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Product data specification

Vicmap™ Property

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Version 8.0 May 2022

Applies to:

Vicmap Property Standard data model 5.0 October 2021

Vicmap Property Simplified 1 data model 4.0 June 2021

Vicmap Property Simplified 2 data model 5.0 July 2021

AS/NZS ISO 19131:2008 compliant

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# Document history

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| --- | --- | --- |
| Version | Date | Note |
| 1.0 | 15/07/1999 | Initial draft |
| 2.0 | 17/03/2000 | Review and conversion to VGIS format  |
| 3.0 | 14/09/2000 | Six-month review |
| 4.0 | 16/03/2001 | General review |
| 5.0 | 08/05/2001 | Additional material and review |
| 6.0 | 27/05/2013 | Data model change and review |
| 7.2 | 24/06/2016 | Data Model change and review |
| 8.0 | 11/05/2022 | Data model change and review |

This document has been formatted and structured in compliance with AS/NZS ISO 19131:2008 Geographic Information – Data product specifications.

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# Overview

## Vicmap™

Vicmap™ is the foundation that underlies most spatial information in Victoria. This portfolio of spatial related authoritative data products, made up from individual datasets, is developed and managed by the Department of Environment, Land, Water & Planning. The information provides the foundation to Victoria’s primary mapping and spatial information systems, and is used for building business information and systems.

Vicmap is a registered trademark of the Victorian Government and is synonymous with authoritative statewide mapping since 1975.

The Vicmap portfolio includes:

|  |  |
| --- | --- |
| * + - Vicmap Address
		- Vicmap Admin
		- Vicmap Buildings (proposed)
		- Vicmap Crown Land Tenure
		- Vicmap Elevation
		- Vicmap Features of Interest
		- Vicmap Historic Imagery
		- Vicmap Hydro
		- Vicmap Imagery
		- Vicmap Index
 | * + - Vicmap Infrastructure (proposed)
		- Vicmap Lite
		- Vicmap Planning
		- Vicmap Position
		- Vicmap Property
		- Vicmap Survey (proposed)
		- Vicmap Topographic Mapping
		- Vicmap Transport
		- Vicmap Vegetation
 |

Vicmap is supported by:

* + - Vicmap Reference Tables: Reference tables used by and between products that list the full name, description and other attributes associated with a feature code or identifier. For example, the Feature catalogue that lists and describes feature types and feature subtypes.
		- An array of services and applications that comprise the Vicmap Portfolio. They include OGC compliant services such as, Web Feature Services, Web Mapping Services, Web Coverage Services and REST APIs.

Further information can be found at [www2.delwp.vic.gov.au/maps](http://www.delwp.vic.gov.au/vicmap)

## Data product specification title

Vicmap™ Property

## Informal description of the data product

The Vicmap Property product is based on [The Global Fundamental Geospatial Data Themes](https://ggim.un.org/documents/Fundamental%20Data%20Publication.pdf)[[1]](#footnote-2), Land Parcels.  Vicmap Property is the most complete, authoritative, accurate and current property index for Victoria. It assists users to identify, manage and analyse assets by providing spatial context to their business information: enabling users to make more informed business decisions.

The main themes associated with Vicmap Property are:

* *Parcels* – a statewide coverage of the parcel network.
* *Properties* – a polygon network representing the rateable properties across the state according to the Local Government Authorities within this jurisdiction.

The information contained in this document (the specification) is different from that contained in metadata, which provides information about particular datasets. Metadata describes how the data is and the specification describes how it should be.

### The content of the datasets

Vicmap Property contains topologically structured datasets depicting parcel and property details including: Lot and Plan numbers, Crown description, LGA code, Council Property and Reference Numbers and Standard Parcel Identifier (SPI) code. Whilst property polygons are not attributed for address, links between Vicmap Address and Property exist to enable address relationships to be determined. Crown Land is also identified and attributed as Proposed and Approved representations.

There are three Vicmap Property representations. Vicmap Property Standard and two Vicmap Property Simplified data models. The simplified models were created to make Vicmap Property easier for non-technical users to use: Both representations formed by joining the Parcel and Property attributes to their respective spatial representations. Whilst the source data is the same, the information is displayed differently.

### The purpose

Depicts the State’s property data for Victoria to provide current, accurate and connected property information to support land policy, land reform.

As a minimum, the UN-GGIM identified it is required for the following [Sustainable Development Goals](https://www.earthwatch.org.au/global-impact?gclid=EAIaIQobChMIvN6Z4puw9AIVx5NmAh14NwuUEAAYASAAEgI96vD_BwE) (SDG):

* + 1.4 No Poverty
	+ 2.4 Zero Hunger
	+ 8 Decent Work and Economic Growth
	+ 11.1 Sustainable Cities and Communities

Key users are whole of government, environmental managers, and planning.

### The product sources and data production processes

Data within the product is continuously maintained in collaboration with authoritative sources within local and state government by the Vicmap Spatial Services Custodianship Program.

The data is captured at various scales ranging from survey accurate up to 1:25,000.

Product updates are made available through the Vicmap maintenance lifecycle and continuous improvement initiatives.

### Topic Category

Boundaries

Planning / Cadastre

## Responsible party

Department of Environment, Land, Water and Planning

PO Box 527, Melbourne VIC 3001 Australia

vicmap@delwp.vic.gov.au

## Acronyms, Terms and definitions

Refer to Vicmap Terms and Definitions at [www2.delwp.vic.gov.au/maps](http://www.delwp.vic.gov.au/vicmap)

# Specification scope

A formal definition for specification scope information in given in Appendix A & B which provides the location of the entity relationship data models and a table of the corresponding data dictionary.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Dataset name** | **Level** | **Level name**  | **Level Description** | **Extent** | **Coverage** |
| Vicmap Property | 1 | Parcel | Parcel fabric representation  | All crown and freehold parcels captured (except road casements created pre 2006) | State-wide |
|  | 2 | Property | Property polygon representation | Properties defined by LGAs | State-wide |
|  | 3 | Road Casement | Polygonisation of the Road casements | All road casements polygonised | State-wide |
|  | 4 | Easement | A representation of the areas on parcels that contain special rights against them | Most easements have been captured for the Melbourne metropolitan area. Easements have only been captured for subdivisons post 1997 in Rural Victoria. | State-wide |

Table 1: Vicmap Property specifiction scope.

# Data product identification

### Title

Vicmap™ Property

### Alternative Title

Parcel Property

Vicmap Parcel

Digital Cadastral DataBase (DCDB)

### Purpose

Vicmap Property provides authoritative information about land parcels and property details for the State and is used extensively in spatial information systems by the public and private sectors.

Vicmap Property forms part of the Land Administration Themes (LAT) listed below:

* Vicmap Address
* Vicmap Admin
* Vicmap Crown Land Tenure
* Vicmap Property

Vicmap Property is Victoria’s cadastral map base and obtains data from local and state government. Key characteristics include:

* Parcel and property polygon views
* Parcel and property Identifiers – Standard Parcel Identifiers (SPI) and council property numbers
* Registered and proposed parcels
* Crown and freehold land differentiation
* Cadastral road casement boundaries
* Easements, and
* Cross reference to Vicmap Address and Vicmap Admin.

Product updates are made available weekly through the Vicmap maintenance lifecycle. The data is sourced from authoritative Custodians via the DELWP Custodianship Program.

This product should also be used in conjunction with Vicmap Reference Tables.

### Spatial resolution

Over 60% of the parcels in Victoria are within the greater metroplotian Melbourne area and hence density of property information will be found in this region. Particularly the inner Melbourne areas have very small property frontages and many dual occupancies

Other areas that contain density comparable with the Melbourne metroplotian area are the larger regional urban centres ie Geelong, Ballarat, Bendigo, Wangaratta etc. These areas a microcosim of the Metropolitan area, with small frontages in the inner areas and normal house blocks on the outskirts of the rural city.

The next level of density is covered by the smaller urban centres (towns) which consist mainly of standard house blocks.

The remainder of the state is broad hectare properties, and these areas need to be viewed at significantly smaller scales then the other three categories.

# Data content and structure

### Data content

The datasets that comprise Vicmap Property are detailed in Table 1 below.

|  |  |  |  |
| --- | --- | --- | --- |
| **ANZLIC ID** | **Dataset name** | **Description** | **Feature type** |
| ANZVI0803002683\* | VICMAP\_PROPERTY | Parent Metadata record | N/A |
| ANZVI0803002896 | VMPROP\_CAD\_AREA\_BDY | Cadastral Area Boundary | Line |
| ANZVI0803002898 | VMPROP\_CENTROID | Represents the centre point of parcels and properties. | Point |
| ANZVI0803009320 | VMPROP\_CAD\_POINT | A point that represents the end point of each Cadastral Area Boundary | Point |
| ANZVI0803005175 | VMPROP\_EASEMENT | Easement | Line |
| ANZVI0803002899 | VMPROP\_PARCEL\_VIEW | Parcel View | Polygon |
| ANZVI0803002900 | VMPROP\_PROPERTY\_VIEW | Property View | Polygon |
| ANZVI0803004668 | VMPROP\_ROAD\_CASEMENT\_POLYGON | Road Casement – | Polygon |
| ANZVI0803002902 | VMPROP\_ANNOTATION\_TEXT | Annotation Text | Table |
| ANZVI0803003297 | VICMAP\_PROPERTY\_SIMPLIFIED\_1 | A modified data model of Vicmap Property |  |
| ANZVI0803003303 | VICMAP\_PROPERTY\_SIMPLIFIED\_2 | A modified data model of Vicmap Property specifically generated for Local Government use |  |

Table 2: Vicmap Property datasets.

*\*Parent metadata record for Vicmap Property. Parent metadata records act as a cover note for a product that contains a dataset series for search, discovery & delivery purposes.*

For further information please refer to the metadata records for each dataset at <https://datashare.maps.vic.gov.au/>

## Feature Based Data

### Data Model

Vicmap Property has three distinct data model representations detailed below. Two are Vicmap Property Simplified data model representations and they have been created to make Vicmap Property easier to use. Both representations utilise the same source data as Vicmap Property standard but through the joining of Parcel and Property attributes to their respective spatial representations display the information significantly differently. The simplified data models are available for areas up to LGA size. The majority of Vicmap product data models are published on the department’s website [www.delwp.vic.gov.au/vicmap](http://www.delwp.vic.gov.au/vicmap).

1. *Vicmap Property using the standard model*

The standard model represents Vicmap Property in its purist form. All Vicmap Property’s tables and attributes with their inherent linkages are provided. The user must perform all the table joins themselves to utilise the data. This model usage is generally suitable for experienced spatial professionals.

1. *Vicmap Property Simplified 1*

Vicmap Property Simplified 1 has primarily joined the Parcel and Property attributes to their respective spatial representations. Apart from the changes in the parcel and property representations this model contains all other tables in the Standard Model.

The advantages of this model are:

* The parcel/property spatial and aspatial details have been linked
* Non defined parcels/properties have been separated out
* All defined parcels/properties are in a single table, and
* Information contained in the remaining standard tables (ie Cad-Area\_Bdy, Annotation, Cad Line) has been retained.

Whilst this model is easier to use, there will still be a requirement to perform table manipulations. This model provides the keys to be able to determine:

* Approved and proposed parcel/property separation
* Parcel and Property relationships
* Base and Primary Property Representations, and
* Property and Address relationships.

It will be up to the end user to create their desired view of Vicmap Property.

1. *Vicmap Property Simplified 2*

Vicmap Property Simplified 2 has taken the simplification to another level and is considered the least sophisticated representation of Vicmap Property. As with Simplified 1, the Parcel and Property attributes have been joined to their respective spatial representations but in this case, they have been separated into proposed and approved polygon tables. This model has also provided separation between Base and Primary Properties.

Note: This model primarily provides parcel, property and road casement polygon views of the data. The only other information provided with this model is the easement details, and the property-parcel relationship tables. The Annotation, Points, Symbols, Cad\_Area\_ Boundaries and their link tables are not available in this representation.

Whilst this is the simplest form of Vicmap Property, there will still be a requirement to perform table joins, if the end user needs to obtain parcel and property relationships; or to determine which property is associated with which address.

These models can be viewed on the department’s website <https://www.land.vic.gov.au/maps-and-spatial/spatial-data/vicmap-catalogue/vicmap-property>

### Data dictionary

Refer to Appendix B.

### Data structure

Rules and/or characteristics that apply to Vicmap Property:

* Feature-based data model:
* Polygons are used to represent formally bounded area features such as parcels, properties and administrative areas, e.g. Parishes, Local Government Areas and localities.
* Lines are used to represent the boundaries defining such area features, they also provide the graphical definition of linear features such as easements.
* Points are used to locate polygon centroids holding information about the parcels and properties.
* Attributes will only reflect selected characteristics of their feature. For example, the reliability of the SPI is held within the SPI\_CODE attribute.
* Topologically structured (vertical topology) with parcel and property polygon views
* Statewide coverage.
* Conforms to national data models (ie. ICSM)
* A Persistent Feature Identifier (PFI) is generated once for each feature at the point of creation and remains constant until a feature is retired. A PFI is unique to, and cannot be reused within a particular table. However, you may have the same PFI number in different tables, but they do not necessarily relate to the same feature entity.
* The Unique Feature Identifier (UFI) is generated for each feature at the point of creation and changes with each modification or version. This allows users to track the changes made to a feature over time.
* Updates are provided as whole file replacement or via Incremental Updating (that is, an initial seed file is provided and then change only files provided in weekly intervals)
* Seamless storage of data across the state (non-tiled)
* Parcel and Property Relationships held aspatially (Link table between Parcel and Property attribution tables).
* Under regular maintenance cycle with data supplied from authoritative sources.

The Vicmap Reference Tables associated with Vicmap Property attribution are referred to in **Appendix C**.

# Reference systems

The native datum format of Vicmap Property is the Geocentric Datum of Australia (GDA2020) and the Australian Height Datum (AHD).

The native projection for Vicmap Property is held in geographic coordinates (latitude and longitude), computed in terms of GDA2020 at the 01 January 2020 epoch.

The temporal reference system for Vicmap is the Gregorian calendar.

Customers can obtain data in a variety of datums and projections.

# Data quality

## Accuracy

Vicmap relies heavily on Custodianship Agreements or MoUs to source its data from authoritative Custodians.

The spatial accuracy of data within a Vicmap product is where possible better than 1:25,000 and retains vertical alignment with other Vicmap datasets

The following procedures are undertaken as normal update/maintenance routines, to ensure conformity of the data to specification:

* Customised menus for data editing which provide on the fly logical consistency attribute checking as data is edited
* Automated data QA processes to validate topological integrity, completeness and logical consistency. The Department reviews property content against authoritative Custodian sources through the annual Property Information Quality Audit (PIQA).
* Automated data loading routines, reflecting business rules for data population, to ensure data accuracy
* Independent review of data upon loading including aspatial attributes, spatial extents and successful data load
* Validation of accepted types according to approved reference tables
* Adoption of ICSM guidelines for incremental updates - to assist in temporal data management (features are date-stamped)
* Validation of entity PFI/UFI tags for uniqueness.

Approximately 5% of all maintenance advice notices processed are separately audited by DELWP to confirm accuracy, completeness and correctness in the capture process.

### Positional accuracy

The spatial accuracy of Vicmap Property data has traditionally been classified as being “BB” accuracy and was derived from the digitising of hardcopy plans of varying spatial precision. “BB” accuracy requires that, 90% of well-defined features are within 1mm (at plot scale) of their true position.

Example:

1:500 scale capture equates to +/- 0.5 metre accuracy

1:2500 scale capture equates to +/12.5 metre accuracy

1:25000 scale capture equates to +/- 25 metre accuracy

The accuracy of Vicmap Property cannot be solely based on the original capture scales as mainternancec regimes have been altered where spatial geometry has been utilized to improve the true position of the data. There have also been spatial improvements achieved through one-off projects that incorporate property data with superior spatial positioning. As a result, a spatial precision attribute and this is held against the end nodes of the CAD\_AREA\_BDY and is expressed in metres.

The spread of spatial precision of the Vicmap Property nodes is provided in the table below.

|  |  |
| --- | --- |
| **Precision** | **Nodes** |
| 0.1 m | 4 % |
| 0.5 m | 48 % |
| 2.5 m | 20 % |
| 10 m | 5 % |
| 25 m | 23 % |

Table 3: Vicmap Property precision.

The Digital Cadastral Moderisation (DCM) Project is embarking on a four-stage process whereby:

1. all registered plans of subdivision information are being back captured as LandXML files
2. These LandXML files are then being adjusted to form an accurate cadastral database
3. This adjusted data will then be integrated into the Vicmap product suite, commencing with Vicmap Property
4. Developing an automated maintenance approach.

This is going to significantly improve the true positional accuracy of the Vicmap Property data set. To enable better synagies between the cadastral database and Vicmap Property, a new attribute has been introduced to the CAD\_POINT (new table), CAD\_AREA\_BDY and PARCEL\_VIEW tables. This attribute will be called HORIZ\_POS\_UNCERTAINTY and this value will be expressed in metres. As DCM outputs are integrated into Vicmap Property, this attribute will replace the TO\_PRECISION and FROM\_PRECISION attributes in the CAD\_AREA\_BDY table.

## Relative Accuracy

No “shift” of data as a means of “cartographic enhancement” to facilitate presentation has been employed for any real-world feature.

## Attribute Accuracy

The allowable error in attribute accuracy ranges between:

* 2% for new data additions, to
* 5% for pre-maintenance contract data.

## Completeness

The Department continuously reviews Vicmap data in collaboration with authoritative Custodians. Reliability figures indicating completeness of content between the data set and real world. Estimated completeness of content in Victoria for the main Vicmap Property datasets:

|  |  |
| --- | --- |
| **Dataset** | **Percentage of completeness** |
| Parcel - SPIs in Vicmap found in Land Registry Databases | 99.87% |
| Property - Property numbers in Vicmap matching Local Government Property and Rates data sets  | 98.83% |

Table 4: Vicmap Property completeness.

* The above figures have been calculated form the following processes:
* June 2022 VOTS – Vicmap Property SPI comparison
* 2021/2022 Property Identifier Quality Audit

Refer to Appendix D for the Propnum and SPI completeness figures for each Local Government Area (LGA)

## Logical Consistency

Logical consistency is a measure of the degree to which data complies with the technical specification. The allowable error in logical consistency ranges between 1% (new data additions) to 5% (pre-maintenance contract data). The test procedures are a mixture of software scripts and on-screen, visual checks.

## Temporal Accuracy

Compliance with real world features is dependent on the provision of new and changed parcels and property information from Custodians.

* Attribute pfi\_created is the creation date of the feature (& associated persistent feature identifier (pfi)), and
* Attribute ufi\_created is the date of the most recent change to the feature (& associated unique feature identifier (ufi)).

## Postproduction Validation

The Quality Assurance practices conform to the following Australian Standards (AS):

* ISO/AS/NZS 19100 series standards applicable to this data, including :
* ISO/AS/NZS 19113 : 2004 Geographic information - Quality Principles
* ISO/AS/NZS 19114 : 2005 Geographic information - Quality evaluation procedures, and
* ISO Draft Technical Specification 19138 Geographic information - Data quality measures

The following post-production validation exercises have been undertaken to ensure that no detail has been lost as a result of the capture process:

* Property descriptions are validated against local government records using the PIQA process
* Existing data content is checked against authoritative data sources for attribute accuracy; inconsistencies are being systematically identified and reported on a weekly basis, through the Quality Reporting Tool. These reports then form the basis for determining the priority order for rectifying non-conforming data, and
* Customer feedback provides an ongoing form of validation. Issues are verified with the Custodian and rectified where appropriate.

# Data capture

## Original construction of the dataset

* Manual digitising of compilations using existing large-scale base mapping where available and production of new pencil compilations to complete statewide coverage
* Larger scales (1:500, 1:2,500) were used in urban and town areas, smaller scales (1:10,000 and 1:25,000) in less dense rural areas
* Positional and spatial accuracy of data founded on control points derived from ground survey for urban and town areas and ‘AA’ accurate topographic mapping for rural areas, and
* A small amount of direct-to-digits compilation from source material was undertaken in the latter stages of the product development.

## Original construction of the dataset

Vicmap relies on the agreements and MoU’s signed with authoritative Custodians, through the DELWP Custodianship Program, for its data.

Examples of Custodians and/or those that may supplement or verified data are listed below:

|  |  |
| --- | --- |
| **Authoritative source/Custodian** | **Description** |
| Local Government  | Local Governments supply property details (Council Property), via the maintenance “M1” form, for the extent of their Local Government Area (LGA).They are also supplying paper proposed plans of subdivision for all non-SPEAR applications within their area of interest. |
| DELWP, Land Registry | Land Registry is a major source of parcel maintenance providing proposed and approved plans of subdivision plus all dealings effecting Crown Parcelation (Notings) on a Statewide basis. These plans are being forwarded daily. |
| VicRoads | VicRoads provide all information pertaining to road alignment changes they have created throughout the State. They forward digital copies of both their survey plans and declarations monthly. |
| Crown Land Management | Crown Land identifiers (“P” Numbers) are supplied by Crown Land Management for all Crown owned parcels within Victoria. The regularity of the supply of the “P” numbers varies depending on the region. |
| Licensed Surveyors | The larger Licensed Surveying firms are supplying digital files of large developments (Proposed Plans of Subdivision of 10 lots or more) they are working on. Survey Co-ordinates and their datum and projection accompany these plans. The development plans are being supplied to the Department prior to plan certification. |

**Table 5: Vicmap Property authoritative sources & custodians**

# Data maintenance

Vicmap products can change under one of the following two terms:

* *Vicmap maintenance -* The incorporation of new data to an existing dataset via an M1, spatial change requests or scheduled Custodial supply. No changes are made to the data or object model, therefore does not require change management processes. Additions can be seen in the weekly Vicmap update.
* *Vicmap improvements –* changes to a dataset that may see existing data over a large area replaced and/or may require the data model changed. Vicmap Improvements must be managed through the Vicmap Change Management Forum and are typically carried out as part of a project requiring additional funding.

DELWP obtains updates to data from authoritative Custodians at various intervals based on the agreed Custodianship arrangements. Updates are incorporated into Vicmap daily and made available weekly: noting that Vicmap data is never deleted, only retired and archived for legal purposes. Data is date stamped to reflect the last time the record was verified.

Reported errors or omissions are verified with the authoritative source before a change is made. Most notifications regarding anomalies are received via the Vicmap Editing Service (VES) and once verified will be incorporated into Vicmap. Feedback from users and stakeholders, including emergency services dispatch providers, ensures that the highest standards are maintained.

Approximately 5% of all maintenance advice notices processed are separately audited by DELWP to confirm accuracy, completeness and correctness in the capture process.

## Business rules for how the data is maintained in Vicmap Property

### Pre-Integration of Digital Cadatral Moderisation Project Spatially Improved Data

The survey accuracy of new subdivisions supplied as digital data is used to improve the positional and relative accuracy’s of the surrounding base data, that is, the surrounding data will be made to conform to the higher order accuracy of the new data. Following are examples of data manipulation and the decision processes involved:

### Digital Subdivision Alignment Incorporation

The subdivision is orientated to the coordinate system of Vicmap Property and the plan is theoretically ready for “dropping” into the database. Inherent differences between survey accurate coordinates and the accuracy of the database coordinates of the same area require modifications to be made to the surrounding data. This is demonstrated on Figure 1 below, where the footprint of the new digital subdivision (red dashed line) doesn’t exactly fit Vicmap Property (Black solid lines)

Figure 1: Orientating a subdivision to Vicmap’s coordinate system.

Conditions that must be met prior to adopting the spatial positioning of the new subdivision:

* That the modification of the surrounding line-work still enables the data to satisfy the spatial accuracy standards (Within 1 mm of ground truth at scale of capture or “BB”), and
* The modifications to cause minimal effect to current Vicmap Property users.

Figure 2: Adopting the spatial positioning of a new subdivision.

Figure 2 above demonstrates how Vicmap Property is amended when the above conditions have been satisfied ie Line-work still “BB”. The spatial positioning of the new subdivision is adopted and the boundaries of surrounding parcels are to be modified so that no steps appear in the data (Green Lines). All the points associated with the new plan of subdivision are flagged as points that are to be held fixed when subsequent subdivisions require database modifications.

One exception to this rule is when a more recent digital subdivision adjoins the subdivision in question. In these cases, the position of the most recent subdivision is to be adopted. Figure 3 & 4 demonstrates the instance where the points may be moved to modify the database representation.

A

B

x

x

Figure 3: Vicmap Property exception for adjoining subdivisions.

The initial survey has been identified as being input through a digital subdivision and the points have been flagged as fixed points. A new subdivision has been presented for inclusion into Vicmap Property and the south-western alignment doesn’t match the previous alignment created. All points on the original survey which fall on the shared alignment can be moved as long as the conditions stated previously are satisfied.

In the example provided above, Points “A” and “B” will be moved to accommodate the new subdivision, resulting in the shortening of the northern and southern boundaries (within spatial tolerances). (See figure 4 below).

A

B

Figure 4: Resultant solution to Figure 3.

In all cases where the accuracy limits are exceeded, an incorporation proposal is developed and these are dealt with on a case by case basis.

### Incorporation of hardcopy data

Hardcopy data was initially converted into a digital “subdivision” file, through key entering or digitising (For areas where dimensions are not provided) methods, preserving the cadastral dimensions of the parcels concerned.

The orientation and incorporation of the subsequent “subdivision” follows the process for digital subdivisions where coordinates have been provided.

In the situation where no coordinates are available, the “subdivision” is orientated utilising the existing database alignments and incorporated preserving the relative accuracy of the plans spatial data. For instance, the dimensions of the alignments are held and the surrounding data is modified to enable a seamless database to exist without the creation of a Hiatus and/or an overlap in the dataset.

*Determine Adoptions to Preserve*

Due to the limitations of the varying data capture accuracies; it is very unlikely that a plan will fit exactly into the Vicmap Property representation of the same area. Hence, there is a requirement for determining the best adoptions to retain from the existing data.

Figure 5 demonstrates the situation of the new plan not fitting the relevant area contained in Vicmap Property. In this case there are two survey accurate co-ordinates sourced from a previous survey plan and two nodes that have an accuracy of 25 metres.

25 m Accuracy

Survey Accurate

Figure 5: New plan not fitting the relevant area.

Survey accurate co-ordinates take priority over all other accuracy tags when determining the alignment to adopt. In this example the two survey accurate co-ordinates are held and the two 25m accurate nodes are moved to ensure that the relative accuracy of the plan is maintained; as depicted below in figure 6.

Figure 6: Vicmap Property priority of survey accurate co-ordinates.

Where all nodes have the same accuracy tag (Non Survey Accurate) the alignment adoption is not obvious. It would be just as correct to adopt the points to the rear of the parcel as the frontage.

As a general rule, where all accuracy tags are equal, the road frontage of the subdivision is to be held reducing the amount of modification to be made to the road alignments within Vicmap Property.

Figure 7 demonstrates how the map base would be modified to fit in the new subdivision.

ROAD

ROAD

Figure 7: How Vicmap property manages a new subdivision.

### Post Integration of Digital Cadatral Moderisation Project Spatially Improved Data

Post integration of the spatially improved data, we will have mathematically calculated accuracy levels of uncertainty applied to the data. All new subdivision activity will be incorporated using and adjusted data.

During maintenance of the parcel fabric, Vicmap Survey will be adjusting the surrounding area of each new plan of subdivision in the context of continuous improvement of the spatial definition of the cadastral data. This means that any maintenance activity will include the inclusion of the new plan and spatial movement of the surrounding data (known as the ‘Sphere of Influence’).

This will result in a significantly increased number of generated data changes for each plan of subdivision, many of which cannot be detected by the naked eye. To avoid unnecessary movement of data for very little benefit of Vicmap Property customers, a maintenance threshold of 5 mm will be introduced to limit miniscule spatial changes ie any adjusted point that moves equal to or less than 5 mms will not be adopted in Vicmap Property.



Figure 8: New Subdivision over an adjusted area with field of influence impacted.

If the movement is greater than 5 mms, the whole area (new subdivision and field of influence) will be moved to the new position supplied from Vicmap Survey. Where it is5 mm or less, the original location will be retained, and the new subdivision made to fit the existing point locations.

# Data product delivery

## Access & licensing

**Data ava**i**lable under the DataVic policy** [www.data.vic.gov.au](http://www.data.vic.gov.au)

Vicmap Property is freely available through the Data.Vic platform at [www.data.vic.gov.au](http://www.data.vic.gov.au) under a Creative Commons Attribution 4.0 Australia license.

The Victorian Government Data Directory also provides details such as:

* Timetable for release
* Usage and availability restrictions
* License restrictions and conditions
* Access constraints
* Exclusion of liability
* Supply and media formats
* Projections.

Vicmap is also available through a network of Data Service Providers listed at: <https://www2.delwp.vic.gov.au/maps/spatial-data/victorian-spatial-data/licensing#DSP>

Historical versions of Vicmap data is only available under special and exceptional circumstances, such as a legal proceeding, and may incur an administration fee.

# Metadata

The metadata, abstract, and preview for the datasets within Vicmap products is finable and discoverable via DataShare and maybe replicated to other data discovery services and applications.

Vicmap metedata is compliant with AS/NZS ISO 19115.1:2015 Metadata.

# Appendix A: Data & object models

Vicmap data models can be located at [www2.delwp.vic.gov.au/maps](http://www.delwp.vic.gov.au/vicmap). The following data models are the current data models dealing with Vicmap Property

* Vicmap Property Standard Data Model, version 5.0, 15 October 2021.
* Vicmap Property Simplified 1, version 4.0, 21 June 2021.
* Vicmap Property Simplified 2, version 5.0, 2 July 2021.

## Sample part of the Vicmap Property Standard Version 5.0



Further information on the Vicmap Property data sets can be located at www2.delwp.vic.gov.au/maps

## Spatial Data Integrity

Vicmap Property data will comply with the following rules for spatial data integrity. (The maximum allowable errors are described in the ‘Data Quality’ section. The rules will be enforced with a 95% or better confidence level when full Vicmap Property compliance has been reached.)

* The spatial data will have no overshoots, undershoots, broken lines or other artefacts of the data capture process.

These possible errors in the data and their correct structure are illustrated below.



*Correct Representation Incorrect Representation*

##### **Undershoot in data**



*Correct Representation Incorrect Representation*

##### **Overshoot in data**

*Correct Representation*



*Incorrect Representation*

##### **Broken line in data**



 *Correct Intersection Incorrect Intersection Incorrect Intersection*



 *Correct Linear Feature Spike in Linear Feature*

##### **Artefacts**

Artifacts such as spikes and deviations of a linear feature from its expected position are removed from the data to the extent that they will not be visible when the data is plotted or displayed at half its nominal scale i.e. 1:250 for 1:500 data.

## Coincident features

There will be no coincident polygons, lines (whole or in part) or points of the same feature type in the data.

## Resolution of coordinates

Co-ordinates of all spatial objects will be quoted to the nearest 0.001 metres

## Feature Identifier Attributes

Vicmap property uses two identifier attributes to uniquely identify feature instances, the Persistent Feature identifier (PFI) and the Unique Feature Identifier (UFI). Both PFI and UFI items are numeric by definition and are managed with the same domain across across the Vicmap Property product.

The PFI is allocated to new features at creation and remains with that feature throughout the life of that feature. The PFI is unique within each table but the same PFI can exist in other tables. A PFI does not change when edits are undertaken on attributes or modifications done to spatial representation of a feature. Once the feature is no longer current, the PFI is retired and will not appear in the live data.

The UFI is unique across the entire Vicmap Property data product and is assigned every time there is a new feature added to Vicmap Property or when features are edited as maintenance occurs. This enables the database to be temporalily managed and supports incremental data supply of the product.

# Appendix B: Data dictionary

The Data dictionary describes all pertinent features, together with any inter-relationships within Vicmap Property that are used to depict respective real-world counterparts and any aspects of their behavior. Included are:

* Class/Feature lists
* Definitions
* Types and included elements
* Attributes
* Spatial representation (line, point, polygon, etc, including any relationship between size or scale of a feature and its representation, and
* Accepted codes or abbreviations or pointers to reference tables.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| ACCESSORY\_LOT | Accessory Lot | Parcel | Has its own title – Garage spot belongs to unit. Can’t be dwelling place.  | VARCHAR2(1) | Y, N |
| ADJUSTED | Survey Adjusted Point | Cad Point | A code to identify whether the Cad Point was used in the adjustment of Vicmap Cadastre, has been modified by maintenance post adjustment or unused in adjustment | VARCHAR2(1) | A, M & U |
| ALLOTMENT | Crown Allotment | Parcel | Crown Allotment descriptor | VARCHAR2(10) | 7 |
| ANNOTATION\_TEXT | Annotation | Annotation Text | Represents the text string displayed in the graphics for parcel descriptors. | VARCHAR2(80) | PS615345 |
| BASE\_PFI | Base Property PFI | Property View | Base Property Persistent Feature Identifier (PFI) | VARCHAR2(10) | 397216342 |
| BLOCK | Crown Block | Parcel | A part of the parcel descriptor. It is utilized in combination with either Lot and Plan number or Allotment and Parish code. | VARCHAR2(12) | 2 |
| CENTROID\_PFI | Centroid Table PFI | Parcel View, property View & Road Casement Polygon | This the centroid table Persistent Feature Identifier used as a foreign key to join the centroid table to the spatial polygon tables | VARCHAR2(10) | 167456342 |
| CLTENURE | Crown Land Tenure Boundary | Cad Area Bdy | A flag to indicate whether the cad area boundary forms part of a Crown Land Tenure polygon | VARCHAR2(1) | Y, N |
| CREFNO | Council Reference Number | Parcel | Unique reference number is provided and populated by Local Council. The number relates to the respective parcel of land  | VARCHAR2(15) | 12408756 |
| CROWN\_STATUS | Crown Status | Parcel | A code that identifies a characteristic of the crown description.Refer to Reference TablePR\_CROWN\_STATUS | VARCHAR2(1) | C, G & V |
| DESC\_TYPE | Description type code | Parcel | A code to identify the origin of the parcel identifier.Refer to Reference TablePR\_DESC\_TPYE | VARCHAR2(2) | 14, 15 |
| FEATURE\_CODE | Annotation Feature Code | Annotation Text | Identifies the feature type that the annotation text representsRefer to Reference table PR\_ANNOTEXT\_ FEATURECODE | VARCHAR2(6) | APN |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| FROM\_PFI | From Point PFI | Cad Area Bdy | A foreign key from the Cad Point table to enable the Cad Area Bdy alignment beginning to be associated with it’s Cad Point. | VARCHAR2(10) | 300294182 |
| FROM\_PRECISION | Accuracy | Cad Area Bdy | The absolute accuracy (difference between survey XY and the mapbase XY) precision of the cad area boundary start node expressed in metres. | NUMBER(4,1) | 0.1 |
| FROM\_SURVEY\_X | Easting Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes for the start of the cad area boundary, expressed in Longitude – GDA2020 datum. | NUMBER(13,9) | 145.454925393 |
| FROM\_SURVEY\_Y | Northing Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes expressed in Latitude – GDA2020 datum (LLD GDA94) | NUMBER(13,9) | -38.083987263 |
| FURTHER\_DESCRIPTION | Further Description field | Parcel | The Further Description field is utilized for a variety of description purposes and is generally associated with another field. For example, LOT\_NUMBER = RES1, FD = Recreation Reserve | VARCHAR2(80) | NUA, TP603875 |
| GRAPHIC\_TYPE | Property Graphic Reperesentation | Property View | A code to identify the type of spatial property polygon representation. Typically a (B)ase Polygon encompasses all Units and the Common Property such as driveway. The (P)rimary property polygon, relates to the individual title. i.e. Unit 1 | VARCHAR2(1) | B or P  |
| HORIZ\_POS\_UNCERTAINTY | Horizontal Positional Uncertainty of a spatial feature | Cad Point, Cad Area Bdy & Parcel View | This is an indication of the precision of a Cad\_Point, Cad\_Area\_Bdy and the Parcel\_View polygon with respect to the absolute positioning in the real world of these features. | NUMBER(5,2) | 0.25 |
| IMAGERY | Imagery  | Cada Area Bdy | A flag to indicate that the Cad\_Area\_Bdy has been positionally located using remote sensing imagery | VARCHAR2(1) | Y, N |
| INTERSECTION | Road Casement Intersection |  Road Casement Polygon | A flag that identifies whether the Road Casement polygon represents an intersection. | VARCHAR2(1) | Y, N |
| JUSTIFICATION | Annotation Text Justification | Annotation Text | Position on the text string used as the justification insert point.Ie (C)entre (T)op | VARCHAR2(2) | CT |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| LGA\_CODE | Local Government Area code | Parcel, Property & Road Casement Polygon | The LGA code defines which LGA the feature in question falls into.Refer to Reference Table: **LGA** | VARCHAR2(3) | 302, 348  |
| LOCALITY\_NAME | Locality Name | Road Casement Polygon | The name of the Locality that the Road casement Polygon falls within. | VARCHAR2(46) | ROSEBUD |
| LOT\_NUMBER | Lot Number | Parcel | Lot Number for any given Plan of Subdivision | VARCHAR2(12) | 2, RES1 |
| MULTI | Multi Parcel Polygon | Parcel | A flag to indicate that the Parcel View polygon has more than one parcel associated with it. | VARCHAR2(1) | Y, N |
| MULTI\_ASSESSMENT | Multi assessment Property flag | Property | Multi-assessment property flag values | VARCHAR2(1) | Y, N |
| PARISH\_CODE | Parish code | Parcel | List of Parish names and their corresponding codes See Reference Table: PARISH | VARCHAR2(4) | 2020  |
| PART | Part Parcel | Parcel | Values indicating part or whole parcel eg P - Part | VARCHAR2(1) | P, N |
| PFI | Persistent Feature Identifier | All | Uniquely identifies each record within a table. Persists through either attribute or spatial representation changes. i.e. Remains for the life of the object it identifies | VARCHAR2(10) | 167456342 |
| PFI\_CREATED | PFI Create Date | All | The Date the entity was created | DATE | 26/02/2002 1:34:16 AM |
| P\_NUMBER | Parcel Number | Parcel | A unique number that links the respective Crown parcel to Land Folio (the Crown Land tenure management data base) Only populated for Crown Land parcels. | VARCHAR2(10) | P126588 |
| PARCEL\_ID | Vicmap Survey parcel identifier | Parcel | A unique persistent alternative feature identifier number managed within Vicmap Survey. It enables parcels to be related between different two products | VARCHAR2(36) | 123e4567-e89b-12d3-a456-426614174288 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| PLAN\_NUMBER | Plan Number | Parcel | A unique identifier for a plan registered on the Victorian On-line Titles System (VOTS), consisting of a plan type and numberSee Reference Table: PR\_PLAN\_NUMBER for the plan types and ranges.  | VARCHAR2(9) | LP12772 RP2388 PS212865 TP213768 |
| POINT\_ID |  | Cad Point | A unique persistent alternative feature Identifier number managed within Vicmap Survey. It enables a point to be shared between different systems. | NUMBER(14) | 9374649474764 |
| PORTION | Crown Portion | Parcel | Crown Portion descriptor  | VARCHAR2(12) | A |
| PROPERTY | Property Boundary | Cad Area Bdy | A flag to indicate whether the cad area boundary forms part of a property polygon | VARCHAR2(1) | Y, N |
| PROPERTY\_TYPE | Property Type | Property | A code to identify whether the property is an occupancy or just a graphic entity  | VARCHAR2(1) | G, O |
| PROPNUM | Property Number | Property | Council’s Rates Property Number - May apply to a part, single or a group of parcels.  | VARCHAR2(20) | 40896 |
| REG\_DATE | Plan registration Date | Parcel | The date that the Plan of subdivision was registered within the Victorian On-line Title System (VOTS) | DATE | 20211215000000 |
| ROAD | Road Parcel | Parcel | A flag to indicate whether the parcel is within a road casement. A road parcel may be associated with a plan or subdivision or crown description. | VARCHAR2(1) | Y, N |
| ROAD\_ALIGN | Road Alignment Boundary | Cad Area Bdy | A flag to indicate whether the cad area boundary forms part of a road casement polygon | VARCHAR2(1) | Y, N |
| ROTATION | Annotation Text Rotation | Annotation Text | Rotation of the text string in decimal degrees. | NUMBER(5,1) | 86.2 |
| SEC | Section | Parcel | A part of the parcel descriptor. It is utilized in combination with either Lot and Plan number or Allotment and Parish code. | VARCHAR2(12) | A, D, 2, 2A etc |
| SPI | Standard Parcel Identifier | Parcel | Standard Parcel Identifier is a unique identifier for each parcel in Vicmap Property and is based on its legal description. | VARCHAR2(18) | 3\LP218573 or 19~23\PP5841 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| SPI\_CODE | Standard Parcel Identifier Code | Parcel | The Standard Parcel Identifier Code states the Quality Assurance status of the respective SPI. See Reference Table: PR\_SPI for the full list of codes.  | NUMBER(3) | 101, 202 etc |
| STATUS | Land Parcel Status | Easement, Parcel, Parcel View, Property & Property View | A code that identifies whether the feature is (A)pproved or (P)roposed | VARCHAR2(1) | A, P |
| SUBDIVISION | Crown Subdivision | Parcel | Crown Subdivision descriptor  | VARCHAR2(12) | B |
| SURVEY\_DISPARITY | Survey Differences Exist | Cad Area Bdy | A flag indicating a hiatus or overlap is associated with this alignment. (50mm & 250mm) | VARCHAR2(1) | Y, N |
| TASK\_ID |  | All | A link to the LAT\_TASK table which contains detailed information about the edit. This attribute supports internal maintenance processes and the referenced LAT\_TASK table is not published to the public. | NUMBER(10) | 3001 |
| TEXT\_HEIGHT | Text Height | Annotation Text | Height of text string font. | NUMBER(8,3) | 1.25 |
| TEXT\_WIDTH | Text Width | Annotation Text | Width of text string font. | NUMBER(8,3) | 1.25 |
| TO\_PFI | To Point PFI | Cad Area Bdy | A foreign key from the Cad Point table to enable the Cad Area Bdy alignment end to be associated with it’s Cad Point. | VARCHAR2(10) | 375294142 |
| TO\_PRECISION | Accuracy | Cad Area Bdy | The absolute accuracy (difference between survey XY and the mapbase XY) precision of the cad area boundary end node expressed in metres. | NUMBER(4,1) | 2.5 |
| TO\_SURVEY\_X | Easting Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes for the end of the cad area boundary, expressed in Longitude – GDA2020 datum. | NUMBER(13,9) | 145.453249435 |
| TO\_SURVEY\_Y | Northing Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes for the end of the cad area boundary, expressed in Latitude – GDA2020 datum. | NUMBER(13,9) | -38.083767178 |

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
| **Vicmap Property Attribute** | **Definition** | **Source Tabble** | **Explanation** | **Field Type/Size** | **Example** |
| TO\_SURVEY\_X | Easting Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes for the end of the cad area boundary, expressed in Longitude – GDA2020 datum. | NUMBER(13,9) | 145.453249435 |
| TO\_SURVEY\_Y | Northing Coordinate | Cad Area Bdy | The coordinate extracted from the registrered survey fieldnotes for the end of the cad area boundary, expressed in Latitude – GDA2020 datum. | NUMBER(13,9) | -38.083767178 |
| TO\_PRECISION | Accuracy | Cad Area Bdy | The absolute accuracy (difference between survey XY and the mapbase XY) precision of the cad area boundary end node expressed in metres. | NUMBER(4,1) | 2.5 |
| TOWNSHIP\_CODE | Township Code | Parcel | List of Township and AT codes See Reference Table: TOWNSHIP.TOWNSHIP\_CODE | VARCHAR2(5) | 5606, 2287A |
| UFI | Unique Feature Identifier | All | Unique Feature Identifier number that is retained until a feature attribute or position of data changes | NUMBER(10) | 375 004 696 |
| UFI\_CREATED | UFI Create date | All | Date Unique Feature Identifier (UFI) was created | DATE | 19/04/2010 10:32:17 AM |
| UFI\_OLD | UFI superseded date | All | Date Unique Feature Identifier (UFI) was superseded. | DATE | 26/09/2000 11:25:02 AM |
| VIEW\_PFI | Spatial Polygon PFI | Parcel & Property | Persistent Feature Identifier (PFI) for the spatial polygons for both the Parcel and Property representations | VARCHAR2(10) | 167456342 |
| Z\_LEVEL | Property / Parcel Level  | Parcel View, Property View & Road Casement Polygon | A property/parcel may be (B)elow ground, at (G)round level or (A)bove ground. Where a Below ground or Above ground property/parcel exists, the Ground Level property/parcel will be populated with ‘S’ for (S)urface Level.See Reference Table: PR\_Z\_LEVEL | VARCHAR2(2) | A1, B9, G or S |

# Appendix C: Reference Tables

Reference tables used in the production and maintenance of Vicmap Property

|  |  |  |
| --- | --- | --- |
| **Name** | **Title** | **Description** |
| PR\_CROWN\_STATUS | Crown Status | Codes indicating status of Crown LandValid codes are: **C** – Crown Land **G** – Government Road **V** – Land Vested |
| PR\_DESC\_TYPE | Description Type | Type descriptor (Crown, Plan, etc.) valuesValid Values are : **14** – Crown Description **15** – Plan DescriptionNote: **12**- Multi Lot & **13** – Road Parcel will remain valid until the VLAT IUF have incorporated the Multi and Road flags introduced in October 2021 |
| PR\_GRAPHIC\_TYPE | Graphic Type | A code to identify the type of spatial property polygon representationValid Values: **B** – Base **P** - Primary |
| PR\_INTERSECTION | Intersection flag | A flag to identify whether a road casement polygon is an intersection or notValid Values are: **Y** – Yes **N** - No |
| PR\_MULTI\_ASSESSMENT | Multi-assessment flag | Multi-assessment property flag valuesValid Values are: **Y** – Yes **N** - No |
| PR\_PART | Part (parcel) flag | Values indicating part or whole parcelValid Values are: **P** – Part **N** – Not Part |
| PR\_PLAN\_NUMBER | Plan Number  | Valid Plan prefixes and valid number ranges for each plan type |
| PR\_PROPERTY\_TYPE | Property type | A code to identify whether the property is an occupancy or just a graphic entityValid Values are: **G** – Graphic **O** - Occupancy |

|  |  |  |
| --- | --- | --- |
| **Name** | **Title** | **Description** |
| PR\_SPI | Standard Parcel Identifier (SPI) code | A code that identifies the reliability of the Standard Parcel Identifier (SPI)Valid Values are: **100** – Spatially Valid **101** – Validated SPI **102** – Automatically Generated **105** – Non-VOTS SPI **106** – Non-Merge Duplicate SPI **107** – Parcel Mismatch with SPI **110** – Formerly Verified SPI **111** – Validated Duplicate **200** – Multi Lot Validated **201** – Unvalidated Duplicate **202** – Invalid SPI **500** – Transfer Balance |
| PR\_STATUS | Status | Values indicating whether the parcel/property are proposed or approved.Valid Values are: **A** – Approved **P** - Proposed |
| PR\_Z\_LEVEL | Z Level | Indication of the location of a parcel/property in relation to the surface level.Valid Values are: **B1 to B9** – Below Ground **G** – Ground Level **S** - Surface Level **A1 to A9** – Above Ground |
| LGA | LGA name /code number | List of Local Government Area names and their corresponding codes |
| PARISH | Parish name /code number | List of Parish names and their corresponding codes |
| TOWNSHIP | Township/AT name/code number | List of Township and AT names and their corresponding codes |

# Appendix D: Vicmap Property Completeness

|  |  |  |  |
| --- | --- | --- | --- |
| **LGA Code** | **LGA Name** | **% SPI Completeness** | **% Propnum Completeness** |
| 300 | Alpine | 99.88% | 99.19% |
| 301 | Ararat | 99.88% | 99.01% |
| 302 | Ballarat | 99.79% | 99.47% |
| 303 | Banyule | 99.90% | 98.89% |
| 304 | Bass Coast | 99.62% | 97.01% |
| 305 | Baw Baw | 99.88% | 97.00% |
| 306 | Bayside | 99.89% | 98.99% |
| 307 | Boroondara | 99.94% | 98.99% |
| 308 | Brimbank | 99.98% | 96.44% |
| 309 | Buloke | 99.48% | 99.13% |
| 310 | Campaspe | 99.78% | 98.75% |
| 311 | Cardinia | 99.97% | 99.25% |
| 312 | Casey | 99.98% | 98.47% |
| 313 | Central Goldfields | 99.94% | 98.33% |
| 314 | Colac Otway | 99.24% | 97.36% |
| 315 | Corangamite | 99.83% | 99.54% |
| 316 | Darebin | 99.88% | 99.60% |
| 319 | East Gippsland | 99.94% | 99.60% |
| 320 | Frankston | 99.87% | 99.41% |
| 321 | Gannawarra | 99.88% | 99.47% |
| 322 | Glen Eira | 99.93% | 99.59% |
| 323 | Glenelg | 99.84% | 98.62% |
| 324 | Golden Plains | 98.87% | 99.50% |
| 325 | Greater Bendigo | 99.92% | 99.55% |

|  |  |  |  |
| --- | --- | --- | --- |
| **LGA Code** | **LGA Name** | **% SPI Completeness** | **% Propnum Completeness** |
| 326 | Greater Dandenong | 99.92% | 99.41% |
| 327 | Greater Geelong | 99.79% | 98.59% |
| 328 | Greater Shepparton | 99.93% | 99.17% |
| 329 | Hepburn | 99.74% | 98.86% |
| 330 | Hindmarsh | 99.49% | 99.82% |
| 331 | Hobsons Bay | 99.93% | 99.14% |
| 332 | Horsham | 99.91% | 99.88% |
| 333 | Hume | 99.98% | 99.28% |
| 334 | Indigo | 99.86% | 98.12% |
| 335 | Kingston | 99.84% | 98.31% |
| 336 | Knox | 99.96% | 98.05% |
| 337 | Latrobe | 99.92% | 99.11% |
| 338 | Loddon | 99.63% | 97.48% |
| 339 | Macedon Ranges | 99.95% | 95.38% |
| 340 | Manningham | 99.95% | 99.55% |
| 341 | Maribrynong | 99.79% | 98.88% |
| 342 | Maroondah | 99.96% | 99.82% |
| 343 | Melbourne | 99.93% | 99.21% |
| 344 | Melton | 99.97% | 99.56% |
| 345 | Mildura | 99.90% | 99.28% |
| 346 | Mitchell | 99.94% | 98.89% |
| 347 | Moira | 99.91% | 98.69% |
| 348 | Monash | 99.94% | 99.25% |
| 349 | Moonee Valley | 99.90% | 99.06% |
| 350 | Moorabool | 99.49% | 99.73% |
| 351 | Moreland | 99.76% | 99.60% |

|  |  |  |  |
| --- | --- | --- | --- |
| **LGA Code** | **LGA Name** | **% SPI Completeness** | **% Propnum Completeness** |
| 352 | Mornington Peninsula | 99.88% | 98.79% |
| 353 | Mount Alexander | 99.77% | 97.88% |
| 354 | Moyne | 99.50% | 98.46% |
| 355 | Murrindindi | 99.27% | 98.22% |
| 356 | Nillumbik | 99.94 | 99.62% |
| 357 | Northern Grampians | 99.98% | 99.92% |
| 358 | Port Phillip | 99.98% | 99.88% |
| 359 | Pyrenees | 99.72% | 99.59% |
| 360 | Queenscliffe | 98.66% | 98.79% |
| 361 | South Gippsland | 99.38% | 97.77% |
| 362 | Southern Grampians | 99.66% | 99.74% |
| 363 | Stonnington | 99.95% | 98.63% |
| 364 | Strathbogie | 99.96% | 99.96% |
| 365 | Surf Coast | 99.43% | 99.44% |
| 366 | Swan Hill | 99.09% | 99.26% |
| 367 | Towong | 99.34% | 99.31% |
| 368 | Wangaratta | 99.59% | 99.36% |
| 369 | Warrnambool | 99.75% | 98.83% |
| 370 | Wellington | 99.69% | 99.88% |
| 371 | West Wimmera | 99.68% | 99.57% |
| 372 | Whitehorse | 99.94% | 98.78% |
| 373 | Whittlesea | 99.97% | 98.04% |
| 374 | Wodonga | 99.96% | 99.39% |
| 375 | Wyndham | 99.99% | 99.25% |
| 376 | Yarra | 99.96% | 98.29% |
| 377 | Yarra Ranges | 99.92% | 99.31% |

|  |  |  |  |
| --- | --- | --- | --- |
| **LGA Code** | **LGA Name** | **% SPI Completeness** | **% Propnum Completeness** |
| 378 | Yarriambiack | 99.58% | 91.97% |
| 381 | Benalla | 99.65% | 98.81% |
| 382 | Mansfield | 99.68% | 97.33% |

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1. Developed by the United Nations Committee of Experts on Global Geospatial Information Management [↑](#footnote-ref-2)