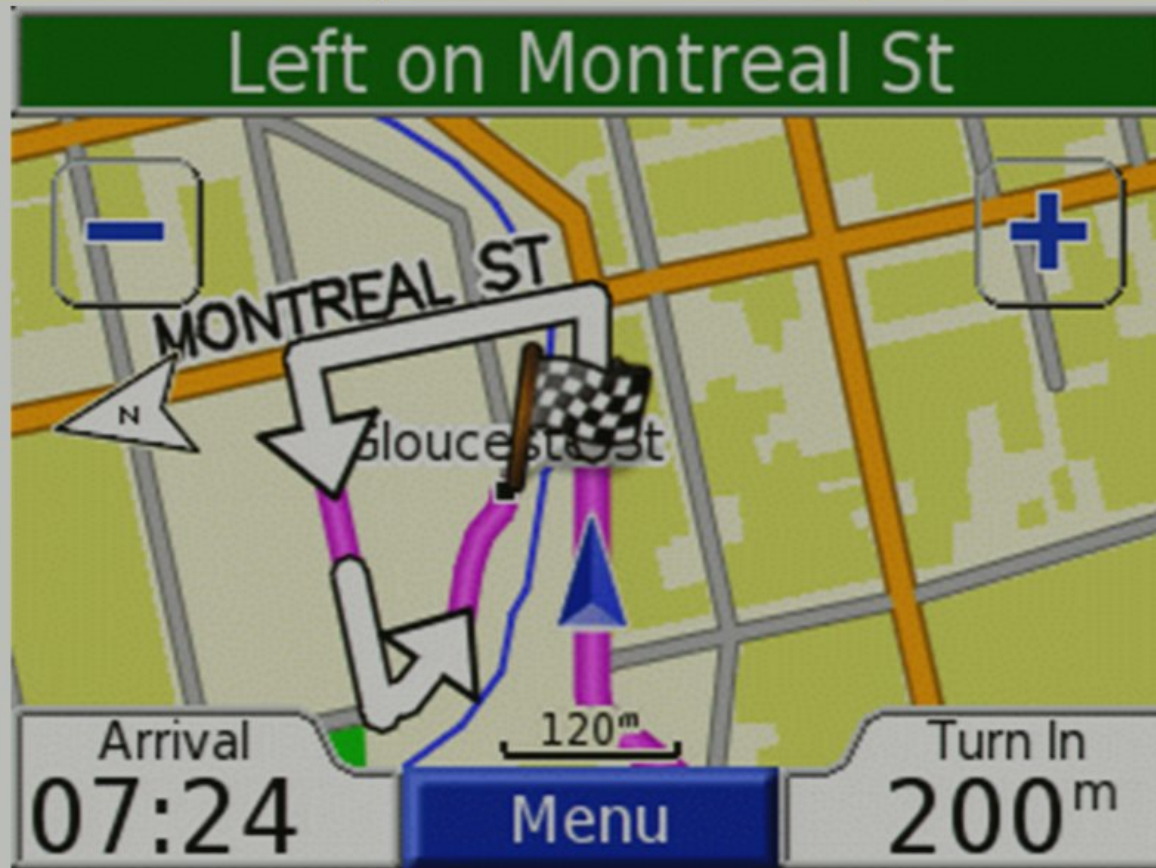
New Zealand
Geospatial Office





NZ Open GPS Project

Left on Montreal St



Wide usage

New Zealand
Geospatial Office



Department of Conservation
Te Papa Atawhai

DOCgis
Internet

Go To Tools Help

1: 50000 GO

Refresh The Map

Active Layer: Conservation Units

NZ Geodetic Datum 1949
NZ Map Grid Projection

Map Layers

- DOC Biodiversity
- DOC Terrestrial
- DOC Freshwater
- DOC Marine
- DOC Ecology
- DOC Administration
- NZ Terrestrial
- NZ Topography
- NZ Aerial Photography
- NZ Administration

Icon Reference Guide:

- A closed group, click to open.
- An open group, click to close.
- A map layer.
- Item turned off, click to view.
- Visible, click to turn off.
- Visible, but not at this scale.
- Partially visible, click to view.
- An inactive layer, click to activate.
- Active layer, text also highlighted.
This Layer Frame can be Expanded,
drag scrollbar right edge on to map.



NABIS
Interactive web mapping of New Zealand's marine environment and biodiversity.

Home | [Layer Index](#) | [Customise](#) | [Login](#) | [Contact Us](#) | [About NABIS](#)

Map Tools: Simple All

Move Map | **Zoom In** | Zoom Out | Undo | What's Here? | Reset Map | Print Map | Help

Zoom and Centre on | Zoom to | Draw Polygon | Draw Rectangle | Measure Distance | Erase | Search An Area

NABIS - Crown Copyright Reserved
Projection : Longitude / Latitude (WGS 84)
Window Width: 2,937.19km

500 km

34° S
38° S
42° S
46° S

172° E
180° E

North

Click to re-centre

Update Map

Search for a **map layer** or **place**

- SELECT LAYERS
- MAP LEGEND
- LAYER GENERATION TOOLS
 - Commercial Catch
 - Commercial Fishing Effort
 - Analyse Layers
 - Import my Points
 - Trawl Survey
- SEARCH RESULTS (0)
- CURRENT LAYERS (2)
- ENVIRONMENT (4)
- MANAGEMENT (7)
- SPECIES INFORMATION (5)

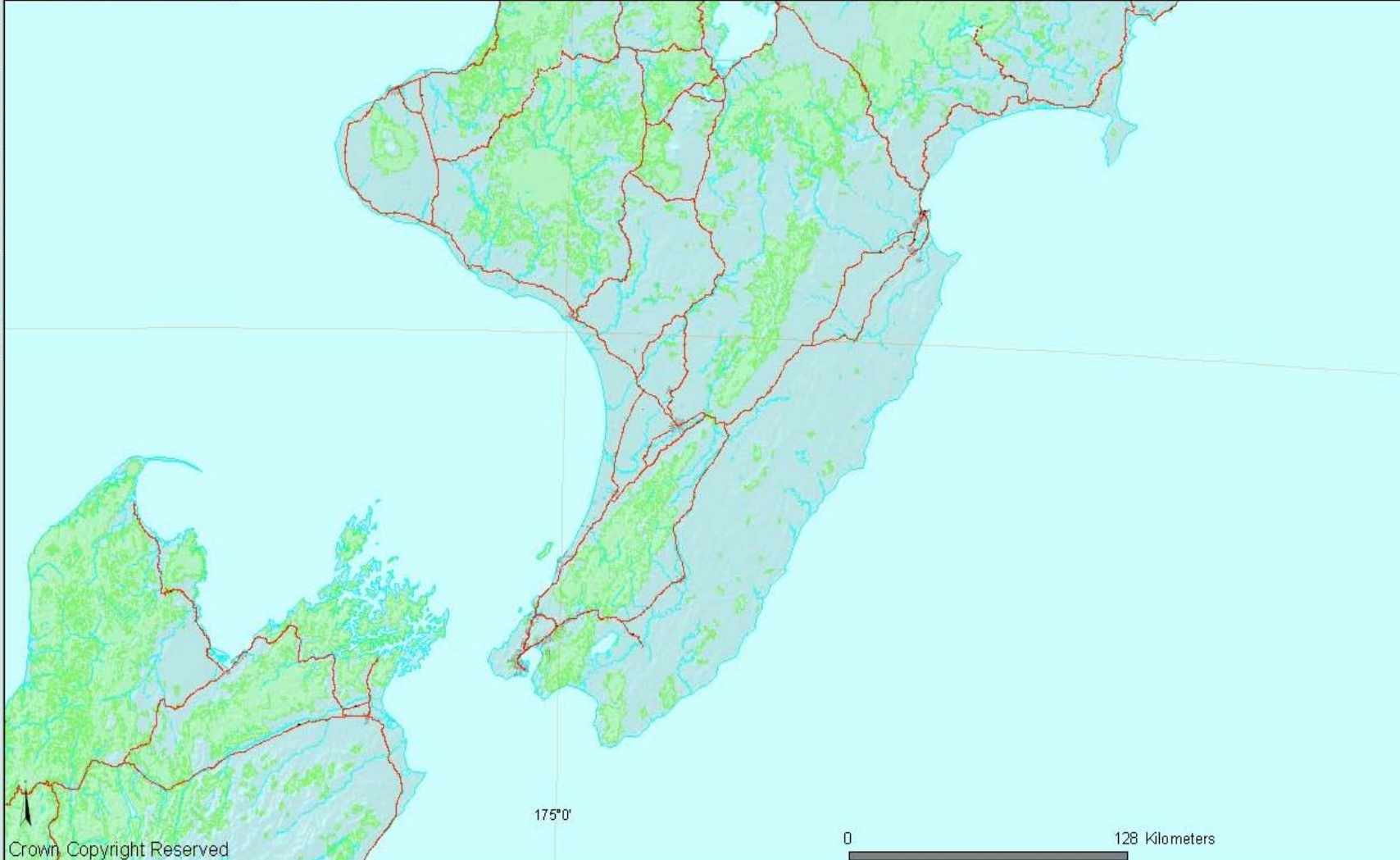


Land Information New Zealand
Toitu te whenua 

NZTopoOnline

[Select another
map view](#)

Grid coordinates are in terms of
New Zealand Transverse Mercator Projection



Crown Copyright Reserved



LINZ Geodetic database

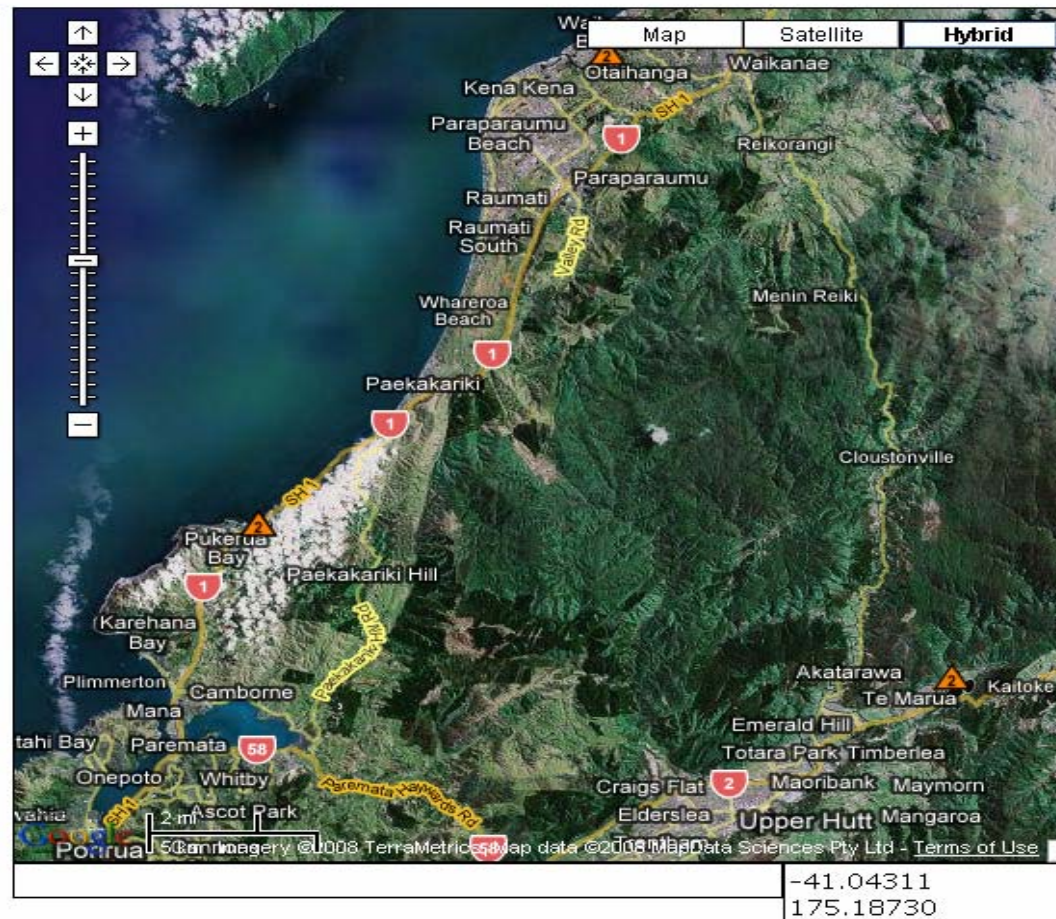
The Geodetic Database can be used to search for and download information about 105292 geodetic marks in New Zealand, the Chatham Islands

The database can be accessed by searching on a [map](#) or by using a [text only](#) version.

Search [Help](#)

code
 name
 address

[Advanced Search](#)
[Display previous search results](#)
[Display saved marks](#)



- Key**
- Order 0 stations
 - Order 1 stations
 - Order 2 stations
 - Order 3 stations
 - Order 4 stations
 - Order 5 (GPS) stations
 - Order 5 (traverse) stations
 - Order 6 stations
 - Order 7i stations
 - Order 7ii stations
 - Order 7iii stations
 - Order 8 stations
 - Order 9 stations
 - Order 10 stations

Not all marks are shown at this scale



Stormwater Consents - Auckland Regional Council - maps.arc.govt.nz - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Address http://maps.arc.govt.nz/website/maps/map_stormwater.htm

Google Go

Home | General | Education | Rates


Geographic Information & Mapping

Search Layers Legend

Stormwater Discharge

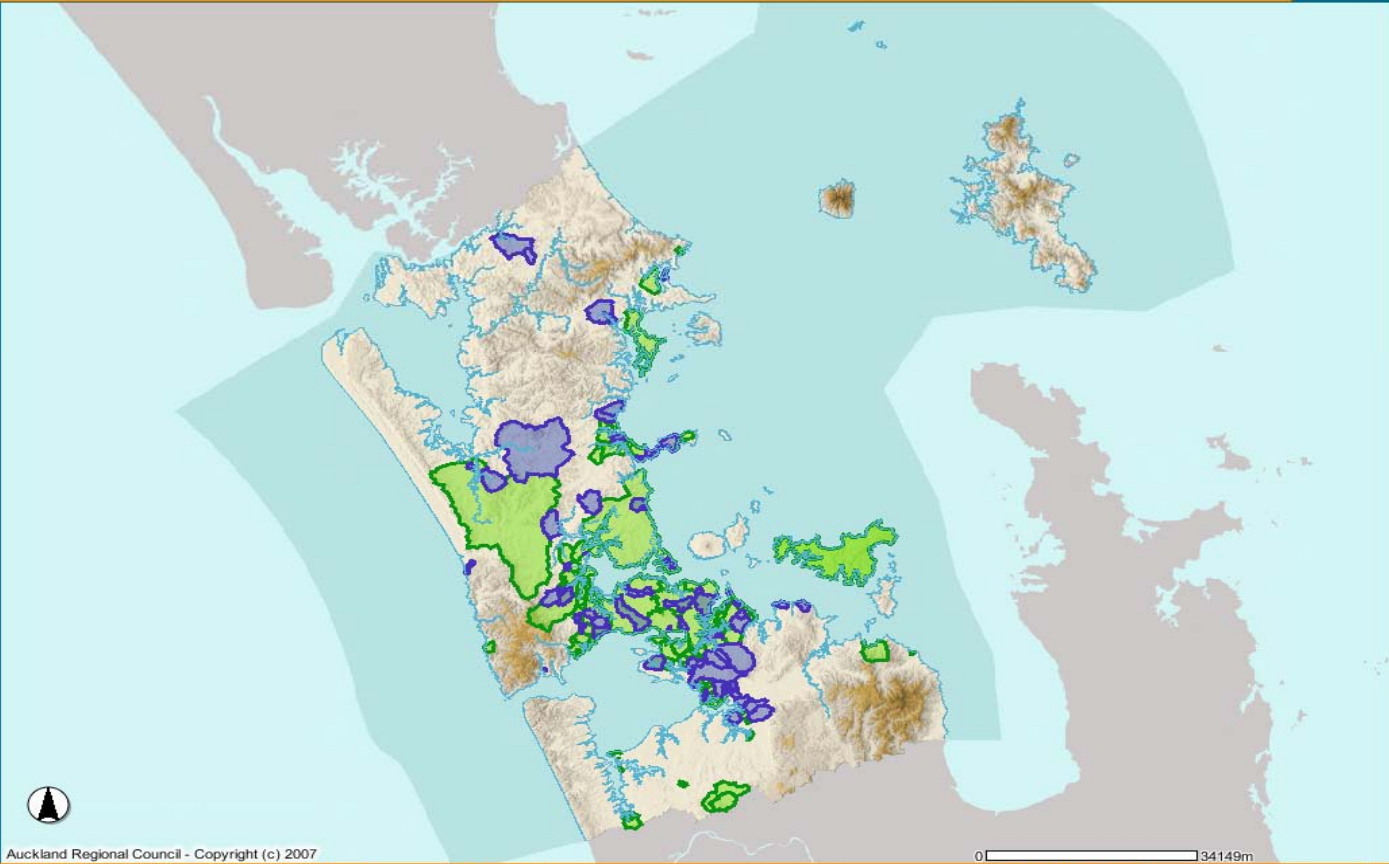
Welcome to the Auckland Regional Council Stormwater Discharge Consents Map Interface. To locate a site you are interested in, use either of the following...

- The spatial tools on the toolbar to navigate to the site you are interested in.
 -
 -
 -
 -
- The search functions on the search page (click the Search Tab above). Choose an address or consent number to search by.

Enabling the hotlink tool , and clicking on the circle by your consent type of interest will display consent information.

[Contact the Stormwater Team](#)

Warning: Consent points may not be correct, please consult the consent file or contact the stormwater consents team for clarification.



Auckland Regional Council - Copyright (c) 2007

NZTM 1740786.95 m E 5907339.56 m N Scale 1 : 786532 Map Service: Consents - Stormwater

Done 1:56 p.m.



The Open Geospatial Consortium (OGC)

- Voluntary consensus standards organization
- Formed in 1994
- Leading the development of standards for geospatial and location based services.
- Twenty three adopted standards
- Four are International Standards Organisation (ISO) standards



- Approximately 70 to 80 percent of the information managed by business is somehow connected to a specific location—an address, street, intersection, or "xy" coordinate
- geospatial technology is finding its way into every corner of the business world
- the technology's uses are so widespread and diverse, the geospatial market is growing at an annual rate of almost 35 percent

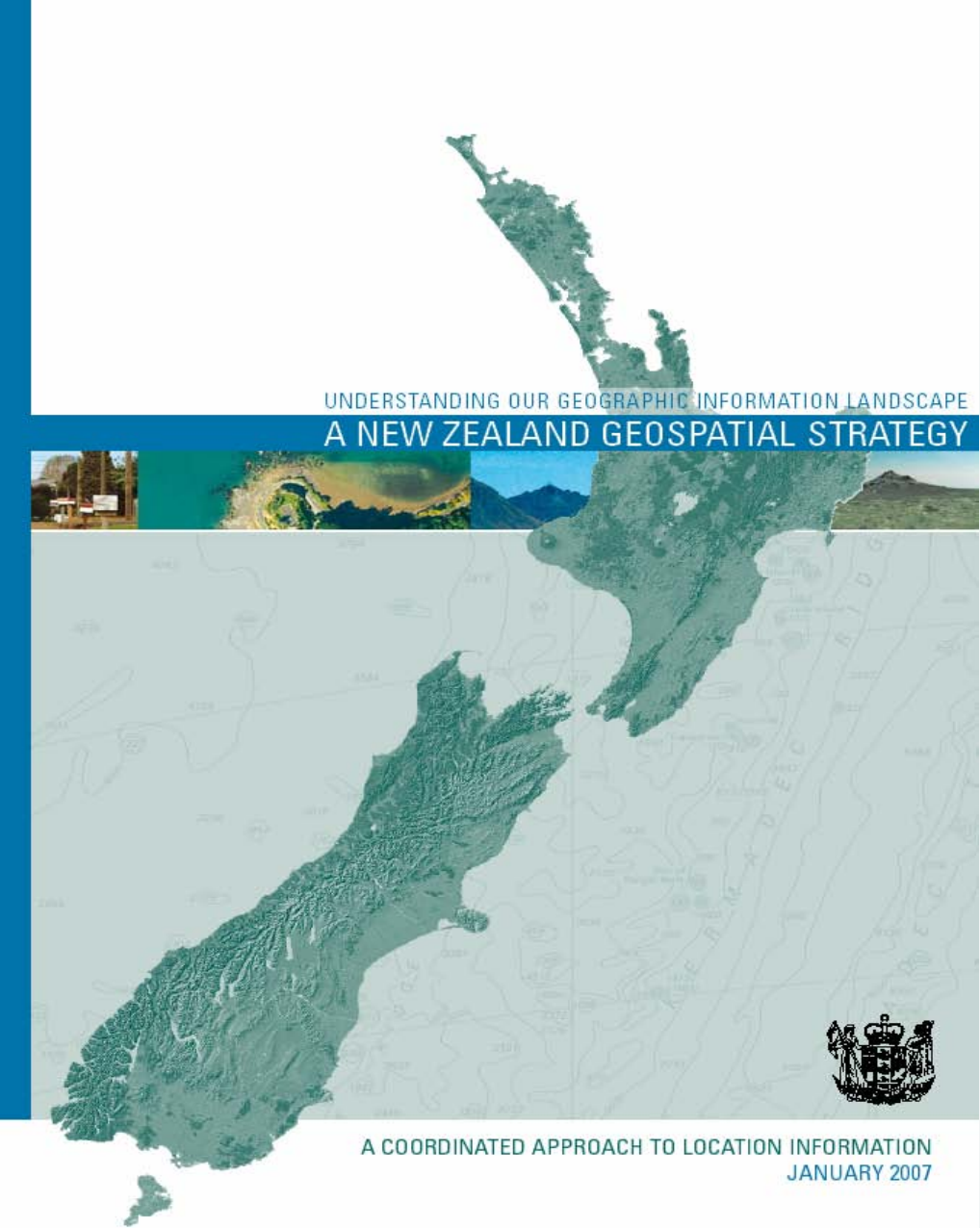
Source: Geospatial Information & Technology Association
– Australia and New Zealand



- Trends in geospatial information
- **What is the NZ Geospatial Strategy?**
- Geospatial issues and opportunities for lifeline networks

NZ Geospatial Strategy

New Zealand
Geospatial Office



UNDERSTANDING OUR GEOGRAPHIC INFORMATION LANDSCAPE
A NEW ZEALAND GEOSPATIAL STRATEGY



A COORDINATED APPROACH TO LOCATION INFORMATION
JANUARY 2007



Trusted geospatial information that is available, accessible, able to be shared and used to support the:

- safety and security of New Zealand
- growth of an inclusive, innovative economy
- preservation and enhancement of our society, culture and environment

Strategy goals

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Governance

Data

Access

Interoperability

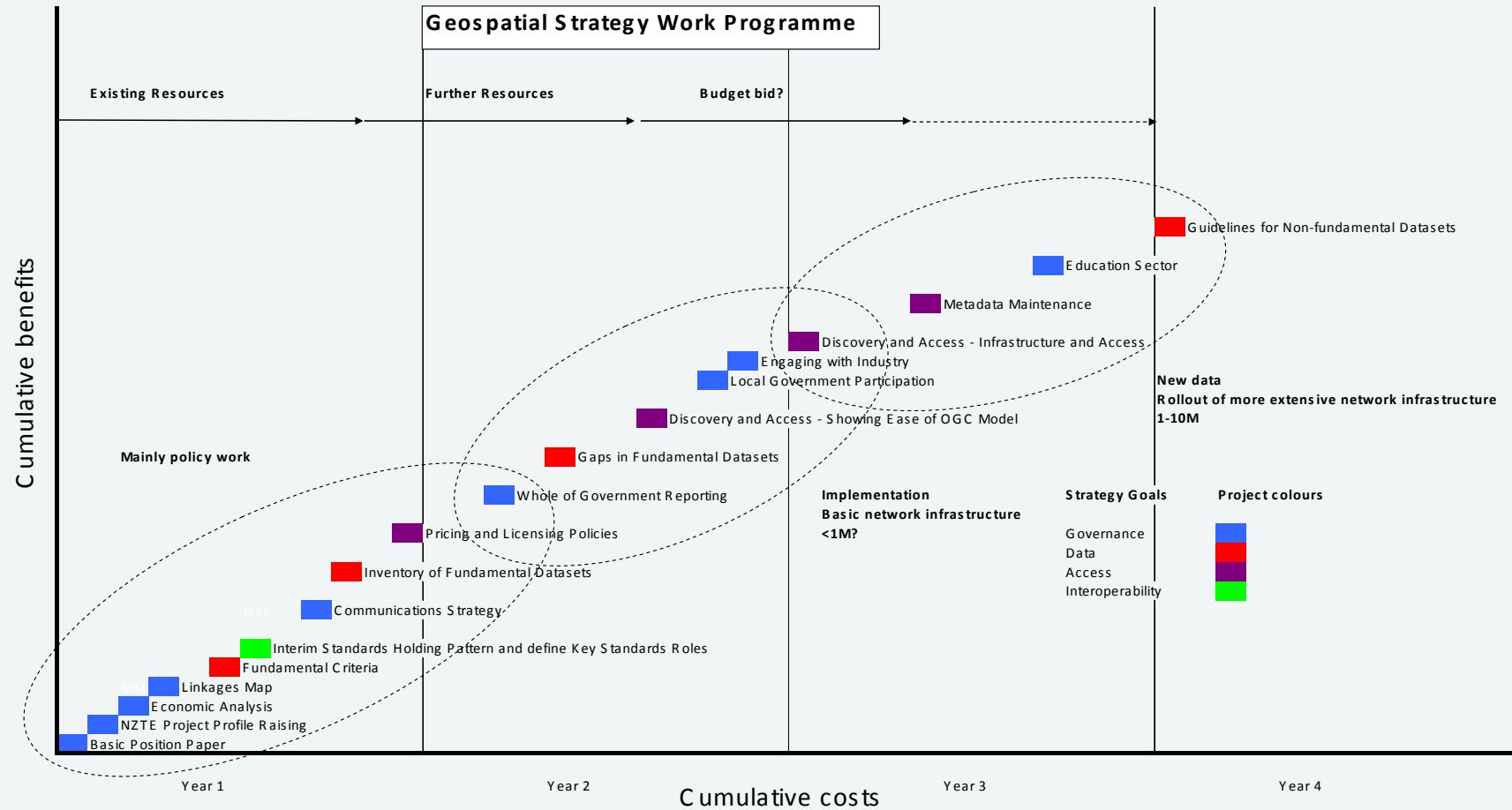
Strategy – governance structure



Geospatial Strategy Governance Structure



Strategy – work programme



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Geospatial Office



Spatial Data Infrastructure (SDI)

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Geospatial Office



the technology, policies, standards, human resources, and related activities necessary to acquire, process, distribute, use, maintain, and preserve spatial data.”

Global Spatial Data Infrastructure
Association

Approach to work, SDI for Access & Interoperability

New Zealand
Geospatial Office



Distributed spatial data infrastructure

Provide adequate metadata

Publicly funded data free to all ?

Open standards

Web services

Platform neutral (open source fine)

Maintain once, access at source, permissions set at source



Trends in geospatial information

What is the NZ Geospatial Strategy?

**Geospatial issues and opportunities for
lifeline networks**

Sharing information

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Sharing information – heading of Ch 4

Working in Transport Corridors draft code
of practice

NZ Utilities Advisory Group (NZUAG)

NZ Geospatial Office submission on draft
code – if wanting to share information, use
open geospatial standards (basis for
sharing of information)

NZUAG & utility infrastructure

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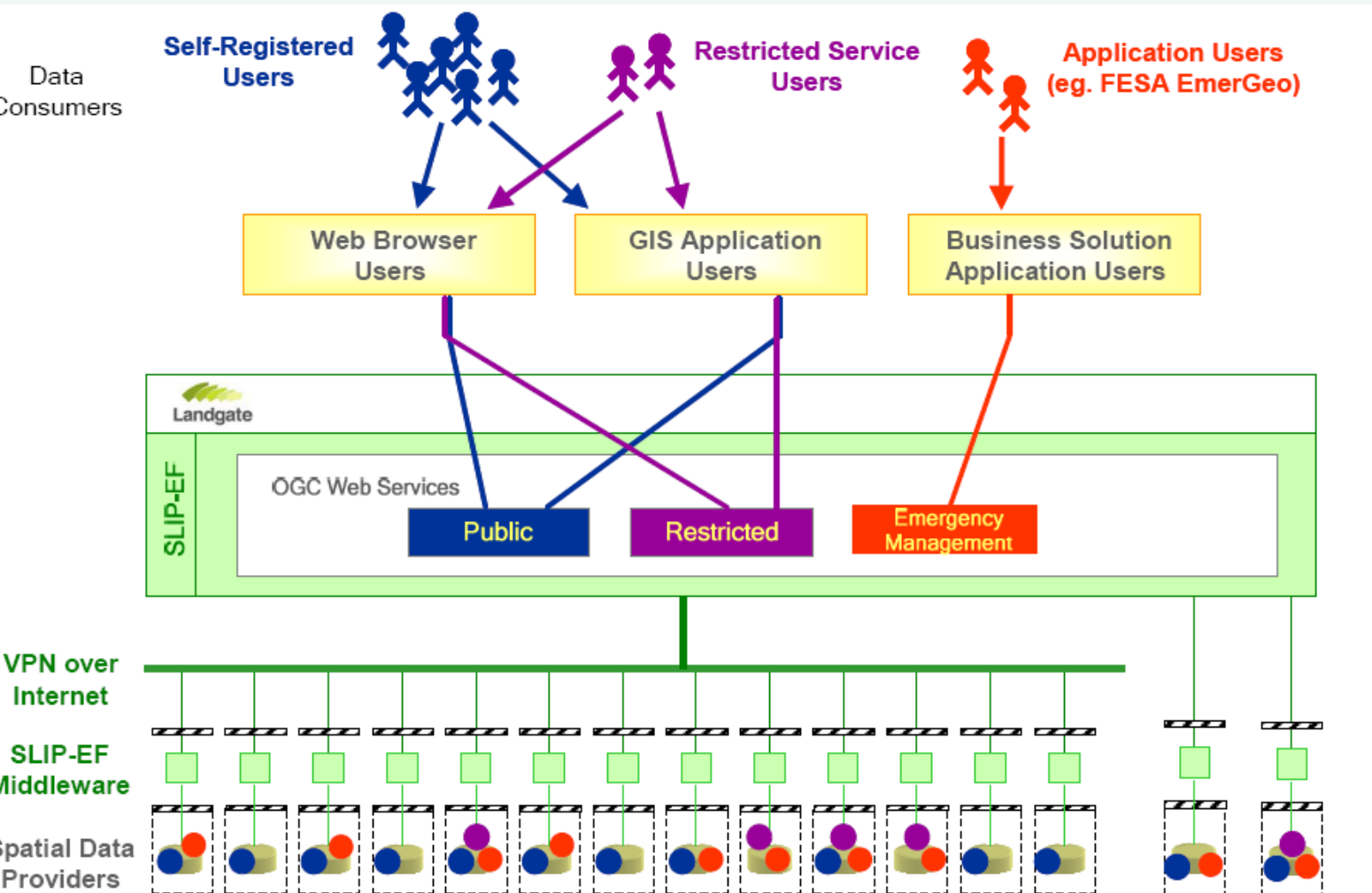
Third party damage to the utility infrastructure, due to lack of knowledge of the location of different utility companies cables and pipes, is widespread and very costly to the nation

Civil Defence also needs to know the location of infrastructure information so they can efficiently respond to natural disasters and other dangerous incidents

NZUAG supports the integration of local authority and utility asset information held within their respective Geospatial Information Systems

DI in practice

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Regional SDI concept

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Who?

Hawkes Bay Regional GIS Group



CITY OF
NAPIER



HASTINGS
DISTRICT
COUNCIL



CENTRAL HAWKE'S BAY
DISTRICT COUNCIL





Vision?

A Hawkes Bay Geospatial Portal



- Will Provide...
 - Geospatial Maps
 - Geospatial Data
- Vendor Independent
 - 3x MapInfo (Napier, Wairoa and Central HB)
 - 1x ESRI (HBRC)
 - 1x Genamap (Hastings)
- Maps using MapServer + WMS Feeds ?
- Searchable
- Distributed





Metadata Solution? GeoNetwork Open Source



- Searchable
- Distributed
- Standards Compliant
 - ISO 19139/19115
 - ANZLIC Profile via BlueNet Project
- Harvest Metadata from...
 - Other GeoNetwork Nodes
 - Z3950 Remote Search
 - Catalogue Services for the Web v2.0



Geospatial Metadata

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Geospatial Office



- metadata record is a file of information which captures the basic characteristics of a data or information resource (usually presented as an XML document)
- it represents the who, what, when, where, why and how of the resource
- contains information such as accuracy, lineage, quality information (capture standards), access constraints, currency, contact details
- critical for discovery & access of geospatial

e-Land Pilot

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Geospatial Office



led by Environment Waikato

pilot to demonstrate integration of land related data for
the benefit of Regional Councils and Territorial
Authorities

enable integrated planning and monitoring to improve
sustainable decision-making

save costs and reduce risks through sharing such data
and reducing replication of collection and storage

critical datasets: terrain model, cadastre, imagery (aerial,
satellite), fluvial network, physical road centreline

Other possible sources of geospatial data
for Lifeline Groups

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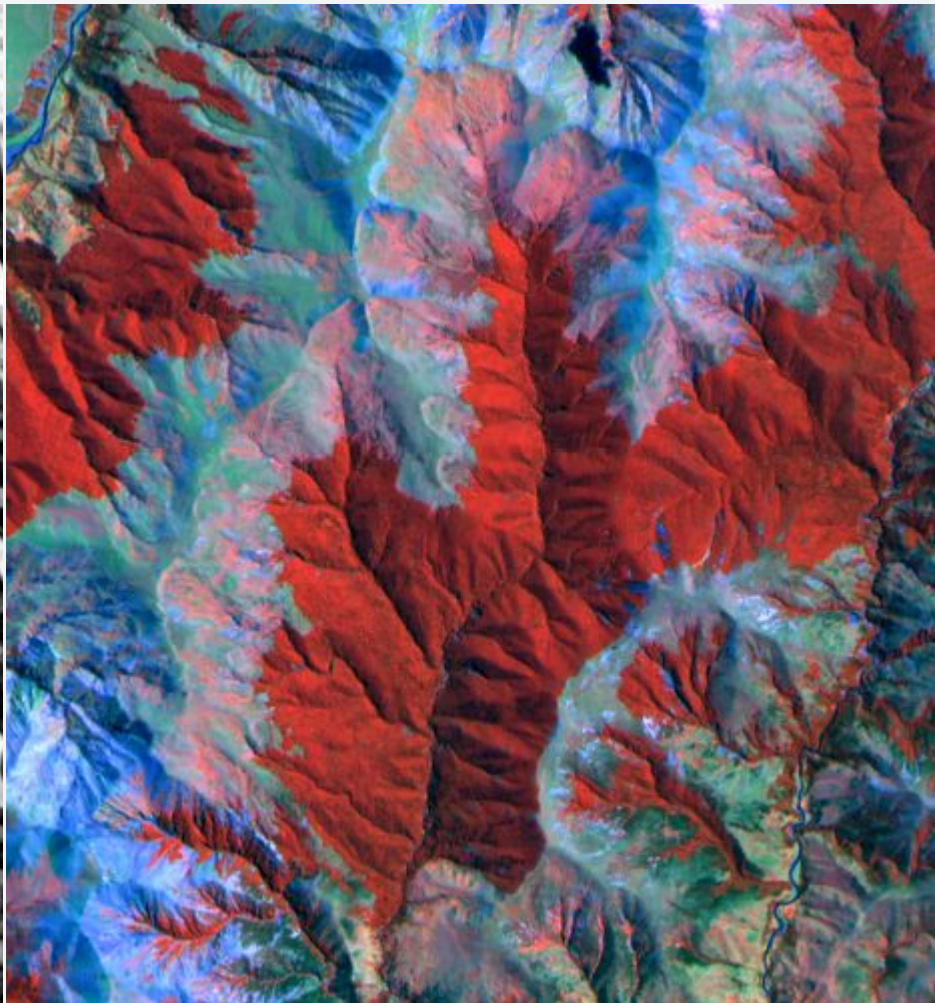
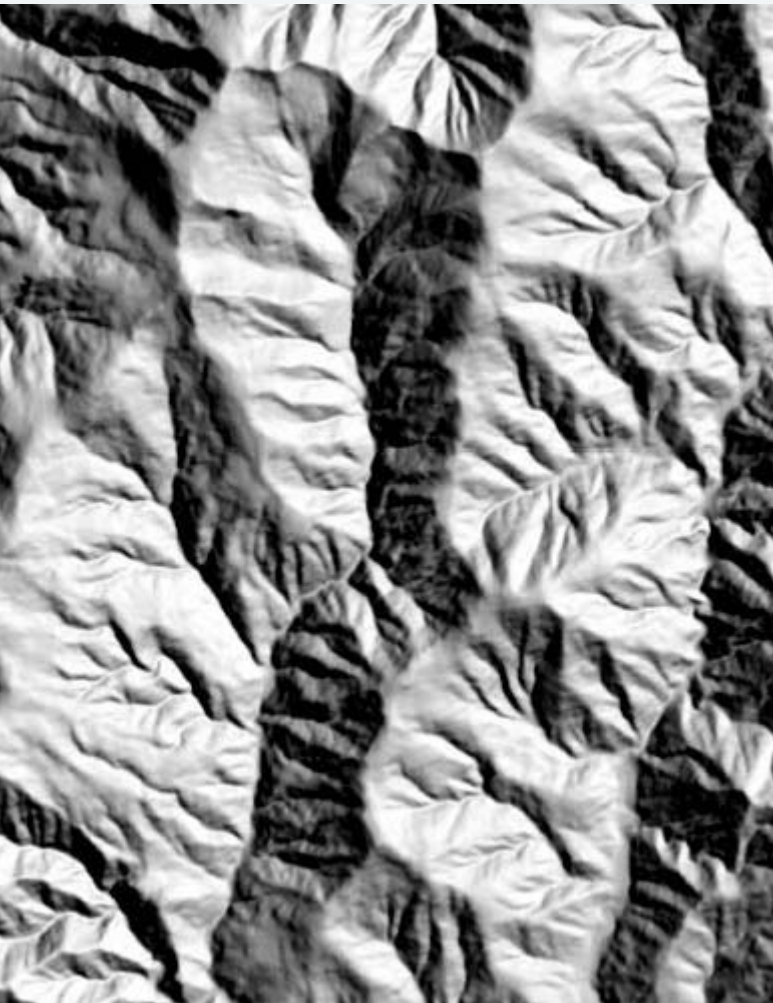
LUCAS satellite imagery, 10m resolution –
Feb 2009 ortho-rectified

KiwiImage satellite imagery, 2.5m & 0.6m
resolution – next 2-3 years NZ coverage

New topographic map series – Sept 2009

LiDAR inventory

New Zealand
Geospatial Office



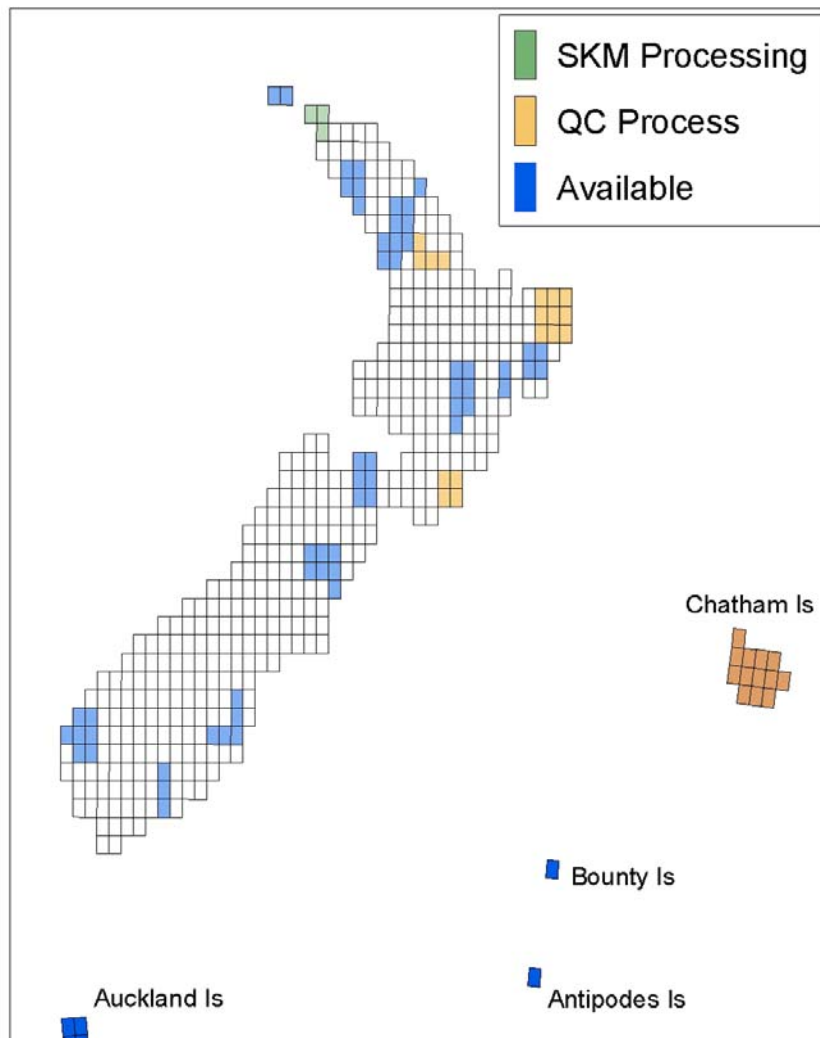
pe of KiwImage product detail

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Image files as at 6 October 2008

New Zealand
Geospatial Office



Topo50 map series

New Zealand
Geospatial Office



entire national 1:50,000 map series (452 maps) will be launched in September 2009

emergency services will switch their 111 systems to NZTM2000 and use Topo50 maps from September 2009



source material

New Zealand
Geospatial Office



Information New Zealand
Toitu te whenua

Hydrography Title

Location: []

Topo50 Map Series

EMERGENCY SERVICES SHIFTING TO NZTM
Topo50 MAPS
Emergency services and defence agencies are using the new NZTM emergency and base mapping for NZTM. Topo50 maps at the time of launch will be replaced by NZTM maps. To coincide with this shift, LINZ will be publishing printed maps that will be replaced by NZTM maps.

Technical information

The Topo50 maps use the New Zealand Geoid Datum (NZGD2009) and New Zealand Transverse Mercator projection (NZTM2009).

NEW ZEALAND GEOID DATUM 2009
See LINZ Standard LINZS2000
Reference ellipsoid: GRS80
Semi-major axis: 6378137.000
Flattening: 1/298.257222101

NEW ZEALAND TRANSVERSE MERCATOR PROJECTION 2009
See LINZ Standard LINZS2002
Projection type: Transverse Mercator
Reference ellipsoid: GRS80
Spheroid: NZS2000
False easting: 100 000 000
False northing: 100 000 000

Topog Service

Land Information New Zealand

Topo50 Map Series

Map Reading Guide

The new LINZ Topographic Map Series provides basic information about a Topo50 map and how to read one.

This guide explains how to use some of the features of a Topo50 map that will help you to use it.

Topo50 maps show geographic features in detail. They are useful for a wide range of activities such as local navigation by vehicle or on foot, locality and planning and study of the environment.

Topo50 maps use the international best of New Zealand Topographic Datum 2009 (NZGD2009) and New Zealand Transverse Mercator 2009 (NZTM2009) projection and are compatible with modern cartographic systems such as GPS.

You can read more about them, and why the change was made at www.linz.govt.nz.

Map Scale: The Topo50 maps are at a scale of 1:50 000. One centimetre on the map represents 500 metres on the ground.

Contours and Relief Shading: Contours are lines that connect points of equal height and represent the shape of the terrain. Depressed features are shown as many contour lines close together. The spacing of the lines shows the steepness of the slope. The shape of the contour lines shows the shape of the terrain. Contour lines are usually drawn at 5 metre intervals. The shape of the contour lines above mean sea level (MSL) will add to the relief shown. Contour lines are usually drawn at 5 metre intervals. The shape of the contour lines above mean sea level (MSL) will add to the relief shown.

Grid North (GN): The map shows a grid of lines that represent the Earth's latitude and longitude. The grid lines are drawn at 100 000 metre intervals. The grid lines are drawn at 100 000 metre intervals.

Map Series

EMERGENCY SERVICES SHIFTING TO NZTM
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Reference ellipsoid: GRS80
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WHERE
IN THE WORLD ARE WE?
Version 2

Useful websites

New Zealand
Geospatial Office



www.geospatial.govt.nz

www.nzuag.org.nz

www.gita.org

www.linz.govt.nz

www.gis.org.nz

ke home message

**New Zealand
Geospatial Office**



**use open geospatial standards for access
and interoperability (OGC, ISO, ANZLIC
metadata)**

**New Zealand
Geospatial Office**



Thank you