

Providing certainty in Addressing - A Street Addressing Standard for Australia and New Zealand

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Key words: addressing, standard

SUMMARY

A standard for assigning street addresses and naming roads has been developed under the auspices of the Intergovernmental Committee on Surveying and Mapping (ICSM) – a committee that enables surveying and mapping to be undertaken in an integrated and consistent manner across each Australian state and New Zealand.

The development of the standard has utilised the framework provided by the national standards bodies, *Standards Australia* and *Standards New Zealand*. ICSM's role has been to provide leadership across the sector, bring together experts from various jurisdictions, and engage with affected and interested parties.

The standard is directed at the local governments that have the primary responsibility for addressing and road naming. Its purpose is to control the assignment of addresses so that they can be readily and unambiguously located. The standard is especially intended to support the emergency services (eg. fire, police, ambulance), who depend on the public providing unambiguous address information, and who need to have matching address data available in their call centres.

For rural areas and sites accessed by water the standard requires number assignment based on the distance along the road or from a start point. Historically many of these areas have not been numbered. The latest review of the standard aims to clarify and simplify addresses so that they are easy for the public to use and understand.

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1. INTRODUCTION

Governments have recognised the importance of good addressing to our nations: “Address management is the single most important contribution the spatial industry can make for the business of government and industry.”¹

Addresses have become so commonly used and accepted that people assume that everybody has one and that they are easy to locate. While the addressing systems in Australia and New Zealand are relatively mature, their efficient and effective application can be inhibited by poor practice.

The best example of this is for emergency services use. In the vast majority of cases a caller’s location can be quickly matched to a mapped address and an urgent response initiated. But in a small number of cases the location cannot be easily determined, either because the location of the incident does not have a readily identifiable address, or the related information is not held by the emergency services. The consequences can be tragic.

2. RESPONSIBILITIES FOR ADDRESSING

In Australia and New Zealand the statutory responsibility for assigning addresses and naming roads lies with local governments. There are 78 such bodies in New Zealand and over 600 throughout the states and territories of Australia. These bodies are also required to provide address and road name information to a relevant government agency at either the national level (in New Zealand) or the state territory level (in Australia) – there are 9 such jurisdictions altogether (the Australian Capital Territory also operates as a local government council).

It is important that the application of addresses and road names is consistent across the nation, and also that there is compatibility with New Zealand – the two nations have close economic and political relations. As there is no federal agency in Australia that has a statutory responsibility for such national standardisation, the jurisdictions work closely together to develop standards and working arrangement to help achieve the same outcome.

Organisations such as the Public Sector Mapping Association (PSMA) also rely on the Australian jurisdictions to provide their address and road information so that they can compile and maintain a national dataset for Commonwealth government (eg. Australian Bureau of

¹ From ‘On-line and Communication Council’, a ministerial level group of the Australian government.

Statistics) and private sector purposes. Australia Post and New Zealand Post also have a strong interest in the application of quality addressing to support their postal functions.

The Intergovernmental Committee on Surveying and Mapping (ICSM) is made up of senior representatives (such as Surveyors-General) from New Zealand and Australian government surveying and mapping/charting agencies. Most of those representatives come from the departments that are responsible for addressing and road naming in each jurisdiction.

3. THE IMPORTANCE OF ADDRESSING

Methods of assigning address numbers, naming roads and defining suburbs and localities slowly evolved with the development of our nations. In the last few decades however, some problems started to emerge as those systems failed to fully meet public and government requirements. This was especially evident in rural areas, where the lack of a numbering system created problems for service delivery and electoral rolls. The application of computerised mapping systems to support emergency services response has also created a demand for quality location information to enable rapid response. The public has grown increasingly intolerant of problems in responding to emergencies, including where the event cannot be correctly or quickly located.



Figure 1. Un-numbered and poorly numbered rural addresses

At the fundamental level addressing is important for the everyday lives of the public. It enables friends to be located, deliveries to be made, post to be delivered, clients to be mapped, incidents to be located, and voters to be placed in electoral districts.

In essence, the requirement is that all properties be addressed, to consistent standards, and be digitally mapped. Addresses, road names, and locality names are now a vital part of the nation's economic and social infrastructure.

4. REVIEWING THE STANDARD FOR ADDRESSING

Work on a standard for rural street addressing started in the 1990's and resulted in a standard being published in 2000. ICSM then undertook further broader work which resulted in the current standard *AS/NZS 4819:2003 Geographic Information – Rural & Urban Addressing* being published in 2003.

That standard is now being reviewed by ICSM under the auspices of *Standards Australia* (including on behalf of *Standards New Zealand*) - the official national standards bodies for Australia and New Zealand, affiliated to the ISO (the International Organization for Standardization).

A Street Addressing Special Interest Group (SASIG) was convened by the ICSM to develop the technical content of the standard using the framework and templates provided by Standards Australia. As well as key representatives from the various jurisdictions, the SASIG includes representatives from PSMA, Australia Post, New Zealand Post, and the Australian local government sector. These representatives are generally experts on addressing within their organisation.

The framework provided by Standards Australia includes a formal “public consultation” process. This will be used to ensure that local governments, in particular, have the opportunity to provide feedback on the proposed standard before it is finalised.

5. GOALS OF CURRENT REVIEW

The current standard was developed at a time when many local authorities had not yet introduced comprehensive addressing systems, particularly in rural areas. It should be noted that compliance with the standard is not mandatory and jurisdictions therefore have worked actively with the emergency services and local government sectors to achieve voluntary compliance. The nature of the current standard was thus focused on encouraging and enabling compliance.

Local governments are now generally much more advanced in their addressing systems than they were at the turn of the century. One of the aims of the current review is therefore to provide a more user focused document that enables specific requirements to be more readily found and interpreted. Experience has also revealed some extensions and clarification that are required in particular cases (see later).

In today's economic environment, agencies are concerned about the cost of bureaucracy and in particular regulatory compliance – the avoidance of “red-tape”. Although the addressing standard is not mandatory in itself, it is important that its provisions be related to the outcomes and objectives that are being sought, and to not extend into areas where some flexibility might be permitted – particularly where it might seem more efficient to do so. In particular some aspects of addressing (in the current standard) relate specifically to postal

purposes or to data transfer – these are considered to be better covered through other mechanisms / standards.

In order to address such concerns, the SASIG agreed on an outcome and 5 related objectives that are required in order to achieve that outcome (see Figure 2).

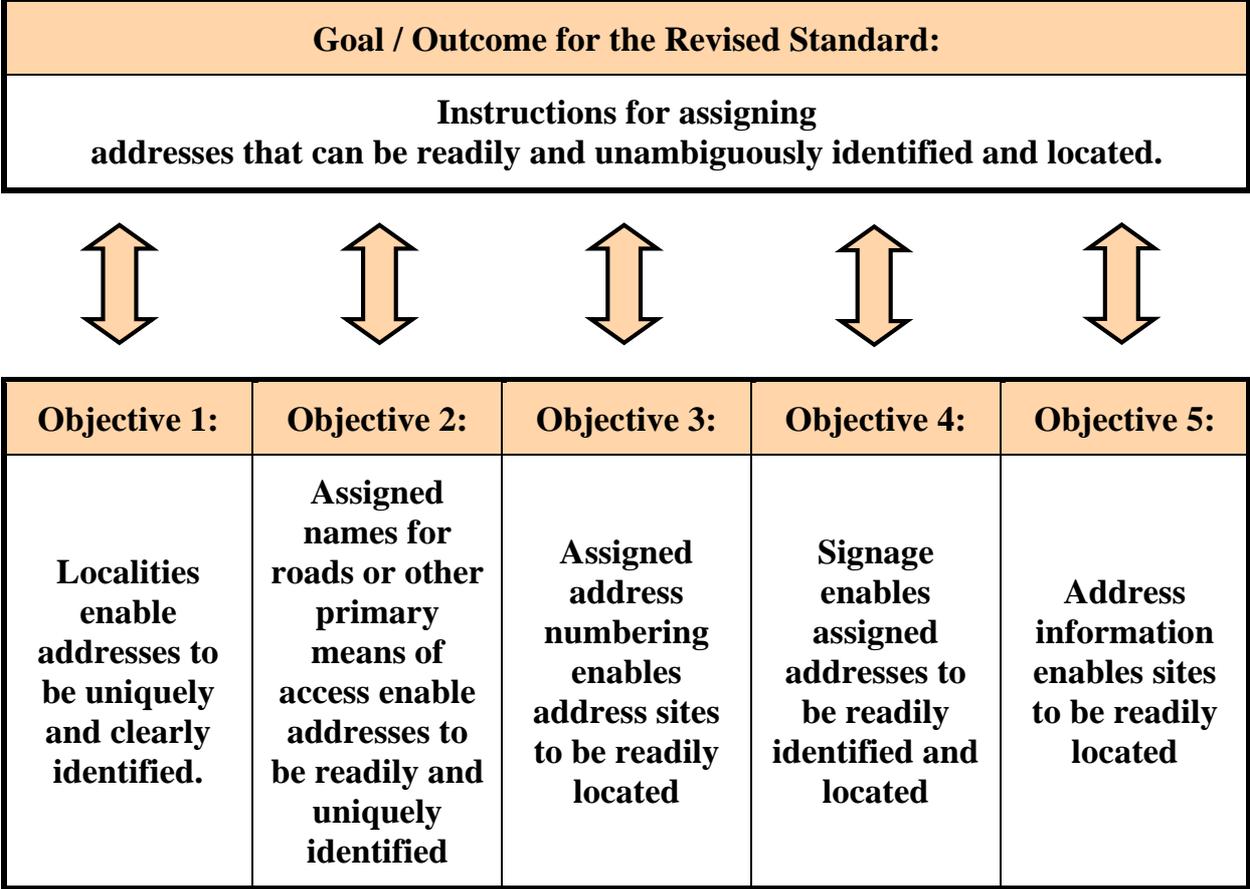


Figure 2. Outcome and 5 objectives for the Addressing Standard

Because of their ubiquitous nature, a further aim is to ensure that an address is “short and simple” – it needs to be readily understood by the public as well as a computer. This goal affects, in particular, addresses within building complexes, apartment blocks, and multi-storey buildings. It also seeks to avoid the unnecessarily complicated and misleading addresses that are the legacy of a poorly defined system that just ‘happened’.

It should be noted that the proposed standard, as indicated by the objectives, is:

- not a postal standard
- not a data transfer standard

- does not apply retrospectively (while this would be desirable in many cases, the public and agencies often vigorously oppose changes to their addresses or road names).

6. COMPONENTS USED WHEN ASSIGNING AN ADDRESS

The proposed Standard identifies several fundamental components to be used when assigning an address:

- Address number (including any additional sub-address numbering components)
- Name of the road, or other primary means of access (eg via water)
- Place (in NZ can include a suburb or rural locality and town/city sufficient to ensure the combination is unique)
- State / Territory (Australia only)
- Country

Note that these components are not intended to represent a data specification, other than at a high level, and do not include postcode.

Some common examples of addresses are given in the following table:

Number	Road	Place	State / Territory	Country
399	Carlton Road	Kalgoorlie	Western Australia	Australia
2 / 15	Smith Street	Springvale	Victoria	Australia
7A	Domain Road	Weymouth, Manukau ²		New Zealand

In practice, the assignment of the address number, the road name, and especially the place are often undertaken separately. The requirements for each are discussed below.

7. LOCALITY REQUIREMENTS

Within Australia there were moves as early as the 1950's to define urban areas in the capital cities, principally for mail delivery. The Australian Capital Territory had defined all suburbs in Canberra by 1967, and although there was slow progress in more complex older urban areas in the states, by the late 1990's almost all urban areas in Australia had been completed.

Defining named urban suburbs is a complex issue because of conflicting personal expectations and preferences, vague historical information, community acceptance and poor

² There is more than one Domain Road in Manukau. This one is in Weymouth.

local government definitions. Although good community consultation is required to achieve good results, even this is not always reliable due to the constant community push for a better image for certain areas. Everyone wants to live in the areas with the best name and property values! The goal in Australia has been to ensure the precise definition of all suburb boundaries, such that every property is able to be addressed with certainty – this means no gaps or overlaps between suburbs. Most often the boundaries are tied to the cadastre, although in some situations the centrelines of roads or shorelines of rivers make excellent boundaries. Urban growth often forces small changes to boundaries, and it is of great value to name and create new suburbs ahead of development and occupation. This helps avoid the constant problem faced by naming authorities, that of land developers determining future, often inappropriate, names for suburbs. An example of some suburb boundaries is given in Figure 3.

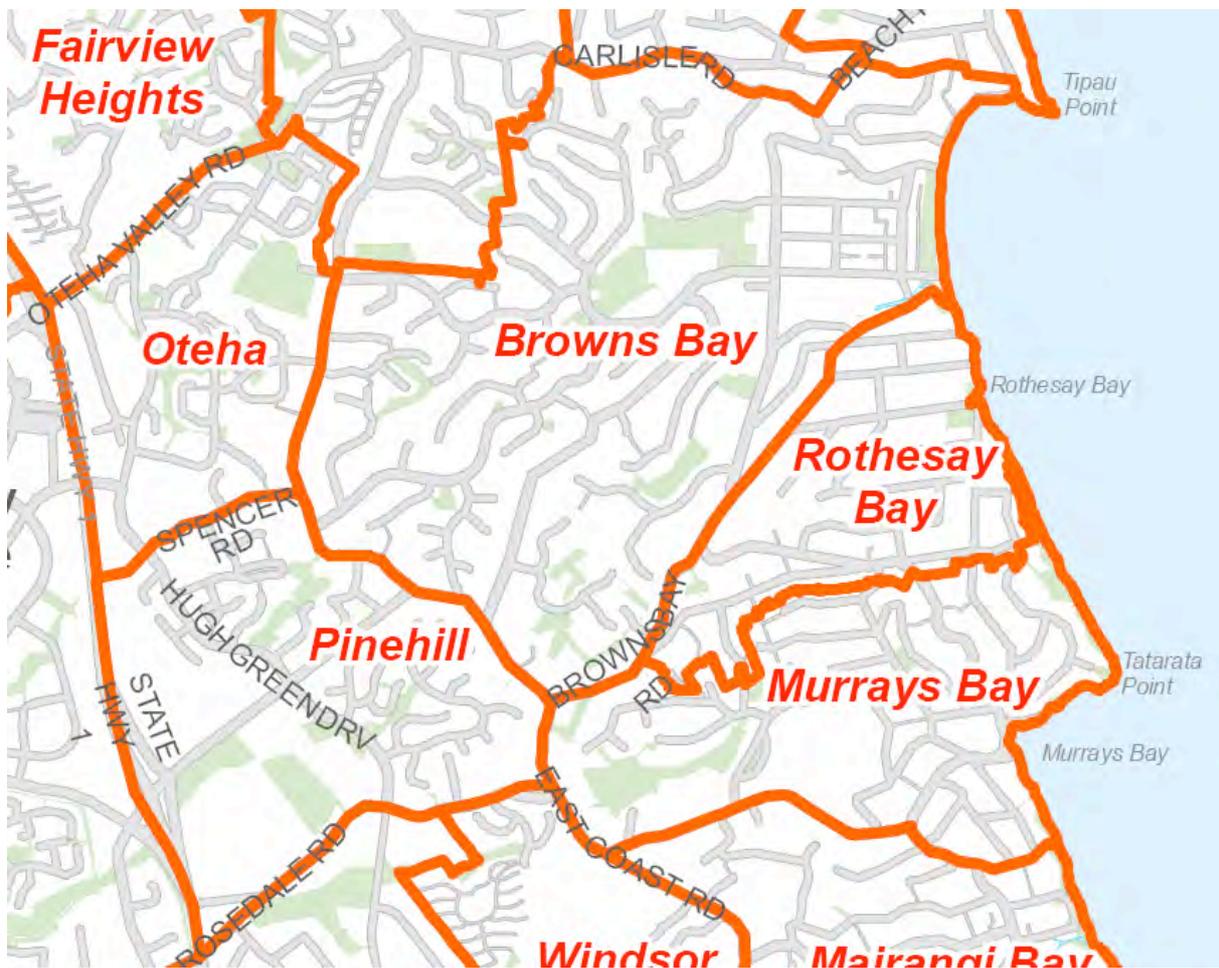


Figure 3. Example of suburb boundaries, for North Shore, New Zealand

Although the work is now virtually complete in urban areas in Australia, there remain some rural areas that still require the determination of locality boundaries. The push for defining localities in rural areas began in the 1980's with the introduction of rural (or distance based)

addressing by some local governments. One of the key agencies involved was the Australian Electoral Commission (AEC), because although many agencies could work with postal addresses, it did not help agencies like the AEC who required actual and mapped physical addresses for the electoral rolls.

The rural addressing program will eventually see the entire Australian continent divided into accurate localities, and already the biggest state, Western Australia, has completed rural localities, even for remote desert areas. Every land parcel in the state is now able to be addressed, provided it also has named road access. Progress in rural areas has been slow because in most areas negotiations had to start from scratch, and the community often did not even have any expectation for the name of an area or where boundaries could be located. The work often requires personal visits and local government and community meetings and forums where issues can be openly discussed. The results need to be well publicised in order to get good community acceptance of the results.

Australian geographic naming authorities have established guidelines for suburb and locality names and boundaries, and these have formed the basis for the section in the new national Standard dealing with localities. The technical requirements included in the Standard for localities include such issues as:

- avoidance of names that create duplication or divisiveness
- avoidance of names that contain abbreviations, acronyms, apostrophes, numerals, and hyphens
- ease of reading, pronouncing and spelling
- use of indigenous names
- boundaries to follow cadastral parcel boundaries, streams etc.
- location of the boundary to be clearly defined.

8. ROAD NAME REQUIREMENTS

Road naming has been a common practice to assist in determining the location of property for hundreds of years, and was introduced to Australia and New Zealand by colonial authorities. Whilst there seems to have been little regard for issues such as duplication (note the number of 'Victoria Street's', 'Railway Parade's'), the practice has served the community well, and it is only in the modern era, particularly with the growth of close urban development, that attention has been given to improving road naming practices. The Standard sets out the requirements for new road names, as it would not be practical to attempt to fix past poor road naming practices. Road names are part of the heritage of a community, and it would be foolish and divisive to make changes which will most likely not be acceptable to the community.

In most parts of Australia and New Zealand local governments are responsible for the selection of road names, and historically, a commemorative practice was followed. Road names would honour pioneers, war casualties or veterans and often the land owners and prominent people. The technical requirements set out for road naming in the Standard do not attempt to advise authorities what names should be used, but do set guidelines to ensure there is less opportunity for ambiguity when roads are named.

Road “Type” is a major issue (Road, Street, Avenue etc). The Standard proposes a limited list of these and sets out how they should be used, primarily in the interest of simplification of addressing and ensuring the type matches its common understanding (eg. an esplanade should be along a water body). In addition the Standard proposes provisions relating to:

- use of short names, preferably a single word
- uniqueness of the name in the area
- ease of reading, pronouncing and spelling
- avoidance of suffixes, prefixes, hyphens, and spaces
- avoidance of most abbreviations
- contiguousness and clarity of the road extent

Retirement communities and private developments require special attention, as an increasing percentage of the community utilises such facilities, but unique addresses are still required. Local governments have historically been reluctant to name “private roads”, even where they are commonly used by the public. The Standard proposes to treat all roads the same, whether public or private.

As with localities, sensitivity is required in negotiating to resolve road naming issues and ensure that unique and easily identifiable addresses are possible for all locations. Sound road naming practices are an important part of the Standard.

9. ADDRESS NUMBERING

At first glance address numbering would seem to be the simplest aspect of addressing. What could be simpler than sequentially numbering houses in a street? Given that the most complicated aspect appears to be assigning odd numbers and even numbers on different sides of the road, surely it does not require a Standard to prescribe the requirements?

Address numbering is complex because nothing stays the same in a city or a suburb. Buildings are knocked down and replaced with multiple units, urban infill occurs, and roads are deviated or closed. People hate certain numbers and change them, and some people just do not want their properties to be addressed – sometimes they do not even want people to know where they live.

The proposed Standard includes the simple requirements relating to:

- continuity of numbering
- numbers being whole positive integers
- allowing for corner numbering (to two roads)
- numbering around short culs-de-sac
- numbering for rural addresses based on the distance down the road
- avoiding use of a number range (eg. 15-17) for an address
- addressing for sites only accessed by water
- use of alphabetic suffixes (eg. 15B)
- addressing in multi-storey buildings
- sub-addressing to enable simple identification of apartments, flats and shops in complexes, including the use of the “hotel” numbering system (eg. 607 being on level 6)
- distinguishing a primary address from alternative addresses

Address numbering should be intuitively clear to all those who rely on them for providing a service - none more so than the emergency services. The Standard has been forced to describe from the simplest to the most complex of numbering because it has often been done so poorly in the past. Lives may have been lost because of bad numbering practices. Hopefully this Standard will help to ensure this does not happen in the future.

10. SIGNAGE REQUIREMENTS

While residents of a property usually know its address, others may not unless the address is clearly displayed on a sign. Without a sign, properties (and people) can be difficult or confusing to locate. The display of such signs, including in rural areas, is a fundamental requirement of an addressing infrastructure that will help ensure that the correct address is used and accepted by all. Road name and locality signs also help people locate themselves in an emergency, particularly when the incident is not related to a particular property.

The proposed standard will require that:

- individual address sites, including within buildings and complexes, be clearly identified with their address number.



Figure 4 - Example of good address signage

This is normally the responsibility of the property owner and, required by the local government through a bylaw.

- roads have their name clearly displayed at each intersection. This is a local government responsibility.
- address number ranges be included on the road name signs, particularly where the road extends in different directions from the intersection
- locality / suburb names should also be displayed at common access points



Figure 5 – Example of good road signage with number ranges

11. INFORMATION REQUIREMENTS

One of the main aims of the standard is to ensure that address data components are available and structured to enable semi-automated unambiguous location of address sites. Such data is particularly important for the computer systems that support emergency services response. Fundamentally the standard requires that assigned addresses, road names, and localities are recorded and mapped.

While the standard specifies the information requirements, it does not specify this at the detailed data level and does not specify data schemas etc. Such concerns need to be addressed in other standards such as AS4590.

The proposed standard will require that:

- address details are recorded, including sub-address details (eg. a level in some cases)
- every address has a geocode
- the address is linked to a road (or a water body or island, as appropriate)
- road names are recorded and their extents mapped using a centreline

- place names are recorded and mapped
- official datums and projections should be used



Figure 6 Geocoded address points and road centrelines

12. SUMMARY

This Standard will help ensure that addressing is simplified as much as possible, that poor addressing practices are removed and that the community will be confident that good addressing is possible.

REFERENCES

Standards Australia, 2003, *AS/NZS 4819:2003 Geographic Information – Rural & Urban Addressing*.

Standards Australia, 2006, *AS4590:2006 Interchange of Client Information*.

BIOGRAPHICAL NOTES

Anselm Haanen

Anselm has worked in various capacities in New Zealand's national mapping and cadastral organisation for over 30 years. He holds a Master of Surveying degree from Otago University. He is currently the chair of the Street Addressing Special Interest Group.

Brian Goodchild

Brian has worked in mapping and survey in Western Australia for more than 40 years. He has filled national and international roles in geographic names, and more recently in address management for Landgate and the Western Australian government. Brian recently assisted the Emirate of Abu Dhabi in preparing a Street Addressing Standard and has been a chair of the Street Addressing Special Interest Group.

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Why are addresses important?

- Mail delivery
- Property location
- Franchising voters
- Emergency response



399 Carlton Road, Kalgoorlie, Western Australia
 2 / 15 Smith Street, Springvale, Victoria
 7A Domain Road, Weymouth, Manukau



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Mix-ups cloud wife's death

Emergency services delayed 45 minutes by confusion over rural road names and signs

by Annette Lambly

A Northland man is refusing to pay his rates after several address and roading mix-ups delayed an ambulance reaching

maps used to direct ambulances to emergencies. Mr Brown identified Cames Rd as a route to Kingfisher Lane.



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Status of Addressing

- Addressing systems generally mature in Australia and New Zealand
- Poor practices inhibit efficient and effective application, in a relatively small but significant number of cases
- Initial Standard published in 2003



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Addressing Roles

- **Local governments are responsible for**
 - ♦ assigning addresses
 - ♦ naming roads
- **Over 600 in Australia, 78 in New Zealand**
- **States, territories, and NZ government agencies are responsible for the collection and standard of the data**
- **National standards required, to apply across all jurisdictions**

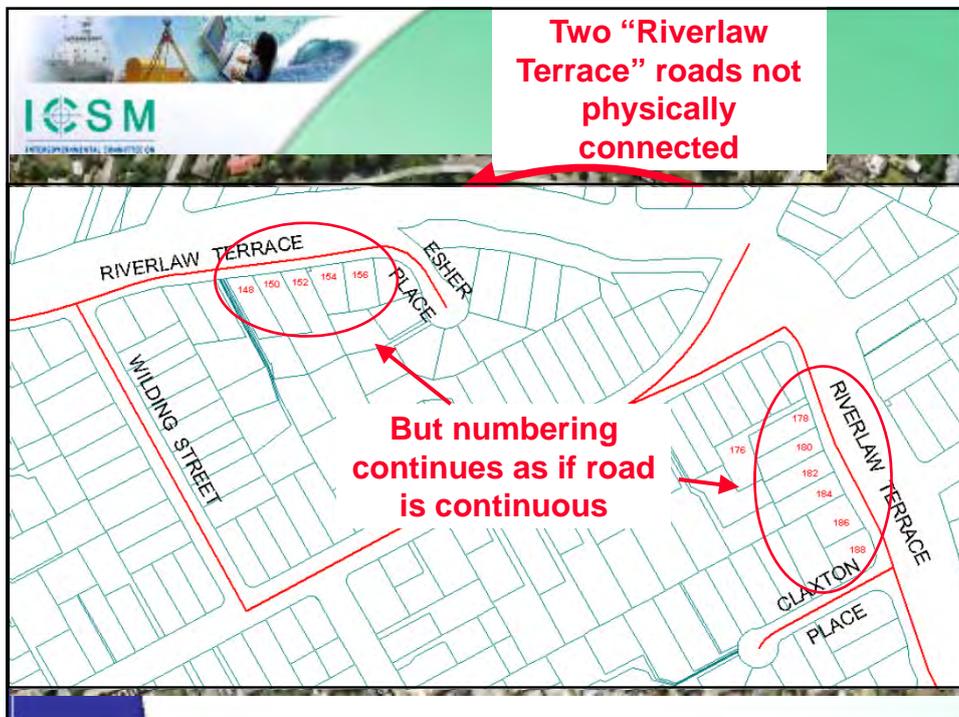
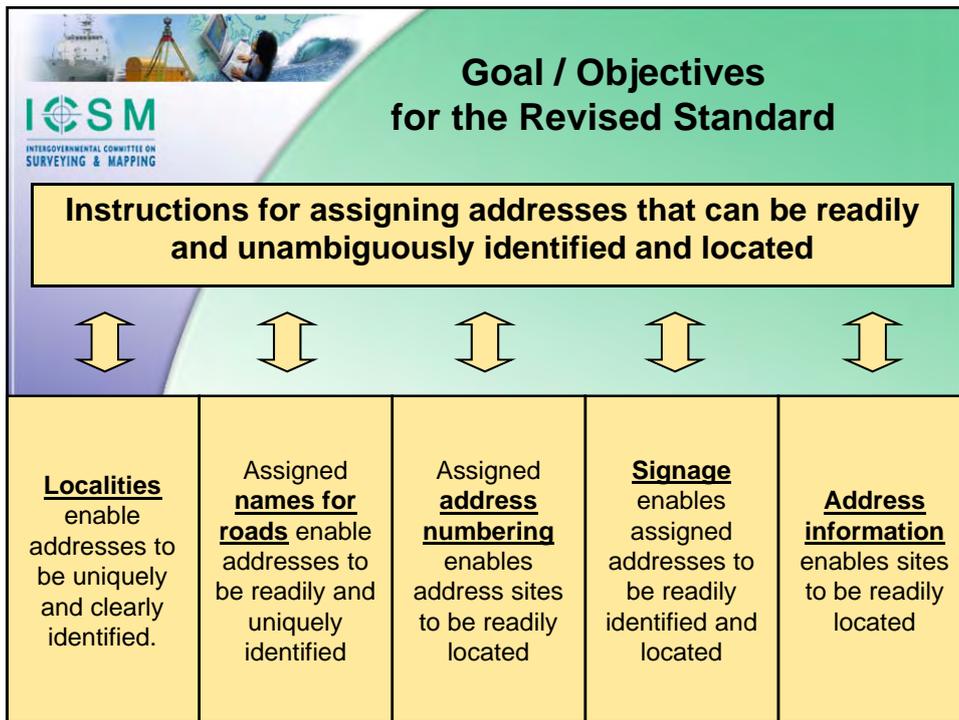


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Intergovernmental Committee on Surveying and Mapping



- **Provides leadership**
- **SIG developing revised Addressing Standard**
- **Using framework from *Standards Australia (ISO)***
- **Includes consultation with local government**





Urban numbering system and rural numbering system not integrated



Duplicate numbers on road



Retirement Village complex 75 units



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Anomalies at Council borders

Two names for same road

Incompatible numbering system on same road

Waimakariri District Council

Hurunui District Council

MAIN NORTH ROAD (SH 1)

ASHWORTHS ROAD (SH 1)

2161

869

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Road Name Types

Standard proposes (for new names):

- A “type” shall be provided
- Selected from a specified list

Examples of unacceptable road names / types:

- Drivers Rest
- Greendale Spur
- Lakeside Villas
- Shelly Bay
- The Willows



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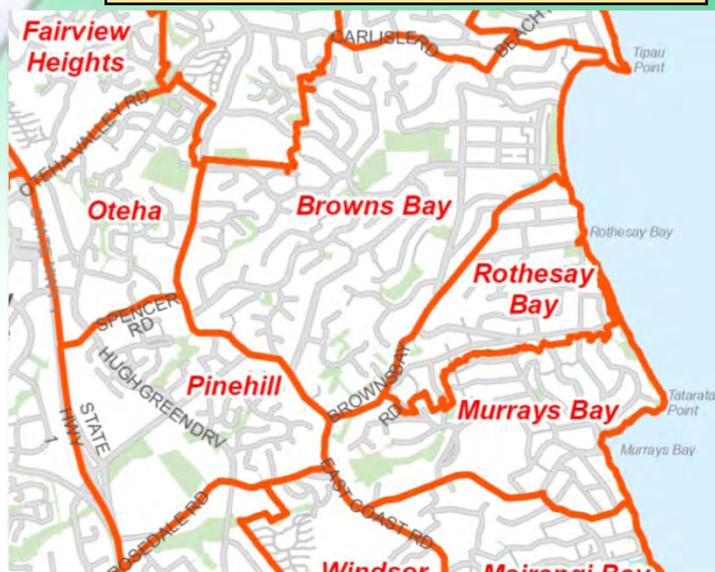
Addressing for water access

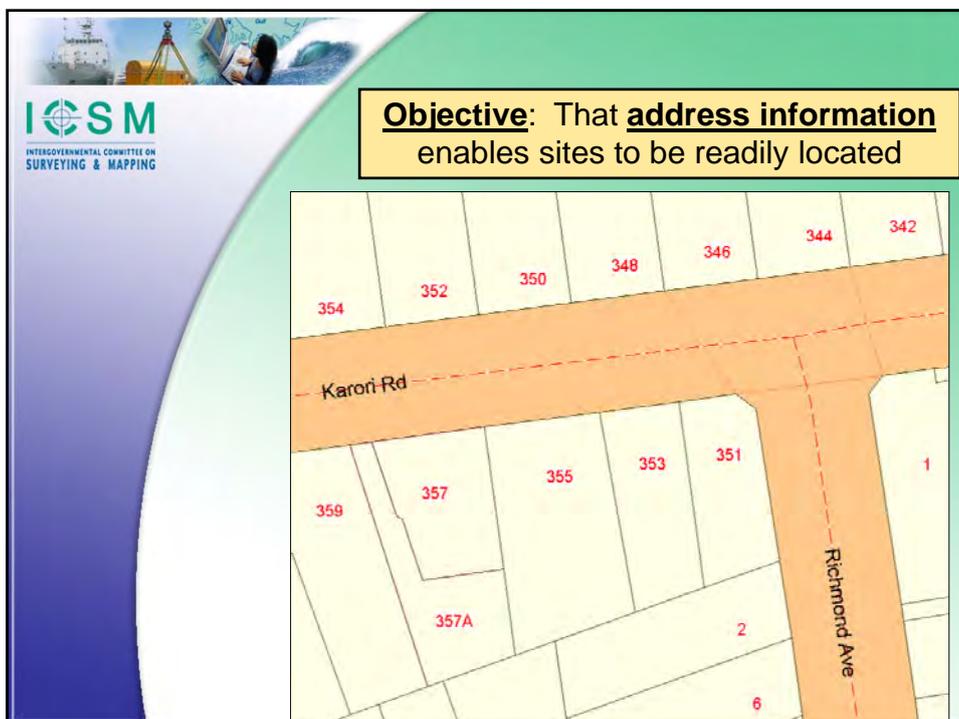
- Revised standard will cater for numbering address sites that are accessed by water, using a distance based numbering system



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Objective: That localities enable addresses to be uniquely and clearly identified







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Summary

**ICSM is developing a
revised standard for addressing
that will provide
confidence in street addressing
to meet society's needs**

Thank You