



Collaboration, Innovation and Resilience: Championing a Digital Generation

Brisbane, Australia 6-10 April

Application of Controlled Vocabularies to Foundational Spatial Information

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FIG2025, Commission 7

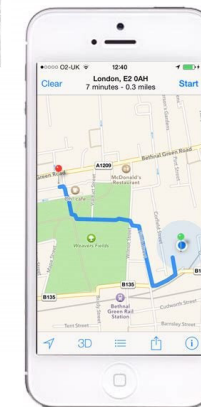
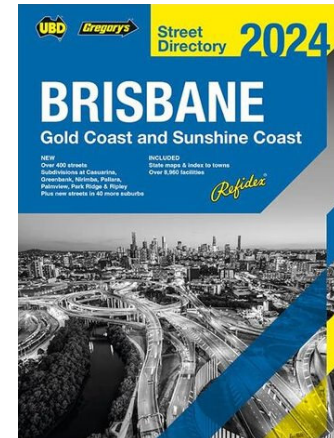


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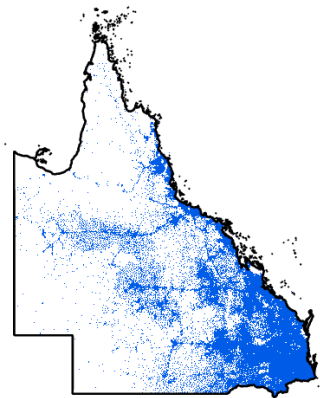


What is an address?

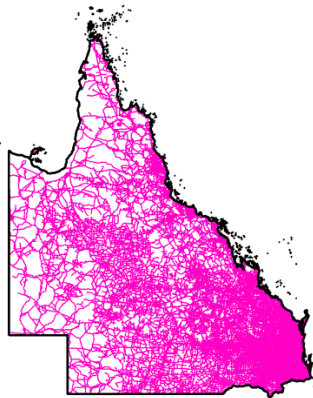
- Provides a means of finding a location, site, building or part of a building
- A string of **unique information**, readily remembered, to enable a place to be found
- Refers to the **physical location** of an address site where there is a requirement:
 - to access, by person or vehicle
 - for the delivery of services, utilities, or mail
- The **AS/ANZ 4819:2011** standard defines the constitute parts of an address



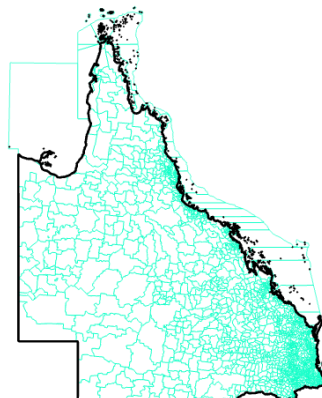
Defining an address spatially



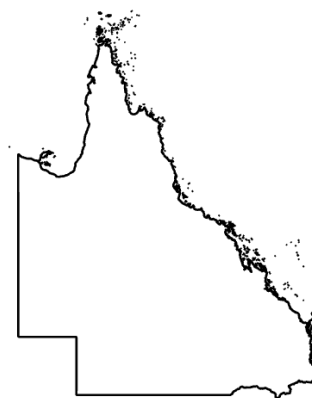
Address number



Road name



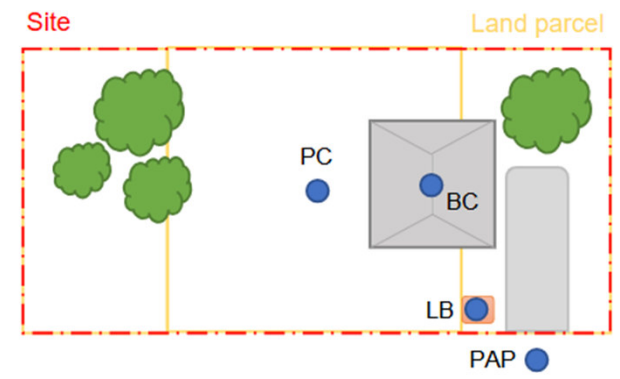
Locality



State

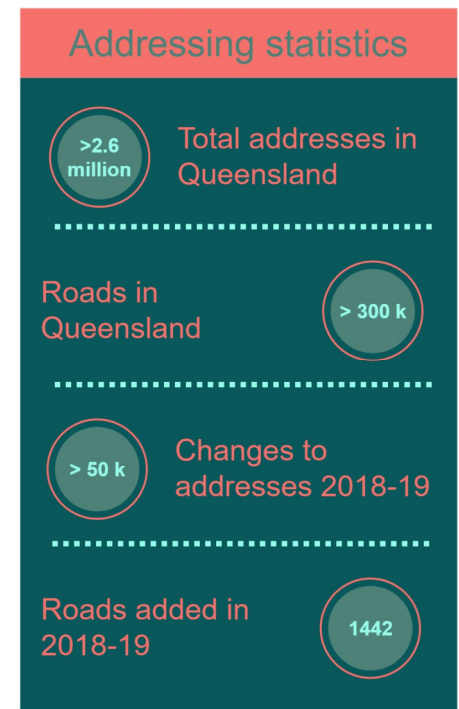
River View, 32 Main Street, Green Park, QLD 4567, Australia

1/12 Main Street, Green Park, QLD



Who is responsible for addressing?

- Addresses are assigned by Local Government for their **Local Government Area**
- under the *Local Government Act 2009* Local Government have the power to approve:
 - road names
 - address numbers
 - including for private developments
- Data is combined for 78 local governments by NRMMRRD and we manage the state database
- This database comprises over 2.6 million addresses, and since 2015 has had approximately 50,000 updates annually, reflecting a dynamic and continuously evolving dataset.
- This data is ingested daily for the **national addressing dataset**



The legacy system

Accuracy

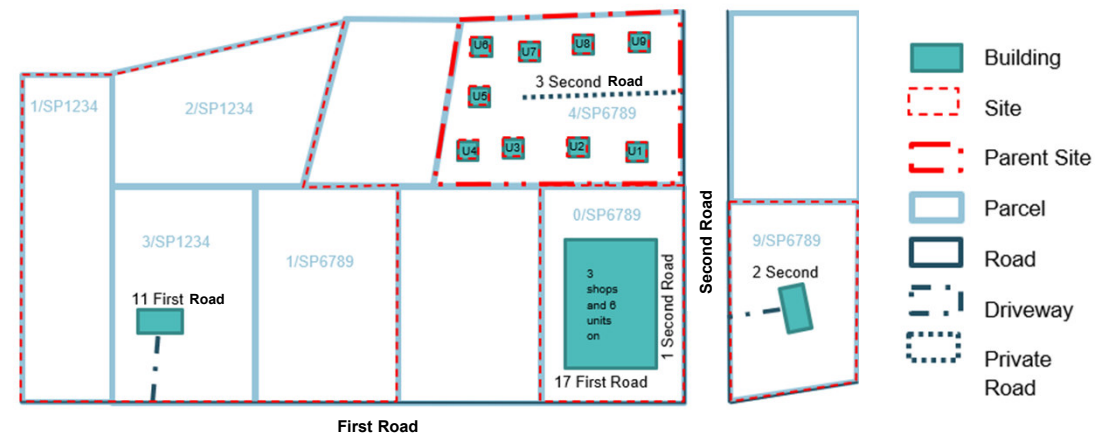
With advancements in consumer technology, there is a growing expectation for highly accurate and more comprehensive address data.

Emerging use cases

Legacy systems and data models struggle to integrate with new applications such as 3D property modelling, Building Information Modelling (BIM), spatial digital twins, and multi-floor buildings.

Complex addressing scenarios

Legacy systems often lack the flexibility to detail the precise location data for complex sites like retirement villages, shopping centres, and hospitals.



Data variations and risks

- Avenue / Av / Ave
- We can interpret these labels as having the same meaning, but we need to make a machine be able to do this too



Council moves to address safety issue on numbering

By Di Stanley

The Central Highlands council will investigate its urban addressing policy after Councillor Gai Sypher claimed "lives will be lost" without a comprehensive review.

Cr Sypher said the issue was raised at a 4 December meeting of the Local Government Disaster Management group, with a resolution moved that urban numbering on existing housing stock in the region should be raised again at the council level for consideration for funding allocation.

The resolution also called for the council to consult with the Gemfields QAS in relation to a platform they established to facilitate address-

one worth noting.

"Claims are not council's responsibility but for the safety of the community living on claims, the QAS has actually developed their own platform so they can have GPS locations to know where people are living when they're called out," she said.

"The need for this urban numbering has been driven for many years by the QAS because if you live in a community that doesn't have housing and you're a relief driver for the ambulance or any emergency services and you're not familiar with the town, it can cost a life.



Delay 'cost my dad's life'

By Sonja Isaacs

A BEERWAH resident has called for an urgent review of Queensland Ambulance Service (QAS) following the recent death of her father, who she believes could have been saved had an ambulance arrived sooner. The hinterland resident (who requested her family name not be used) revealed that at the time of her mother's emergency call, no ambulances were available in Beerwah.

"Three ambulances were dispatched. One from Mooloolaba, one from Birtinya, and the closest one from Maleny," she said.

"We were later devastated to discover the Maleny ambulance took a wrong turn due to mapping errors, causing further delays."

Despite the paramedics' best efforts, her 66-year-old father, a local business owner from Peachester, could not be saved.

"It took all three ambulances 32 minutes to reach my Dad," she said. She has since lodged a formal complaint with QAS, citing a lack of local coverage and calling the service "broken" and inadequate for the rapidly growing Hinterland community. "Something needs to be done before more lives are lost," she urged.

Commissioner for Sunshine Coast and Wide Bay, Rita Kelly, said she remained confident that the closest and most appropriate resource had been deployed at the time of the incident. "If someone is critically unwell, we do not delay, we send the closest available ambulance at all times," she assured.

Story P.3

Sydney man turns up to find home demolished instead of house next door



<https://www.domain.com.au/news/bankstown-businessmans-home-accidentally-demolished-in-terrible-mixup-20161208-qt6k8c/>
<https://emeraldtoday.com.au/news/12/12/2024/council-moves-to-address-safety-issue/>
<https://qnews.com.au/delay-cost-my-dads-life/>



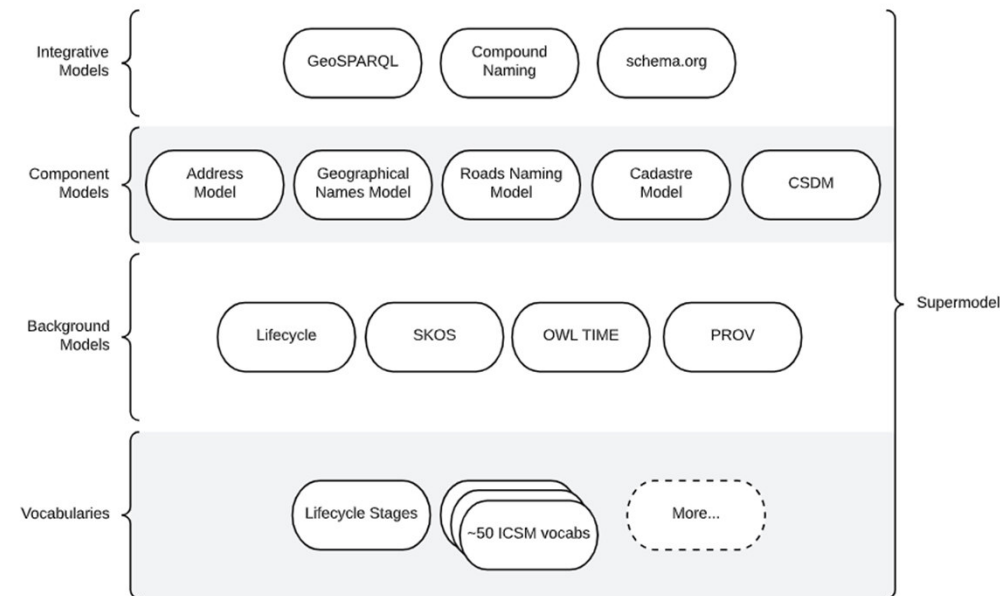
**Queensland
Government**

Address modernisation

- Move to a semantic web-based approach
- Supermodel and component models for both cadastre and addressing
- Based on the **ISO 19160.1 Addressing Part 1: Conceptual model**
- Fully compatible with the Geocoded National Address File (GNAF) relational model
- Highly flexible, reconfigurable and reusable

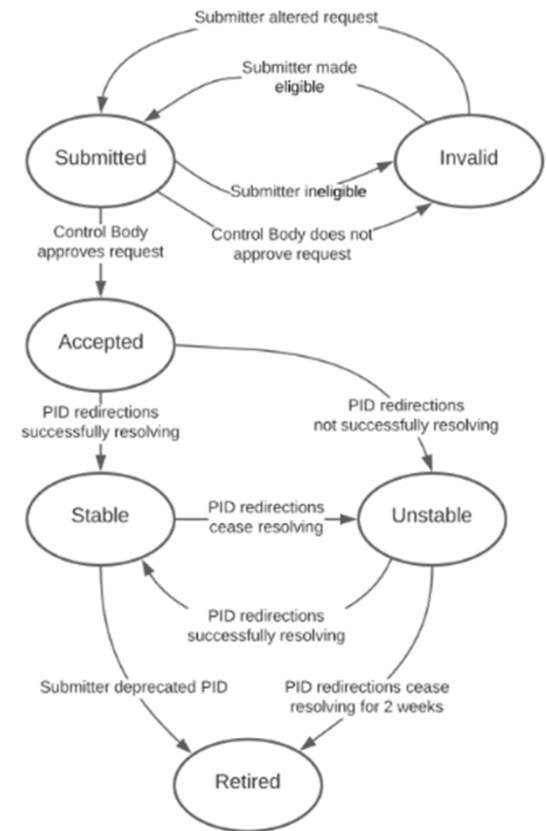


Queensland Spatial Information Supermodel



Controlled vocabularies

- A predefined set of terms used for consistent data classification
- Helps standardize language across systems and datasets
- Reduces ambiguity by ensuring everyone uses the same terminology
- Enhances interoperability between databases and applications
- Reduces duplicate or conflicting terms
- Types you would already know:
 - Simple predefined terms (e.g., country names).
 - Taxonomies: Hierarchical structures (e.g., biological classification).
 - Ontologies: Complex networks of relationships and rules.



State diagram showing status states of a resource and actions causing state change. The Status States Diagram for Guidelines v1.1 <https://www.linked.data.gov.au/>

Controlled Vocabulary for Road Type = Avenue

Collections
Item
Road Lane Count
Road Maintainer
Road Operational Statuses
Road Owner
Road Seasonality
Road Surfaces
Road Trafficability
Road Travel Direction
Road Types
Road User Access

Road Types
IRI https://linked.data.gov.au/def/road-types
Type Concept Scheme
status experimental
type Concept Scheme
versionIRI 1.0
versionInfo 1.0
definition This vocabulary describes road types. A road type is used as part of a road name and distinguishes the type of road. The road types that do not meet AS/NZS 4819:2011 exist to enable inclusion of roads named prior to the creation of AS/NZS 4819:2011. These types should not be used for any new road designations
history note This vocabulary contains road types in common usage at the time of publishing. These are sourced from standards including AS/NZS4819:2011, AS4590.1:2017 and jurisdictional datasets across Australia and New Zealand.
preferred label Road Types
qualified attribution agent https://linked.data.gov.au/org/icsm
had role custodian
creator Queensland Spatial Information
date created 2023-05-11
date modified 2025-02-21
keywords Transport Networks
publisher https://linked.data.gov.au/org/icsm

Avenue
IRI https://linked.data.gov.au/def/road-types/avenue
Type Concept
type Concept
is defined by Road Types
alternative label AV Av AVE Ave
definition Broad roadway, usually planted on each side with trees. Should be an open ended thoroughfare
history note AS/NZS4819:2011, AS4590.1:2017, NSW, QLD, TAS, VIC, WA, NZ roads data. Definition from AS/NZS4819:2011.
is in scheme Road Types
preferred label Avenue
is top concept in scheme Road Types
citation AS/NZS 4819:2011 - Standards Australia

Source: <https://linked.data.gov.au/dataset/icsm-vocabs> (currently unpublished IRI)

IRI = Internationalized Resource Identifier



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Collaboration, Innovation and Resilience:
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Geospatial
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Brisbane, Australia 6–10 April

9 INDUSTRY, INNOVATION
AND INFRASTRUCTURE



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11 SUSTAINABLE CITIES
AND COMMUNITIES



2nd relevant
SDG

17 PARTNERSHIPS
FOR THE GOALS



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