

Azimuth[®]

National Address Register August 2007

Moving Forward



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August 2007

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1 About this Document

1.1 Purpose

This document summarises the history of the National Address Register project (NAR) to date (August 2007) and highlights the way forward as agreed following review of the detailed National address Register Phase 2 Feasibility study project report dated July 2007.

1.2 Audience

This document is intended for use by the NAR project steering committee as a reference to highlight the rationale and background for progression to the next phase of development to fund the setup of the NAR initially utilising resources from New Zealand Police and LINZ to develop an initial dataset that will facilitate other agencies supporting the project through funding, maintenance and continuous improvement.

1.3 Distribution List

Organisation	Distribution Role
NAR Programme Management	Reviewer/Contributor
State Services Commission	Review/Approval
New Zealand Police	Review
LINZ	Review
Statistics New Zealand	Review
Ministry of Social Development	Review
ACC	Review
Ambulance New Zealand	Review
North Shore City Council	Review

1.4 Revision History

The following table outlines the document revisions:

Version	Date	Comments
0.1	02/08/07	Initial draft based on existing documentation and short meeting with Laurence Millar.
0.2	03/08/07	Updated with feedback from Greg Ralph & John Olifent.
0.3	10/08/07	Updated following feedback from SSC including additional documentation.
0.4	15/08/07	Updated by SSC
1.0	07/09/07	Approved by NAR Steering Committee

2 Executive Summary

This document is designed to highlight the way forward from work already completed. The work to date has:

- Justified the concept
- Illustrated that the NAR model proposed can be financially neutral
- Defined an approach to funding
- Identified New Zealand Police as the agency most appropriate to lead the next stage
- Highlighted some areas of risk that require management.

Further background information is contained in the phase I and Phase II reports and the New Zealand Geospatial strategy document.¹

2.1 What is the National Address Register (NAR)?

The National Address Register Project (NAR) is an All-of-Government initiative to develop the authoritative central, common register of New Zealand location information. The project aims to eliminate duplication and inconsistencies in the way location data is gathered, managed and maintained.

2.2 Who is involved?

There are a wide range of agencies involved to a greater or lesser extent. The steering group has representatives from:

State Services Commission, New Zealand Police (representing Police and New Zealand Fire Service), LINZ, Statistics New Zealand, Ministry of Social Development, ACC (representing the health sector), Ambulance New Zealand and North Shore City (representing Local Government New Zealand).

The following are also key stakeholders:

New Zealand Fire Service, Ministry of Agriculture and Forestry, Ministry of Justice (in capacity of Electoral Commission), Ministry of Social Development, Ministry of Health, Department of Internal Affairs, Ministry of Transport, Ministry of Education, Ministry of Civil Defence and Emergency Management.

¹ See Appendix I for a full list of referenced documents

2.3 Why is it important?

Business, central and local government rely on accurate address information to carry out functions as varied as the delivery of goods and services, dispatch of emergency services, facilitation of safety in the maintenance of infrastructure such as bridges, roads, railway lines, verifying enrolments on New Zealand's electoral rolls, compiling national demographics and statistics and guiding the implementation and evaluation of government policy, interactions and support.

While addresses and place names, e.g. for parks, are designated by territorial authorities, they are subject to colloquial use and personal interpretation. This in turn can lead to problems for utilities attempting to supply services, emergency service responses, and delivery of surface mail and freight.

The National Address Register will create a national source of addresses and place names each linked to a single geographic position known as a geocode - a set of geographic coordinates that define a location or features associated with an address or place. Once geocoded, the address becomes the foundation for a new set of activities. For example, it can be displayed on an electronic map thereby making the geographic relationships between addresses immediately visible, or allowing emergency services to navigate to the address location using global positioning system (GPS) device.

The public benefit derived from this project is estimated to be around \$10m per annum.²

2.4 How will it be funded?

The feasibility study estimated up front costs of \$1.11m and ongoing operating costs of \$1.22m per annum. These costs can be covered by the existing expenditure by agencies. The study assumed transition costs would be met by individual agencies.

2.5 Where (by whom) will it be operationally managed?

The system will be Crown owned, conform to the ESA data specification 1.9.7, be regularly maintained, will not contain personal or business information and will provide easy access through multiple channels.

The operator of the system is yet to be decided. It will be the subject of a tender process to be issued as part of the next phase of the project. It is anticipated to be a non government agency or consortia with relevant datasets to contribute. There are a number of commercial organisations currently that could fit the parameters. It is anticipated that the NAR dataset will physically reside in one location with universal access and have appropriate backup and disaster recovery processes in place.

² National Address Register Phase 2 Feasibility Study Project Report, July 2007, Appendix A pp78-83

2.6 What happens next?

Detailed implementation plans that address the key risks highlighted in section 3.8 will be developed as part of the next stage of the project. There is some urgency required in order to ensure current stakeholders remain engaged and external commercial parties do not create market confusion by further proliferation of private datasets.

The next step for the project is to secure commitment, through letters of intent, and secure funding via memoranda of understanding based on the financial strategy outlined in this document and detailed in the phase II feasibility study.

3 Project History

3.1 Project Governance

As an all of Government initiative the need for relevant stakeholder engagement is well recognised. This project has and is being guided by a steering group of senior officials from State Services Commission (Chair), New Zealand Police, LINZ, Statistics New Zealand, Ministry of Social Development, ACC, Ambulance New Zealand and North Shore City (representing local government)

3.2 Project Justification

The National Address Register Project (NAR) is an All-of-Government initiative to develop the authoritative central, common register of New Zealand location information. The project aims to eliminate duplication and inconsistencies in the way location data is gathered, managed and maintained.

Good quality location information is critical to the effective response of a number of agencies, notably Fire, New Zealand Police, Ambulance but is also a key data set for most government agencies and local authorities. Currently the same data is sourced and maintained by multiple private and public entities resulting in duplication of effort, costs, inconsistencies and variable reliability.

The current approach means private industry tends to be incented to develop “one-purpose” datasets that cannot be shared across different private and public sector entities due to intellectual property ownership and commercial sensitivity issues.

The core data needs of other government departments for the same type of location information were considered within the development of the Emergency Services and Government Administration (ESA) standard. This is a recognised schema for use within the e-Government Interoperability Framework (e-GIF).

The creation of the NAR will address all of these issues.

3.3 Project Approach to date

The project was established by LINZ in late 2005 with a three phase approach.

Phase I which was completed in 2006 defined the problem and the level and nature of support for the project.

Phase II was completed in July 2007 and recommended a business model, funding approach and processes to manage and maintain the data set.

Phase III, finalisation of the business case and agreed financial strategy, will commence following sign off of the agreed letters of intent and memoranda of understanding that will be developed following agreement to this documented approach.

3.4 Fit with the New Zealand Geospatial strategy

The New Zealand Geospatial Strategy document was published in January 2007. The NAR project is one component, which will start to address many of the issues highlighted in this all of government strategy, specifically:

- *“Until now, New Zealand’s geospatial information has been developed independently by various agencies. In order to exploit the opportunities offered by the new digital environment for efficiencies in the collection, management and provision of geospatial information, new approaches are required to its collective management.*
- *A more integrated and structured approach in New Zealand is needed for managing our geospatial information in order to address geospatial problems, including:*
 - *a lack of knowledge of, and access to, the geospatial information assets owned, maintained or used by government*
 - *the inability to combine geospatial information to help address the issues of the day*
 - *little standardisation of maintenance procedures and mechanisms for assessing how well our geospatial datasets meet collective business requirements.”³*

3.5 Emergency Services and Government Administration Standard (ESA)

The ESA standard is about improving the quality of base data which is commonly used to define location, anywhere in New Zealand. This data is especially critical for emergency services responses, and is required for the effective operation of communication and resource deployment systems used in 111 call-centres. The data is not limited to this application and is also used by Statistics NZ for example.

The ESA Data Specification v1.9.7 was published in April 2004 to reflect ISO 19139 (Metadata Implementation), and to harmonise with the NZ Geospatial Metadata Standard. No significant comments were received by 31 August 2004. The draft therefore became the current version.

The e-GIF management committee adopted the ESA standard as "recommended", and started consultation with agencies on a proposal to make the standard "mandatory" with effect from July 2005. Feedback from agencies was that the lack of ESA compliant datasets, compliance criteria and governance processes made it difficult for agencies to comply with a mandatory standard. The e-GIF management committee agreed that the standard would become mandatory once the available datasets, compliance criteria and governance, and all other details necessary for agencies to implement the standard were put in place.

LINZ advised the e-GIF management committee in May 2005 that the optimal means of developing the infrastructure necessary to support the ESA standard is to develop it as part of

³ A New Zealand Geospatial Strategy, January 2007, p8

the NAR (National Address Register) establishment process, and undertook to lead the work. This project therefore represents a significant milestone delivery in movement towards a broadly adopted standard in this area.

3.6 Assumptions

The operational environment for the National Address Register is based on the following premise, namely that:

- The data is owned by the Crown;
- Is a trusted central register regularly;
- Does not contain personal information;
- Contains data that is available in digital format to government, private and volunteer sector agencies and the public via multiple access methods and under agreed conditions and service level agreements; and,
- Operates within a clear governance regime which includes formal agreements with data custodians and users of data;
- Resides in one central site. All data of commonly required location (address and place) data that is not otherwise available “centrally” within government;
- Is maintained and updated maintenance will be done through this site.

Operates with a real-time update model, which will be implemented for data maintenance after the initial implementation phase.

3.7 Financial Strategy

The agreed option is to reuse existing capabilities through commercial arrangements. This results in anticipated costs of 1.11 Million to build and 1.22 Million p.a. to operate. This results in a total 5 year cost of 7.22 Million.⁴

Build Cost Item	
Governance	75,000
Business Case Consultation	100,000
Detail Design	
Detail NAR Database	70,000
Detailed Services Definition	60,000
Electoral Support	130,000
Supplier Sourcing	75,000
System Build	600,000
TOTAL	1,110,000

Assumes Agency transition costs are not significant and can be funded from existing Agency baselines (e.g. MSD's service oriented architecture).

Operate Cost Item Per Annum	
Governance	200,000
Maintenance Contract	684,000
Electoral Support	250,000
Address	
Road Centre Line	
Named Places	
Capital Charge	88,800
Total	1,222,800

The recommended Financial Strategy for establishment of the National Address Register is that:

1. The National Address Register should attempt to be 'self-funding' without having to request additional funds from the Crown. To enable this, joint Agency 'seed' / investment money will be sought to establish it. Current discussions around agency willingness to pay indicate c1.25 Million is available per annum with a further 0.73 Million possible.
2. A commercial relationship business model is the best arrangement for sourcing National Address Register operational capabilities from the market.

⁴ National Address Register Phase 2 Feasibility Study Project Report, July 2007, p86

3. Initial cost recovery for the National Address Register will be based on aggregation of existing Agency operating expenditure (opex) baselines in accordance with collective user agreements and scaled contributions. The recommended approach to confirm Agency commitment is as follows:
 - Conduct further Agency negotiation and document detailed requirements
 - Obtain letters of intent from Agencies
 - Sign Memorandums of Understanding with Agencies that details service expectations, pricing and service uptake.
4. The National Address Register will seek to transition to more of a user-pays basis after 5[3?] years of operation, but not at the detriment of the Crown's requirements.

The National Address Register Governance Body will, in time, consider new and creative ways of leveraging the National Address Register through better 'productisation' of its core services, namely those of address validation, address geocoding and spatial address searching.

3.8 Areas of Risk

The phase II feasibility study report identified areas of significant risk. It is anticipated that the next stage will develop detailed risk mitigation plans to address each of these risks. Highlighted below are areas of significant concern to the project steering group:

- The approach to estimating costs and benefits has been structured but the complexity created by the number of agencies involved, the different applications required for the data and the need for changes to data gathering and communication processes by TLA's and other data creating, gathering and maintenance agencies means there remains significant challenge in understanding all the costs associated with the changes required across multiple entities. In particular, the financial strategy is only viable if the critical assumption – that change costs in individual agencies can be absorbed by the agencies – is proven to be well founded.
- Effective engagement of all the Territorial Authorities will be a challenge given the significant variation in approach to geographic data management by each authority and the differing processes for management and maintenance. This issue may require significant change initiatives in some Territorial Authorities. (This is an example of an area of activity that is challenging to cost)
- Development of competing registers, such as GeoPAF from NZ Post, have the potential to cause market confusion. Organisations with the potential to set up their own registers need to be fully engaged in the next stage. This issue also highlights the need for clarity of scope and speedy delivery of value to stakeholders by the project.

Inability to establish and maintain standards and processes for management and maintenance of the data set. The register is a "live" dataset that needs constant updating and continual improvement processes from multiple agencies. The model will require a high commitment from stakeholders to update protocols and as well as implementing a very structured contributor management system with automated processes.

4 The way forward

4.1 The Vision

The National Address Register is the national source of geocoded addresses, supporting road and rail centrelines and named places that is complete, affordable, and readily available and meets the business needs of parties for trusted address and location data.

Specifically the National Address Register:

- Will be the centralised “gateway” for current, trusted location information that is Crown owned
- Contains geocoded physical addresses (preferably as defined in accord with the Australian/New Zealand Standard 4819:2003) and supports postal addresses as defined by New Zealand Post
- Is a core dataset within the Geospatial Infrastructure as defined within the Geospatial Strategy
- Is built, maintained, and updated by the custodians and partners it serves
- Has linked electronic processes for the updating of addresses and supporting data
- Is a national gazetteer service providing electronic services for geocoding, address look-up and authentication, address list cleanu
- Has provision for multiple definitions such as alias addresses, discontinued/inactive/historic addresses, misspelt road names, alias suburbs/localities
- Is supported by an accurate transportation network and definitions of locality and named places
- Meets or exceeds the Emergency Services and Government Administration (ESA) Core Data Specification
- Can be extended to meet future need
- Has provision for linking locally used data and applications to official address records; and
- Does not contain personal information.

4.2 Value Proposition

The National Address Register will be:

- The Authoritative data resource, designed and maintained for the benefit of the whole New Zealand economy and society that is trustworthy, reliable and delivers no less than current data scope and quality
- Transformational for all-of-government: the National Address Register has social / public good benefits and is one of the enablers for economic transformation for New Zealand

- Financially independent, once the build and setup investments are completed.

Easily accessible to all New Zealanders

4.2.1 How will we know success?

The success of the establishment and operation of the National Address Register can be measured through performance indicators developed within the following areas:

- Willing and expedient contribution from the data custodians in relation to the initial build and ongoing support of the maintenance effort.
- Provision of an efficient, easy environment that promotes regular contribution through the removal of institutional and technical barriers.
- Integration with, and use of official locality names as well as the provision for "alternate" addresses so as to cater for local, commonly used alternatives there by catering for a broader market.
- Efficient and functional governance structure to ensure the continual development and management of the register.
- Pervasive use, which is critical. The supply chain and integrity of the data must be such that there is no consideration of alternatives and it makes no logical or commercial sense to develop an alternative or for commercial suppliers to continue to maintain an alternative.
- A flexible distribution model. An acceptable distribution model striking a balance between accessibility and cost needs to be implemented to ensure pervasive use.
- Continual improvement through user feedback. Nothing will improve a data set quicker than extensive use and an efficient process of capturing, assessing and acting on feedback about errors and additions.
- Current users of address, road centreline, locality and named place replace their existing datasets with data sourced from the National Address Register and regularly update their data from the register.

The National Address Register is recognised as a core dataset within the Geospatial Infrastructure.

4.3 The business model

The development of business models has been guided by application of the following principles.

- Ensuring open market access and competition
- Protecting the public's interest
- Ensuring compatibility between business models and financial strategies

The National Address Register could be constructed and operated within the scope of several business models, each bringing a differing range of benefits. The preferred option to move forward is to reuse existing capabilities through a commercial arrangement.

The National Address register should be housed within the bounds of an existing commercial operation that can demonstrate the capability to manage, maintain and operate the register.

The nature, conditions and timeframe of the commercial arrangement should be determined through a contestable process.

4.4 Intellectual Property

The National Address Register can be partitioned off from private sector Intellectual Property (IP), while still allowing the National Address Register operator and other private equity suppliers to compete in supplying value add services to the marketplace.

To safeguard the Crown's interest in the data contained within the National Address Register and any software commissioned to support it, a copy of the software and the data should be held in escrow. The escrow copy of the data should be refreshed at regular time intervals.

4.5 NAR - Build

All datasets submitted should adhere to an agreed standard, possibly described in a Language (XML) Document Type Definition (DTD). Submitted datasets will be amalgamated into a single build database of candidate address records.

Contributor supplied geocodes will be examined to ensure no conflicts remain in the spatial definition of the address sites within a locality. When all conflicts and ambiguities are resolved, the build process is complete and the National Address Register is ready for release.

4.6 NAR - Maintenance

Maintenance falls into three areas:

1. The addition of data
2. The updating of existing data
3. The removal of data.

Updates to existing address data are of the form:

- A new address is created
- A new geocode is provided for an existing address;
- There has been resolution of a National Address Register uncertainty, i.e. an unverified address number has been resolved; and
- There is a correction to an existing address arising from errors in the initial build data.

The maintenance model chosen for the National Address Register must accommodate the following requirements:

- New addresses must be able to be added by the authority responsible for the creation of the new address;

- Changes to existing addresses attributes must be able to be added to an existing National Address Register address, by the responsible authority;
- Data problems pertaining to existing addresses must be able to be resolved conclusively;
- The maintenance process must be expedient. If a new address is created, this must be propagated into the National Address Register within a defined timeframe; and
- There is a single organisation responsible for the maintenance of the National Address Register to provide a clear focus for contributors and users alike. This organisation will process any user submitted change (add, modify or delete) request.

The project will proceed on the basis of building a real-time data maintenance model which will see incremental address information (new addresses, updated address and deleted addresses) forwarded to the National Address Register Manager for validation and immediate inclusion into the National Address Register repository.

4.7 Governance principles

In recognising the shared governance environment for this all of Government initiative, the governance system for the National Address Register needs to reflect the following principles:

- The structure will promote efficiency and facilitate the Shared Vision.
- The stakeholders of the National Address Register include New Zealand government and business communities.
- Stakeholder groups, to the degree possible, will have representation in the system through collective membership mechanisms.
- Appropriate consideration needs to be given to ensure balanced representation across each of the governance groups.
- All governance group members have equal rights and responsibilities in the operation of the governance system.
- Primary responsibility for initiation and oversight of activities required to achieve the shared vision for the National Address Register rests with the Steering Group.
- The operation of the National Address Register in accord with the direction set by the Steering Group is primarily the responsibility of the Steward.
- There are mechanisms for operational decision-making and modification to National Address Register in the best collective interests of all stakeholders

The governance system will support the operation of the National Address Register by providing a framework for all stakeholder groups to become informed about issues and to influence the decision-making process.

4.8 The structural components of governance

The governance system for the National Address Register involves the interaction of three structural components. Direction, Operation and Exploitation

Direction

4.8.1 The Steering Group

The role of the Steering Group is to set the strategic direction for the National Address Register and to monitor the achievement of outcomes determined.

4.8.2 The Technical Reference Group

The role of the Technical Reference Group is to provide technical advice to the Steering Group with regard to the capacity and capability of the National Address Register to deliver defined business outcomes.

4.8.3 The Steward

The role of the Steward is to manage, on behalf of the Government, the data contained within the National Address Register.

4.8.4 The Operator (Custodian)

The Operator has the responsibility to operate the National Address Register in a manner that delivers defined business outcomes and in accord with contractual obligations defined.

Operation

The Operation component of the governance system incorporates the National Address Register Operator supported by several data management functions and data contribution functions.

The functions of National Address Register Operation and Data Maintenance may be contracted to one or more organisations. Each contracted organisation is responsible for the delivery of their specific requirements to meet the business outcomes defined within the contractual framework and data maintenance protocols established for the National Address Register.

The contributors comprise the organisations who contribute to the initial build and the ongoing update of the National Address Register and the many organisations that use the National Address Register and in doing so identify errors or variations that need to be corrected or amended.

Exploitation

4.8.5 The Steward

The Steward manages the contractual relationships associated with the National Address Register and license arrangements with both the contributors and users of the register the define areas such as intellectual property rights and liability limitations.

4.8.6 The Operator

The Operator is responsible for delivering services to the Users that meet service level agreements contracted with the Steward.

4.8.7 Users

The Users are able to exploit the outputs of the National Address Register within the bounds of license agreements struck between the Steward and the Users.

5 Next Steps

5.1 Next Steps

The next steps of the project will be undertaken under the auspices of the current steering group. Leadership of this phase will be provided by New Zealand Police, with support from LINZ geospatial office.

5.2 Secure commitment and funding

Secure commitment, through letters of intent and funding via memoranda of understanding for the National Address Register based on the financial strategy from the following agencies identified as significant users of NAR data:

- New Zealand Police
- Ambulance New Zealand
- Land Information New Zealand
- Statistics New Zealand
- Ministry of Social Development
- Accident Compensation Corporation
- Ministry of Agriculture and Forestry
- Ministry of Justice (in capacity of Electoral Commission)
- New Zealand Fire Service
- Ministry of Civil Defence and Emergency Management
- Ministry of Health
- Department of Internal Affairs
- Ministry of Transport
- Ministry of Education

5.3 Initiate the next stage of the project

The next stage of the project involves three streams of work:

1. Develop a contestable Request for Tender process incorporating a specification that encapsulates the documented detailed design and exploits the business model identified within the financial strategy.
2. Develop an All-of Government NAR Project communications plan for all stakeholders listed above plus:
 - Data providers, Consumers and Integrators
 - System architects
 - System delivery groups

- Customer Services groups
 - E-GIF Programme
 - Actual and potential investors in the NAR (Funding providers and business beneficiaries).
3. Progress the detailed design with the dedicated vendor, during which the detailed user requirements, data model, solution infrastructure, business processes, data, accessibility, user infrastructure, functional requirements, etc. will be documented.

6 Appendix I – Reference Documents

This document is primarily based on information available from the National Address Register Phase 2 Feasibility Study Project Report from Azimuth Consulting dated July 2007. Addition documents referenced and reviewed for background information are listed below for completeness.

Document Title	Source	Date
National Address Register Phase 2 Feasibility Study Project Report	Azimuth Consulting	July 2007
LINZ TOR – RFP- 2006 / National Address Register Phase II –	Land Information New Zealand	2006
A New Zealand Geospatial Strategy	Land Information New Zealand	January 2007
National Address Register Phase I report	Land Information New Zealand	14 August 2006
e-GIF Committee minutes, working papers and correspondence regarding ESA	State Services Commission	17 February 2005