

Spatial Information Framework Information Guidelines

Part of Victoria's Spatial Information Management Framework
Second Edition

The Victorian Spatial Council was established under the Victorian Spatial Information Strategy 2004-2007 to support the advancement of Victoria's social, economic and environmental goals through the provision and application of spatial information. It does this by providing a coordinated approach to spatial information policy, development and management, and facilitating opportunities for greater partnership building, collaboration, cooperation and education.



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September 2009

CONTENTS

VSC CHAIRMAN’S FOREWORD.....	4
INTRODUCTION.....	5
THE SPATIAL INFORMATION MANAGEMENT FRAMEWORK	5
THIS DOCUMENT	7
THE GUIDELINES.....	8
PART A – INTRODUCTION.....	8
BACKGROUND	8
<i>International approaches</i>	8
<i>Recent recommendations for Victoria’s Framework Information</i>	9
PURPOSE.....	9
FRAMEWORK INFORMATION POLICY	9
PART B – DEFINING FRAMEWORK INFORMATION.....	10
<i>Characteristics of Framework Information</i>	10
<i>Benefits of Framework Information</i>	10
MANAGEMENT APPROACH FOR FRAMEWORK INFORMATION IN VICTORIA	11
PART C – CATALOGUE OF FRAMEWORK INFORMATION IN VICTORIA	13
VICTORIA’S FRAMEWORK INFORMATION	13
<i>Position</i>	13
<i>Property</i>	13
<i>Planning</i>	14
<i>Features of Interest</i>	14
<i>Vegetation</i>	14
<i>Transport</i>	14
<i>Address</i>	15
<i>Administrative Boundaries</i>	15
<i>Crown Land Tenure</i>	15
<i>Hydrography</i>	16
<i>Elevation</i>	16
<i>Imagery</i>	16
SOURCING AND USING VICTORIA’S FRAMEWORK INFORMATION	17
<i>Who is the custodian of Victoria’s Framework Information?</i>	17
<i>How do I find out more about Victoria’s Framework Information?</i>	17
<i>How do I access Victoria’s Framework Information?</i>	17
<i>What is the quality of the Framework Information?</i>	18
<i>What is the cost of the Framework Information?</i>	18
<i>In what formats/projections are the Framework Information, and how do the datasets inter-relate?</i>	18
<i>What is the currency of Victoria’s Framework Information?</i>	18
<i>How can I combine the Framework Information with my or others’ Business Information?</i>	18
APPENDIX - GLOSSARY	19
FURTHER READING	20

VSC CHAIRMAN'S FOREWORD

The Victorian Spatial Information Management Framework consolidates the policies, principles and guidelines for information management that were articulated by both the Victorian Geospatial Information Strategy 2000-03 and the Victorian Spatial Information Strategy 2004-07.

The Framework aims to support the effective use of spatial information to support Victoria's social, environmental and economic goals through the establishment of institutional arrangements for developing spatial information; creating and maintaining spatial information; making spatial information accessible and available; and strategic development of technology and applications.

The custodian of spatial information is at the heart of the Spatial Information Management Framework. Its policies set out the minimum requirements for custodians to manage their datasets, while a set of underlying principles provide the foundation for enabling them to maintain these datasets and ensure all Victorians are aware of and have ready access to them.

These principles address all elements of the Spatial Data Infrastructure of Victoria: *governance, custodianship, framework information, business information, quality, metadata, awareness, access, pricing and licensing, and privacy.*

The Framework is accompanied by ten Guideline documents to assist custodians in the implementation of these policies and principles. These *Framework Information Guidelines* provide an introduction to Victoria's approach to Framework Information: how it is defined, how it is managed, what it comprises, and how it may be sourced and used.

The Guideline documents are also intended to be accessible to the general reader by setting out fully the basis on which the Framework will be delivered.

The Victorian Spatial Council is Victoria's principal coordinating body for spatial information, with a mandate to develop policy and promote best practice for spatial information management. These *Framework Information Guidelines* are a key contributor to the Spatial Information Management Framework's objective to make spatial information accessible and useable. It is intended that they will be informed by practical experience, and contributions to future editions are welcome from practitioners and readers alike.



Olaf Hedberg

Chair, Victorian Spatial Council

INTRODUCTION

The Spatial Information Management Framework

The Spatial Information Management Framework is Victoria's best practice approach for establishing and retaining consistency in the management of spatial information across all organisations – whether public or private – with a role or interest in doing so.

Its objective is that spatial information be made as accessible as possible.

The Victorian Spatial Council has endorsed the development of the Framework because a coordinated approach to information management will provides the greatest opportunity to:

- reduce duplication of datasets, systems and processes, and increase consolidation, leading to more efficient spending on spatial information
- optimise investment and develop partnerships across the spatial information community (public, private and academic sectors)
- deliver higher quality datasets
- improve access to spatial information

Management of spatial information by participants in the Framework should facilitate its effective use, based on four key principles: that the spatial information will:

- represent the definitive and authoritative source of the data it contains
- be managed by designated custodians
- be accessible and available to all members of the community, except where confidentiality and commercially sensitive conditions apply
- be able to be combined with other spatial information products for the purposes of analysis and decision making

The Spatial Information Management Framework provides a holistic approach to managing spatial information in Victoria, encompassing the

1. **institutional arrangements for developing spatial information;**
2. requirements for **creating and maintaining spatial information;**
3. mechanisms for **making spatial information accessible** and available; and
4. **strategic development of technology and applications.**

Together, these components of the Framework create Victoria's Spatial Data Infrastructure (SDI).

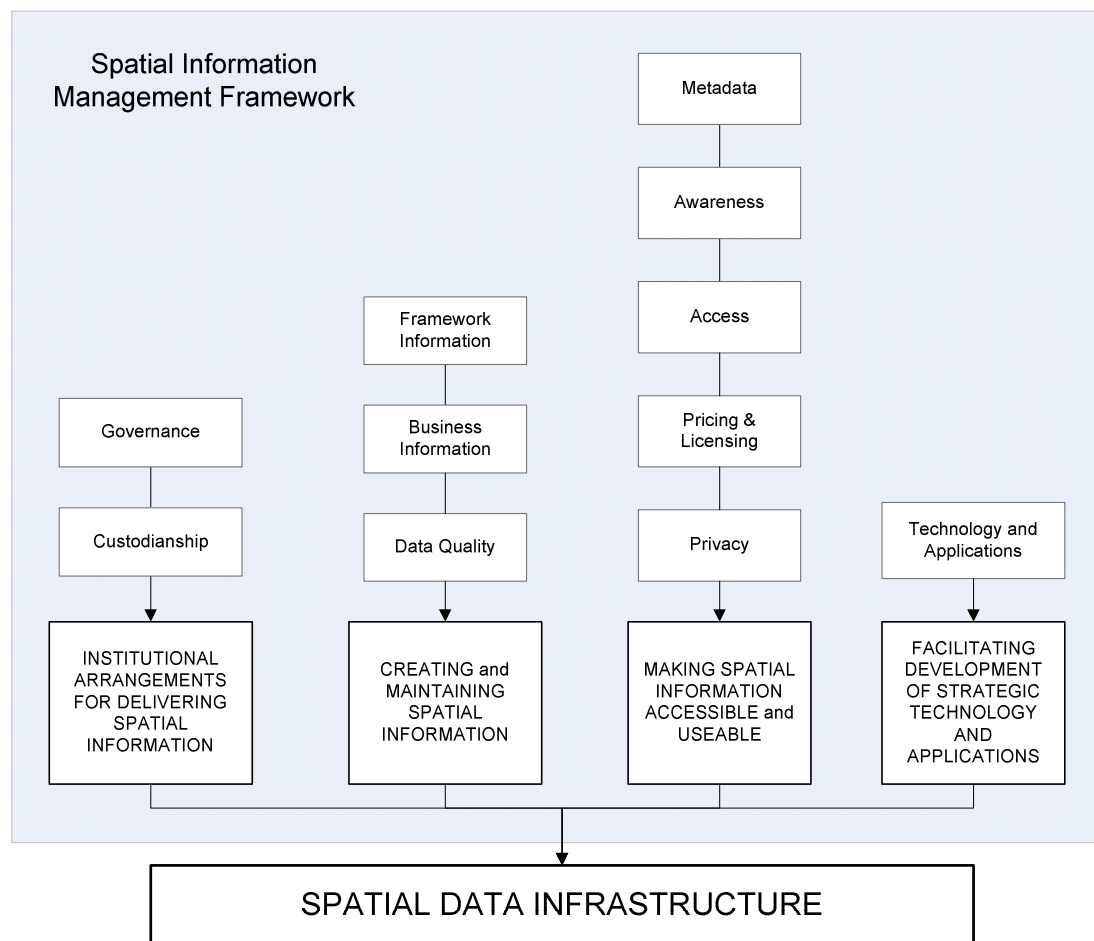
The SDI is an enabler – a mechanism for making data available and for sharing and exchanging it to enhance the achievement of social, environmental and economic goals. Behind it are the myriad of activities that create the conditions in which that sharing and exchange can take place, ie the development of the data, technology, policies, institutional arrangements and capacity building (ie equipping people to use the technology and information).

The Framework allows for the management of these elements in an integrated way to provide an environment for the effective use of spatial information.

This integrated approach is illustrated in Figure 1.

The Framework is supported by policies and guidelines that provide the formal requirements for implementing it, and tools and resources to support those responsible for that task.

Figure 1: The Victorian Spatial Information Management Framework



Separate Guidelines have been prepared for the following components of the Framework:

- Governance
- Custodianship
- Framework Information
- Business Information
- Data Quality
- Metadata
- Awareness
- Access
- Pricing and Licensing
- Privacy

The purpose of the Guidelines is to explain the policies and principles outlined in the relevant component of the Framework, and to describe activities that will support their application in implementing it.

It is envisioned that these Guidelines will vary over the life of the Framework as new information, policies, and procedures are developed, and as new issues arise.

This Document

It is intended that the Guidelines be read in conjunction with the document '*Victoria's Spatial Information Management Framework and Directory of resources*', also produced by the Victorian Spatial Council.

These Framework Guidelines have three sections.

- Part A provides an introduction to Framework Information in Victoria and the policy basis for its management and provision.
- Part B is a detailed guide to the definition of Framework Information and the management approach being adopted in Victoria.
- Part C provides a catalogue of Victoria's Framework Information and an overview of how to source and use it.

THE GUIDELINES

PART A – INTRODUCTION

Background

The first formal definition of Victoria's fundamental spatial data requirements was made in 1993 (Tomlinson, 1993), when three datasets were consistently identified as being required in many of the information products used by government agencies. These were the cadastral map base, the topographic map base and the road centreline network.

These datasets were described as 'frame' datasets because 'they act as frames for other data, either through their use in data creation, or through their roles as visual frames of reference for the information products themselves'. In other words, they were the core or base data infrastructure from which virtually all other products were built or depended upon.

Since 1995 the definition of these datasets has undergone substantial refinement, with the result that there are now twelve framework datasets – position, property, planning, crown land tenure, address, administrative boundaries, features, transport, hydrography, elevation, vegetation, and imagery datasets¹. (These are described further in Part C.) Together they fall under the 'Vicmap' umbrella.

International approaches

In the United States, the concept of 'framework' information was articulated in Executive Order 12906, '*Coordinating Geographic Data Acquisition and Access: the National Spatial Data Infrastructure*', signed by President Clinton in April 1994.

The framework includes spatial 'data that are significant... to a broad variety of users within any geographic area or nationwide.' Further, the framework provides

'a base on which to collect, register or integrate information accurately. To be successful, the framework data must be dependable and trustworthy, be created from the "best" data available, and be easy to access and use... The information content for the framework will include the data themes of geodetic control, digital orthoimagery, elevation, transportation, hydrography, governmental units and cadastre.'

The 'framework' also encompasses the procedures and guidelines that provide for data integration and sharing, institutional relationships and business practices that encourage the use and maintenance of the data.

The European Union's INSPIRE initiative (Infrastructure for Spatial Information in Europe)² uses the term 'reference data', based on 'a series of datasets that everyone involved with geographic information uses to reference his/her own data as part of their work. It provides also a common link between applications and thereby provides a mechanism for the sharing of knowledge and information amongst people.'

The components of reference data are identified as: geodetic reference system, units of administration, units of property rights (parcels, buildings), addresses, selected topographic themes (hydrography, transport, height), orthoimagery, and geographic names.

1. In this document, the terms 'Framework data' and 'Framework dataset' are used when referring to the specific datasets contained in Victoria's 'Framework Information'.

2. INSPIRE aims to make 'available relevant, harmonised and quality geographic information for the purpose of formulation, implementation, monitoring and evaluation of [European] Community policy-making.'

Recent recommendations for Victoria's Framework Information

In 2003, the Review of the Regulatory and Administrative Framework for Survey and Spatial Information in Victoria (Hedberg, 2003) argued that

- Framework datasets are a government asset.
- They are the foundation or basis for other important, thematic and value added datasets.
- Responsibility for funding, creating and maintaining these datasets is accepted as a government role 'in that they have a strong bearing on jurisdictional social, economic and environmental interests' (p.50).

The Review noted that there was a lack of recognition of what constitutes a 'framework dataset', in particular 'confusion in understanding the difference between framework and valuable datasets'. The Review Panel expressed its view 'that the framework datasets are the building blocks upon which value adding can occur' (p.50). It therefore recommended that initiatives be undertaken to 'develop the criteria for the identification of framework datasets, the attributes of each dataset and the appropriate hierarchy of datasets for the economic, social and environmental benefit of Victoria' (p.55).

These Guidelines are an input into this process.

Purpose

The purpose of these Guidelines is to raise awareness and promote understanding of the nature of Framework Information, especially as a single authoritative information source that removes duplication, and to specify Victoria's Framework Information.

Framework Information Policy

The Spatial Information Management Framework is based on the application of consistent information management principles across a distributed network of autonomous data custodians operating throughout the whole spatial information industry.

Framework Information is fundamental to the development and operation of the Victorian Spatial Data Infrastructure.

The principles on which the management and provision of Framework Information have been based are that the datasets defined as 'framework' represent single authoritative sources of data, are regularly maintained and managed according to formal custodianship principles, and have whole-of-State coverage. Users of these datasets can therefore have confidence in their quality, currency and accuracy.

These goals are expressed in the policy that has been set out in the Spatial Information Management Framework:

Framework Information will be:

- The authoritative base datasets of Victoria's Spatial Data Infrastructure and underpin the use of all Business Information.
- Maintained by custodians according to the *Spatial Information Custodianship Guidelines* and information management principles, including data quality, metadata, awareness, access, pricing and licensing, and privacy.
- Subject to periodic auditing to ensure that the component datasets continue to meet their published specifications.

PART B – DEFINING FRAMEWORK INFORMATION

While the data that users of spatial information require can vary greatly in geographic area, purpose, and content, they almost always include a few basic themes, which may be categorised as ‘framework’ or ‘fundamental’ spatial information. In Victoria they are described as *Framework Information*. Framework Information therefore has a coordinating and defining role; it is information considered fundamental to the development and operation of Victoria’s spatial information infrastructure, in that other (business) information relies on it for accurate and efficient use.

Characteristics of Framework Information

As defined by the Spatial Information Management Framework, Framework Information has the following characteristics: it is

- *Single source, definitive and authoritative:* The spatial community should rely on one definitive source of trustworthy information for their basic data needs. The existence of multiple versions of the same data creates the potential for discrepancies in quality, currency and content between datasets, resulting in inefficiency and impeding data integration. Creation of datasets is very costly, and duplication of effort can lead to inefficient use of resources. Thus, the existence of a duplicate or alternative version or a competing product may indicate that the information is not ‘framework’.
- Based on *whole-of-State coverage*.
- *Of widespread application:* Framework Information is used by most, if not all, users of spatial information. It provides the foundation on which organisations can relate their own specific information products (ie business information) to create the capacity to analyse events and make decisions.
- *A means of ensuring reliable integration of data and facilitating interchange of data between users:* The existence of Framework Information facilitates information specification, definition and exchange – it means that spatial information users can deal in the same ‘currency’. It can support business processes and management of Business Information in multiple sectors of the State, eg land administration, security, social services, natural resources management at local, state and federal level.
- *Accessible and available to all members of the community:* Users can discover, access and use Framework Information easily through common channels. Barriers such as price or the extent of data coverage should not limit access to Framework Information (ie: data being limited to major population centres).

In addition, it is *well known* – the quality and properties of Framework Information are well documented, consistent and of standards acceptable to the user community.

The importance of providing Framework Information in line with the principles for information management is illustrated in the case of emergency management. A single source of authoritative and definitive data (in terms of quality, currency and content) covering the whole State must be available to avoid fragmentation and disparate data holdings by agencies (this is particularly important in the case of an emergency that requires a response from more than one agency). The data held by organisations responsible for emergency management must be reconciled with Framework Information. This provides the foundation on which other information products can be built to analyse events and make decisions (such as bush-fire perimeter mapping, locating emergency distress beacons using GPS, evaluating storm damage, and planning the location of new fire stations). The data must be accessible and available to all organisations involved in emergency management.

Benefits of Framework Information

Framework Information, indeed all spatial information, is part of society’s infrastructure, in the same way that roads, electricity, and communications are. Most areas of our economy and society rely either directly or indirectly on spatial information for planning, maintaining or rationalising the delivery of services or products.

Framework Information easily fits into the characteristics of infrastructure identified by the House of Representatives Standing Committee on Transport, Communications and Infrastructure in 1987: it

- exists to support other economic or social [and in the case of spatial information, environmental] activities, not as an end in itself,
- incurs a relatively high initial capital cost,
- has a relatively long life, and
- should be managed and paid for on a long term basis.

The availability of Framework Information has several benefits, to users and to the industry:

- *Reduced operating costs:* Spatial information is expensive to develop – the majority of project time, budget, and personnel involved in a spatial information project is spent in building the dataset. Given that around seventy-five percent of project time is consumed in this task, the availability of low cost Framework Information is crucial.
- *Improved service and decision-making by government and business:* With approximately 80% of all information used in business and government having a locational or geographic component, accurate and current spatial information is critical to effective decision-making. Framework Information may be used to support customised applications to help decision-makers to visualise problems and to explore and implement solutions. For example, the Vicmap Transport dataset is used by emergency services in computer-aided vehicle dispatch systems to verify road details and plan routes; Vicmap Property supports a broad range of property information systems, in local and state government and in the private sector.
- *Enabling data integration and unlocking valuable data for general use:* The availability of low cost Framework Information facilitates widespread data access and exchange of spatial information. It allows spatial data to become part of the information mainstream and increases the knowledge base.
- *Promoting spatial industry growth:* Readily available Framework Information reduces operating costs for users, data service providers and value added resellers as they can focus their resources into developing business data and applications, rather than duplicating the creation and maintenance of the core information. These industry-wide savings will promote diversification along the spatial information supply chain, augment the range of products and services, and in general promote the growth of the spatial information industry in Victoria.

Victoria's Framework Information also contributes to the creation of the Australian Spatial Data Infrastructure (ASDI), one of the major goals identified by ANZLIC – the Spatial Information Council for the spatial industry. The ASDI is a national initiative to provide better access for all Australians to essential geographic information on the nation (see <http://www.anzlic.org.au/infrastructure.html>).

Management Approach for Framework Information in Victoria

At the time of publication, Victoria has twelve Framework datasets. These are described in Part C.

Under the Spatial Information Management Framework, all spatial information is managed by identifiable custodians. Custodians are responsible for maintaining and developing the datasets they are responsible for, ie preparing and keeping up to date a data product specification or equivalent descriptive documentation of the dataset, and associated metadata; assessment of data quality and development of quality standards in consultation with users of the data; setting user fees and licensing arrangements; and establishing appropriate arrangements for access to the dataset (as set out in the *Spatial Information Custodianship Guidelines*).

A comprehensive series of Guidelines and other publications has been produced to assist custodians in meeting these responsibilities.

- *Product specification:* This defines the product, including identifying its custodian; its geographic extent, content, structure, and reference systems, how it was produced or acquired; how often it is updated; and in

what form it is made available. The product specification will also set out the data quality statement, and pricing and licensing conditions (see below).

- *Quality assessment:* There are two components to the quality assessment – actual quality standard (the current quality level) and the minimum quality standard (a required quality standard, developed in conjunction with users); see the *Spatial Information Data Quality Guidelines*.
- *Develop and maintain metadata:* Metadata is a structured form of the product specification. Custodians are required to ensure that metadata is created and maintained as an integral part of datasets and associated products. As a minimum, they should create and maintain core metadata elements defined in the *Spatial Information Metadata Guidelines*.
- *Determine user fee and licensing arrangements:* The means by which pricing and licensing conditions are set should be published and publicly available, as set out in the document *Spatial Information Pricing and Licensing Guidelines*.
- *Develop an access mechanism:* The objective of the access requirement is to provide the greatest possible level of public access through simple, effective and low-cost means, simultaneously protecting the interests of the custodian and others.

PART C – CATALOGUE OF FRAMEWORK INFORMATION IN VICTORIA

Victoria's Framework Information

Framework Information in Victoria consists of the twelve Vicmap products, which are briefly described in this section. The following extracts have been sourced from the fact sheets and detailed product descriptions for each product. The full documents are available via <http://www.land.vic.gov.au/spatial> or directly from their custodians.

Position

Vicmap Position is a network of Continuously Operating Reference Stations (CORS) providing a common reference system for establishing the coordinate positions and elevations of all spatial data, and the means for linking all geographic features and property boundaries to common, national horizontal (MGA94) and vertical (AHD) datums. Thus it is the most critical component of the spatial information environment.

Network correction services are supplied from a statewide Global Navigation Satellite System (GNSS) network via wireless or fixed Internet terminals, in both real time or post-processing environments.

Vicmap Position has three components:

- **Vicmap Position–GPSnet** – the CORS network infrastructure.
- **Vicmap Position–NRTK** (+/-2 cm) – (nominal) horizontal accuracy Network Real Time Kinematic (NRTK) positioning services based on Virtual Reference Station (VRS) technology over baselines of 70 km or less.
- **Vicmap Position–DGNS** – Sub-metre (nominal) horizontal accuracy network Differential GNSS (DGNS) positioning service over CORS network baselines of approximately 200 km or less.

Property

Vicmap Property provides the fundamental spatial index to land parcels and properties across Victoria, and is the official cadastral map base for the State. The database is continuously maintained using land parcel and property details obtained from the authoritative sources within local and state governments.

It incorporates:

- 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
- Unique Feature Identifiers, date stamps and data quality information
- Cross reference to Vicmap Address and Vicmap Administrative Boundaries.

Planning

Vicmap Planning represents the land use zone and overlay controls for all Victorian planning schemes. Planning schemes are based on the 79 local government areas, as well as the French Island, Alpine Resorts and Port of Melbourne Planning Schemes.

Every planning scheme comprises both zone and overlay information.

- **Zones** indicate the type of land uses that may be appropriate in that zone, such as residential, industrial or rural.
- **Overlay controls** reflect specific characteristics of land in an area, such as areas of significant vegetation or heritage value.

Vicmap Planning also includes the Urban Growth Boundary (UGB), which is a boundary that indicates the long-term limits of urban development in metropolitan Melbourne, including the Mornington Peninsula.

Features of Interest

Vicmap Features of Interest includes feature types (polygons, lines and points) representing infrastructure such as utilities (pipelines, transmission lines), urban development (built up areas and buildings), and landmarks covering a range of recreational and land use activities (sports fields, camping grounds, cemeteries and lookouts).

The feature and feature sub-types represented in the dataset include:

- Education facilities - school, tertiary institution
- Reserves - zoo, botanic gardens, municipal reserve
- Care facilities - child care, general hospital, nursing home, aged care
- Emergency facilities - fire/police/ambulance stations
- Community centre - hall, neighbourhood house
- Administrative facility - law court, municipal office, post office
- Sporting facilities - sportsgrounds, tennis courts, velodromes
- Power line - transmission line, distribution line
- Towers - firewatch, lookout, windmill
- Power facility - power station, gas turbine, wind turbine
- Landmark - cairn, monument.

Vegetation

Vicmap Vegetation consists of a forest density layer that shows the presence of woody vegetation, divided into three classes: dense, medium and scattered. The layer is a seamless and topologically structured data set.

The features included in the dataset include:

- Vegetation density
- Vegetation boundaries
- Windbreaks

Transport

Vicmap Transport provides a representation of the transport network across Victoria, including road, rail, tram, air and sea. It is a seamless, topologically structured dataset.

The following transport features are incorporated in Vicmap Transport:

- Road network
- Road related structures – including fords, bridges, tunnels, gates, intersections, roundabouts, barriers, rail crossings
- Ferry routes
- Rail network, railway yard, tramway, railway bridge, railway tunnel
- Rail related structures – including railway sidings, stations, railway bridges, railway tunnels
- Tramway network
- Air related structures – including (major) airport extents, runways, landing strips, helipads

Address

Vicmap Address is a set of geocoded points modelling individual property addresses across the state of Victoria. Each point represents a separate address site and is attributed with the address details of the property it relates to.

The minimum address attributes required for a property address to be included in Vicmap Address are street name and locality.

Other principal address details include the unit/house number/s, road name (including any type or suffix) and locality (town/suburb/rural district).

Additional attributes are included where available, such as the source and date of each address, local government area, census district, postcode, and link to Vicmap Property. Also provided is ‘user friendly’ formatting of each address with concatenated fields creating num_address, num_road_address & ezi_address, to simplify matching to other datasets.

Administrative Boundaries

Vicmap Administrative Boundaries combines designated and gazetted boundaries of administrative interest across Victoria. It is vertically aligned to the cadastral boundaries of Vicmap Property.

Vicmap Administrative Boundaries is made up of the following boundary themes:

- Local Government Area boundaries and names
- Locality boundaries and names
- Postcode boundaries and numbers
- State Electoral boundaries and names
- Local Government Ward boundaries and names
- Parish and township boundaries and names
- State Government Departmental boundaries and names

Crown Land Tenure

Vicmap Crown Land Tenure provides information about the private use of Crown land parcels and Crown roads.

It includes land use licences such as:

- Grazing, water frontage and unused road licences
- Leases for commercial purposes
- General or miscellaneous licences, permits and consents
- Pipeline and Water Supply licences

- Apiaries and bee farm licences
- Reserve status and reserve management – land gazetted or set aside for a specific use

It is vertically aligned to the cadastral boundaries of Vicmap Property.

Hydrography

Vicmap Hydrography provides an accurate representation of hydrographic features across Victoria at a capture scale of 1:25,000.

Topologically structured, Vicmap Hydrography depicts natural water, as well as water infrastructure, including selected water related structures and coastal navigation features. Vicmap Hydrography combined with other datasets provides information on water storage, management, and utilisation of water and related assets.

The drainage pattern of Victoria is made up of point, line and polygon area features. Waterline related structures such as wharves, marinas, offshore platforms and wells are clearly identified as point and line features, as are coastline navigation features such as buoys, beacons, rocks, wrecks and reef ledges.

Elevation

Vicmap Elevation provides a representation of natural relief features across Victoria. It consists of the following dataset themes:

- **Vicmap Elevation - DTM20m and DTM10m**

DTM20m is a statewide digital terrain model (DTM) representing Victoria's terrain surface at 20m grid resolution. DTM10m represents a 10m grid resolution, with 70% coverage of the State.

- **Vicmap Elevation - 10-20 Contours and Relief**

This represents Victoria's elevations in the form of contours, spot heights and surface features including cliffs, embankments and rock outcrops among others. The 10-20 metre contours and spot heights are the source datasets used to create Vicmap Elevation – DTM20m and DTM10m.

- **Vicmap Elevation - 1-5 Contours and Relief**

An elevation dataset sourced from Melbourne Metropolitan Board of Works surveys conducted in the 1970s and 1980s. This dataset enables a more detailed contour overlay of the Melbourne metropolitan area.

- **Vicmap Elevation - Coastal 1m DEM and 0.5m Contours**

A high resolution representation of natural relief features along the coast of Victoria. It includes a Digital Elevation Model at 1m grid resolution and contours with an interval of 50cm.

Imagery

Vicmap Image consists of both satellite and aerial data. The Coordinated Imagery Program, begun in 2005 by the Department of Sustainability and Environment, coordinates the purchase of aerial and satellite imagery across Victoria for a range of government and non-government organisations, with a view to promoting sharing/multiple use of imagery, reducing cost, and improving quality.

The imagery obtained, in particular aerial photography, is driven by user demand, influencing the areas captured and the specifications (eg resolution).

Many ortho-photo projects of varying resolutions and spectral bands, and dates have been captured since the Program began. It is hoped that over time the imagery covering the whole of Victoria will be captured.

Sourcing and using Victoria's Framework Information

Having described Victoria's Framework Information datasets, the following questions provide a guide to enable users to begin to source and use them.

Who is the custodian of Victoria's Framework Information?

At the time of writing, the Department of Sustainability and Environment (DSE) is the custodian of Victoria's Framework Information. The custodial business unit is the Spatial Information Infrastructure Division (SII).

Custodianship may also be shared between organisations. For example, custodial responsibility for the Vicmap Administrative Boundaries dataset is shared between DSE and several other organisations:

- Australia Post (custodian of the Postcode Boundaries);
- Department of Infrastructure (custodian of Local Government Areas); and
- Victorian Electoral Commission (custodian of State Electoral Boundaries).

In this case, SII is the coordinating custodian and maintains the component datasets on behalf of the custodial agencies.

How do I find out more about Victoria's Framework Information?

Further information about Victoria's Framework Information can be obtained using the metadata records that accompany each dataset; these are published in the Victorian Spatial Data Directory and at <http://www.land.vic.gov.au/spatial>. Metadata, or 'data about data', is the key management mechanism for Victoria's spatial information environment, providing fundamental information management tools at three levels:

- *Discovery*: enabling users to locate and evaluate information.
- *Management*: enabling custodians to better manage their spatial information.
- *Utilisation*: enabling users to access and manipulate information by means of automated/distributed systems.

The custodians of the Framework datasets will document and manage them (their quality, currency, pricing, and access constraints) by using metadata, while automated/distributed systems will locate, access and manipulate information by using metadata.

The metadata details the characteristics and quality of the Framework data, including positional and attribute accuracy, completeness, logical consistency, and lineage. Users are urged to consult the metadata to determine whether the information is suitable to their needs.

Further information about the Framework datasets is also available through their product descriptions, also published at the web address listed above.

How do I access Victoria's Framework Information?

Victoria's Framework Information is a public resource available to anyone.

The preferred access mechanism for the Framework Information consists of three parts, with transparent links interconnecting them:

- a Statewide spatial data directory acting as a single access point to discover what data is available (the Victorian Spatial Data Directory);
- a multitude of distributed, custodian and data service provider based clearinghouses, providing detailed information as to the datasets they offer and ordering and supply arrangements; and
- data stores (data warehouses or servers), to process and deliver the requested data.

The Internet is the primary mechanism for locating and obtaining spatial information.

At the time of writing, the principal method of obtaining Victoria's Framework Information is through Data Service Providers (DSPs) working on behalf of SII (for external users) or directly from SII (for internal Department of Sustainability and Environment users).

What is the quality of the Framework Information?

Quality standards for the Vicmap Framework datasets are documented in their product descriptions.

The custodians of Framework Information are required to set quality standards in conjunction with users, as defined by the *Spatial Information Custodianship Guidelines*, to ensure the data is 'fit for purpose'. The *Spatial Information Data Quality Guidelines* provide an overview of the key elements in determining the quality of spatial information.

What is the cost of the Framework Information?

Framework Information must be available to all potential users in order for it to function as the authoritative and definitive information resource. Consequently, the aim of pricing is to ensure cost is no impediment to its use. Maintenance costs and ongoing development funding are built into the cost of the data so that it can be maintained to an appropriate level of accuracy, reliability and currency, and therefore remain authoritative. For further information on pricing of Victoria's Framework (and Business) Information, refer to the *Spatial Information Pricing and Licensing Guidelines*.

In what formats/projections are the Framework Information, and how do the datasets inter-relate?

Further information about data storage and projections is available in product descriptions or metadata. Framework Information (other than Vicmap Geodetic) is provided in most common GIS formats to suit users' needs, including MapInfo, Arcview, Microstation and Latitude. All are based on Vicmap Geodetic and are held in geographical coordinates in GDA94 (with the exception of raster images, which are held in map grid coordinates). This means they can be used together, without having to perform complicated routines to make them compatible. Data will also be made available in Australian Geodetic Datum, as long as there is industry demand for this format.

What is the currency of Victoria's Framework Information?

Victoria's Framework datasets are maintained continuously. Licensed users will have access to updates on a regular basis, subject to negotiation. The most common methodology used is incremental updating (delete and add/modify files).

How can I combine the Framework Information with my or others' Business Information?

In some circumstances, Framework data may be all the user needs in an application. For example, Framework data provides all the geographic information necessary for basic reference maps, geocoding and some statistical analysis.

Framework data may also serve as the underlying base for users' own data, enabling them to add or attach additional attribute information. Many types of analyses link attribute values to features or relate locations of new phenomena to existing features (eg properties or terrain). Although the Framework data may not provide all the data needed to perform such applications, it can save much of the considerable cost involved in creating an entire set of data.

Framework data can also enable users to register their data, which places it in the correct geographic context for further development and enables incorporation of data from other sources.

APPENDIX - GLOSSARY

Business information	Information considered valuable to the development and operation of Victoria's spatial information infrastructure, but which is not Framework Information.
Custodian	The entity responsible for a dataset. That is, the organisation formally responsible for ensuring quality, currency, storage, security, and distribution of the data. The custodian need not be directly involved in maintaining or supplying the data, but should be in a position to direct such activities.
Data	The base level of information stored in electronic or other databases. Data can exist in many formats including digital data, imagery such as aerial photographs and satellite images, and hardcopy products such as maps or plans.
Data product	Dataset that conforms to a data product specification or description.
Data product specification/description	Detailed description of a dataset that will enable it to be created, supplied to and used by another party.
Dataset	Identifiable collection of data.
Framework Information	Information considered fundamental to the development and operation of Victoria's spatial information infrastructure.
Information	The result of manipulating, analysing and interpreting data to produce a result which adds value or utility to the original data
Metadata	Data about data.
Spatial Accuracy	A broad concept referring to the level to which data sets may be integrated. In the context of this strategy, Spatial Accuracy refers to real-world features represented as digital data and the ability to accurately reflect their real-world spatial relativities, not only within a data set but also across data sets.
Spatial Data Infrastructure (SDI)	The technologies, policies and institutional arrangements that facilitate the availability of and access to spatial data.
Spatial Information Infrastructure	The spatial information essential to the social, economic, and environmental development of Victoria.
Spatial Information Management Framework	Victoria's best practice approach for establishing and retaining consistency in the management of spatial information. It provides a holistic approach to managing spatial information, encompassing the institutional arrangements for developing spatial information; requirements for creating and maintaining spatial information; mechanisms for making spatial information accessible and available; and strategic development of technology and applications.
Victorian Spatial Data Directory (VSDD)	The directory of metadata that describes data sets that originate or may be of use in Victoria. It is a public resource available on the Internet. It includes both current and archived data.

FURTHER READING

Guidelines:

Spatial Information Access Guidelines

Spatial Information Awareness Guidelines

Spatial Information Business Information Guidelines

Spatial Information Custodianship Guidelines

Spatial Information Data Quality Guidelines

Spatial Information Governance Guidelines

Spatial Information Metadata Guidelines

Spatial Information Pricing and Licensing Guidelines

Spatial Information Privacy Guidelines

All documents are available at <http://www.victorianspatialcouncil.org/>

DSE, 2005, *Victorian Spatial Information Strategy 2004-2007*

Hedburg, O, et al (2003), *Final Report and Recommendations of the Review Panel for Survey and Spatial Information in Victoria*

House of Representatives, 1987, *Constructing and Restructuring Australia's Public Infrastructure*, Standing Committee on Transport, Communications and Infrastructure, Australian Government Publishing Service, Canberra

Tomlinson (1993), *GIS Strategy Report 1993*, Tomlinson and Associates

Victorian Spatial Council 2008, *Victorian Spatial Information Strategy 2008-2010*

Product descriptions and Fact Sheets available from <http://www.land.vic.gov.au/spatial>

Vicmap Address

Vicmap Administrative Boundaries

Vicmap Crown Land Tenure

Vicmap Elevation

Vicmap Features of Interest

Vicmap Hydrography

Vicmap Imagery

Vicmap Planning

Vicmap Position

Vicmap Property

Vicmap Transport

Vicmap Vegetation