Advancing *Location Intelligence*

**Strategic plan for spatial information in Tasmania**

2017-2020

Realising the benefits of location based services
Strategic plan for spatial information in Tasmania

2017 - 2020

ISBN: 978 0 7246 6513 6

©Tasmanian Spatial Information Council 2017

Comments on this document may be sent to:

Tasmanian Spatial Information Council
Secretariat
Level 9
134 Macquarie Street
Hobart   Tasmania   7000

T:  03 6165 4121
E:  info@tassic.org.au
## CONTENTS

<table>
<thead>
<tr>
<th>Chapter</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foreword from the Minister</td>
<td>iii</td>
</tr>
<tr>
<td>Chairman’s Introduction</td>
<td>iv</td>
</tr>
<tr>
<td>1  Introduction</td>
<td>1</td>
</tr>
<tr>
<td>2  Review of performance against 2014-2016 strategic goals</td>
<td>2</td>
</tr>
<tr>
<td>3  TASSIC’s Vision and Goals</td>
<td>3</td>
</tr>
<tr>
<td>4  Operating Environment</td>
<td>4</td>
</tr>
<tr>
<td>5  Priorities for 2017-2020</td>
<td>8</td>
</tr>
<tr>
<td>Appendix I: About TASSIC</td>
<td>9</td>
</tr>
</tbody>
</table>
It is my pleasure to endorse the latest Strategic Plan prepared by the Tasmanian Spatial Information Council, TASSIC. I note the retirement of the Honourable Gary Nairn from the Council, and the transition to the new Chair, Alan Smart, and I congratulate Alan on his appointment and wish him all the very best in his leadership of this important Tasmanian advisory body.

The current period of governance in Tasmania, and indeed throughout Australia is characterized by convergences of technology and a proliferation of complex societal issues. In this environment, the role of TASSIC as a broker of relationships between government, industry, academia and the community assumes even greater importance.

The role of spatial information is especially noticeable during emergencies, and Tasmania has endured its fair share of these in recent years. Of note, the 2016 floods in central and northern Tasmania resulted in extreme hardship for many, and consequent loss of life and property.

It was therefore very important, both in the immediate response but also in the ongoing recovery that we were able to leverage the power of location intelligence to systemize the allocation of recovery grants, and render more efficient the reporting of the allocations. This was made possible by previous government investment in spatial information, but also by the capability of the industry to deploy mobile solutions in a rapid timeframe.

Governments are faced with continuous decision making and our response to changing priorities is enhanced when we have reliable and evidence based information. Spatial information falls into that category, and it is pleasing to see in this Strategic Plan a focus on how spatial information can assist government to deliver on our highest priorities.

I commend TASSIC for its initiatives articulated in this document, and I encourage the Council to be proactive in its engagement of the community and government sectors as it progresses the goals in the plan.

Jeremy Rockliff MP
Minister for Primary Industries and Water
Chairman’s Introduction

It was a great pleasure to be given the opportunity to Chair TASSIC. The Council’s vision to realise the benefits that spatial information and location-based services can offer to government, business and the community is important for Tasmania. TASSIC can play an important role in achieving this vision.

Since its inception in 2008, TASSIC has provided a forum for consultation and collaboration on the use and application of spatial information between government, industry, research institutions and the community. Much has been achieved since TASSIC was formed.

The use of location-based services has increased across industry and government delivering more targeted services and increased productivity. Investment in authoritative foundation spatial data infrastructure has proceeded in Tasmania as well as nationally. A national project to update Australia’s Datum is being implemented and a number of pilot projects for nationwide coverage of accurate satellite positioning is underway.

This Strategic Plan for 2017-2020 considers and responds to these developments. It incorporates feedback from stakeholder workshops held in June 2017 to identify priorities and actions for 2017-2020. An important focus of the plan is implementation of high priority projects to both improve delivery of government services and to provide further evidence of the benefits that are possible.

I look forward to working with Council Members and stakeholders to progress this vision over the next two years.

I would like to acknowledge the outstanding contribution and dedication of the immediate past Chair of TASSIC, the Honourable Gary Nairn, and thank him for the leadership and inspiration that he provided to the Council, and the broader spatial information community in Tasmania, during his term of appointment.

Alan Smart
Chair, TASSIC
Introduction

“The spatial sector adds significant economic value to the Australian economy. It has been highlighted as one of the key industry growth sectors in which Australia has a global competitive advantage”.  

The above quote from the Spatial Information Transformation and Growth Agenda\(^1\) encapsulates the essence of the value of the spatial sector to Tasmanian economy. Significant benefits have already been realised as was foreshadowed in a report to the Department of Premier and Cabinet in 2011\(^2\).

Benefits for government include improved services, lower costs and more evidence based decision making capability. Benefits for industry include higher productivity and increased competitiveness. Benefits for the community include improved services, sustainable environmental management and better access to information through web based services. Benefits will grow as the adoption of spatial information based services increases over time.

This involves government and industry activity, supported by innovation and the necessary skills to apply, develop and manage new systems. A snapshot of spatial information in Tasmania is summarised in Figure 1.1.

Figure 1.1 Snapshot of spatial information in Tasmania

A snapshot of spatial information in Tasmania

![Image of spatial information in Tasmania]

The underlying foundation for these activities is maintenance of authoritative spatial data collected and published by Government. Spatial data held in the Land Information System Tasmania (LIST) data base is the underpinning infrastructure for all spatial activities. Development of value added services for both government and industry builds on this authoritative data. Development of these systems and services requires innovation and skills development in new applications of location analysis and systems.

---

\(^1\) 2026 Spatial industry transformation and growth agenda (2016), a whole of government initiative encompassing industry, government, academia and spatial-user organisations.

\(^2\) The value of spatial information to Tasmania (2011), ACIL Tasman
Review of performance against 2014-16 strategic goals

The work of TASSIC is now bearing fruit, as evidenced by greater levels of understanding of the value of spatial information across all sectors. This value was demonstrated during the response, relief and recovery phases of the flooding that occurred in central and northern Tasmania in June-July 2016.

The use of a common platform for spatial information was an important enabler for the coordinated response efforts of Ambulance Tasmania and the State Emergency Service. The embedded use of spatial data in rapid and ongoing impact assessment was also a critically important part of identifying and substantiating the various relief and recovery measures that were provided to people and communities affected by the devastating impact of the floods.

TASSIC realised many important goals in the 2013-16 period. It hosted a series of successful, high-level forums focusing on the use of spatial information in the health, education and land use planning sectors. A forum that concentrated on the economic benefits of the effective use of spatial information attracted representatives from across industry and government. All forums captured speakers within and external to the spatial sector, bringing together the research fraternity, the consulting community, industry and government.

Feedback from the forums was universally positive. The benefits from connections made are now being realised, particularly within the health and education sectors, resulting in the development of a number of innovative spatial applications. The Department of Primary Industries, Parks, Water and Environment also employed a Spatial Information Facilitation Officer, filling a new position specifically designed to work with and across other Tasmanian Government agencies, particularly focusing on the health and education sectors, to provide specialist advice on leveraging spatial information to deliver better business and community outcomes.

TASSIC members also strategically engaged with members of the farming community interested and actively involved in precision agriculture at a two-day field event in Deloraine, with former TASSIC Chair Gary Nairn providing the keynote address and TASSIC members mingling with attendees throughout the day and during precision machinery demonstrations. The Minister for Primary Industries attended a Council meeting held in conjunction with the event, providing members with additional insights into synergies and priorities across the broader primary industries sector.

As a result of these targeted outreach activities, TASSIC is now well-placed to progress a range of exciting, more tangible initiatives that build on and extend the strong foundations and relationships we have developed over the last decade.
TASSIC’s vision is to realise the benefits that spatial information and location-based services can offer to government, business and the community in Tasmania.

TASSIC’s key role is to provide a forum for consultation and advice on spatially-related matters. The Council can make a difference by working closely and in collaboration with government, industry and the community. Our vision and goals have been formulated with this in mind.

This vision builds on the earlier vision statement of ‘abundant and useful spatial information within reach of all’ but recognises the growing importance of spatial information in the wider context of data analysis, web based data access and information and communications technologies (ICT) generally.

Communication of this potential to government and industry remains an important goal for TASSIC. While much has been achieved in the past two years, a stakeholder workshop held in June 2017 identified a need to communicate this message more strategically to senior executive teams.

Facilitating the implementation of key projects is another priority for TASSIC. Such projects address government priorities but also serve as case studies demonstrating the value of spatial information systems in specific applications.

Maintaining strong and active awareness of national and international developments is an area where TASSIC is well-placed to provide assistance and advice in support of policy development.

TASSIC can also provide a forum for the consideration of new technologies to help Tasmanian organisations and research facilities draw on and contribute to greater innovation in the application of location-based technologies.

Finally, increasing demand for professional and technical skills generated through increased adoption of spatial technologies, is likely to create job opportunities for Tasmanians with the appropriate skills. TASSIC aims to provide a forum for consideration of skill requirements and training for Tasmanian students with an interest in the surveying and spatial sectors.
Operating Environment

While recognition of the social and economic value of spatial information has been increasing both locally and nationally, emerging developments in spatial data infrastructure, satellite positioning systems and integration with ICT and control technologies is creating an environment for exciting new developments.

Spatial data infrastructure

Spatial data infrastructure is the underlying authoritative spatial data and publishing services provided by government. Authoritative spatial data is collected and maintained at both the national and state level.

National

Over the past four years, the peak government body in Australia and New Zealand responsible for spatial information – ANZLIC – has developed a framework that comprises ten national foundation spatial dataset themes. Through this successful exercise in inter-jurisdictional collaboration, ANZLIC has been actively pursuing a coordinated national approach to data collation, aggregation, management and delivery. Geoscience Australia worked closely with ANZLIC to provide a central repository for the discovery of data within the ten themes of this framework, consolidated in the LINK website3 and illustrated at Figure 1.

Figure 1 Foundation spatial data infrastructure in Australia

Focusing on the data supply chain, the LINK platform is a continually evolving knowledge base that combines both traditional metadata and business content for all identified datasets, including information about where the data is held or collected (generally state and territory governments), which organisation aggregates to form national datasets and who the users are. This information is useful in providing an evidence base for policy development and work planning, while also enabling users to find national datasets and the source data at a jurisdictional level.

**Tasmania**

Land Information System Tasmania ([www.thelist.tas.gov.au](http://www.thelist.tas.gov.au)) provides authoritative property and other location related data for Tasmania. It includes more detailed foundation spatial data that is consistent with the national framework but at the same time offers a wider field of data, including infrastructure and utilities, people and society, climate and environment, and plants and animals. Over the period 2014-2016, the Tasmanian Government invested $5 million in upgrading the LIST.

**National positioning infrastructure**

Most Tasmanian’s would be familiar with Global Navigational Positioning Systems (GNSS or more commonly GPS) for navigation. Most sectors of the Tasmanian economy now rely in one way or another on location services provided by GNSS. However the raw GNSS signal can be subject to errors of between 10 to 25 metres. Raw GNSS can be made more accurate by means of ground based or space based-augmentation systems.

Augmentation of GNSS is a component of Australia’s National Positioning Infrastructure that has massive implications for areas such as farming, mining, planning and construction and surveying and mapping. While both government and commercial augmentation systems are currently available, Australia does not have a nationally coherent spaced based augmentation system to provide ubiquitous position accuracy and integrity across the country.

Geoscience Australia is now implementing a test bed for a third-generation Space Based Augmentation System that, if successful, could provide sub-metre accuracy across the nation. Such a system could provide a valuable positioning service for Tasmania that could be used in applications such as precision farming, environmental management, emergency services, logistics and autonomous vehicles.

**Datum modernisation**

All maps and boundaries in Australia are currently based on a Geodetic Datum established in 1994. Australia has moved approximately 1.6 metres since 1994 which means that Australia’s maps and property boundaries (cadastre) are out of alignment with the location now provided by satellite positioning services.
Australia’s Intergovernmental Committee on Surveying and Mapping (ICSM) is currently overseeing a program to develop a dynamic geodetic Earth-fixed Datum. This will update mapping references to ensure that official maps and property boundaries are consistent with satellite positioning. This has important implications for the use of spatial information systems across Tasmania.

**Data analysis and data markets**

Data analytics is an emerging specialty where information from different sources, such as location, socio-economic, financial or demographic data, is merged and analysed to provide better insights into planning and operating decisions. Technologies – such as mobile laser scanners, satellite imagery and airborne imagery – have increased the quantity and quality of data that can be captured while at the same time gradually lowering the cost of acquiring spatial data for such activities.

The ability of geospatial information systems to merge location data with demographic, financial and socioeconomic data, is creating opportunities for analysis of location-linked data in ways that were previously not feasible. This in turn is creating greater capacity for evidence-based decision-making in government and in industry.

The merging of government and private sources of data is also emerging as a new resource for data analytics. Crowd-sourced data (date provided by the general public) also generates added depth to the data that can be analysed. Such developments while valuable, will require formulation of appropriate policies and processes to provide for data security as well as to establish validity.

**The emerging world of 3 dimensional models**

Most modern buildings and many infrastructure assets, such as natural gas transmission pipelines, are now designed with the help of three dimensional digital models. These models, often referred to as Building Information Models (BIM), are currently created by architects and engineers and are not stored in common registries where they might be made available for future use by building and infrastructure owners or others in the planning and development sectors.

Some European countries have developed programs to store such data in common registries. While there are many challenges and opportunities for the surveying and spatial sectors in Australia, the potential benefits of such 3D models are considered by many in Australia’s planning and construction industries to be very large. There has been some discussion between government, industry and academia of the scope for developing such 3D models in Australia.

**Smart cities**

The use of location data, including 3D data, is increasingly being incorporated into smarter approaches to city planning. The Australian Government’s Smart Cities agenda sets out a national approach to better city planning and management.

The supporting role of spatial information in smarter city planning is relevant and important for the realisation of Tasmania’s potential. The City of Launceston has been selected for participation in the Smart Cities Program to develop a Launceston City 3D model.
Implications for Tasmania

Tasmania offers numerous opportunities in lifestyle and the environment. To maintain our quality of life, it is necessary to maintain a strong economy while managing its resources sustainably and delivering efficient government services.

Tasmania’s economy depends on agriculture, fisheries, forestry, mining, manufacturing, energy and tourism. Planning and construction, infrastructure, logistics and transport are important to maintaining and supporting these industries, as well as urban and regional development. These activities rely on location-based services that draw on spatial data and infrastructure. Location based services are key enablers of the efficient provision of roads, water, electricity, gas, and telecommunications and, in some cases, tourism, retail, financial and consumer services.

Spatial information has an important role to play in emergency services. The use of a common spatial system for emergency and ambulance services implemented under the Emergency Services Geographic Information Services (GIS) Program contributed to the effectiveness of the response to the floods of 2016, protecting vulnerable people and ensuring efficient and prompt mitigating activities for entire communities.

Planning and development processes are heavily dependent on spatial information. Surveying and mapping employs increasingly sophisticated spatial technologies to support land development and management. Local government is also a major user of location-based services. Planning the location of schools, facilities and health care services is heavily dependent on authoritative location-based services.

Health and human services are important priorities for government. Demands on hospitals and community-based facilities for health care and the older members of our communities are increasing, as is the provision of welfare services to vulnerable individuals. Location-based services are increasingly used to plan and deliver routine services, map communities at risk, and predict and respond to outbreaks of influenza and other diseases. More attention is being given to research into the use of location-based services to support these activities.

There are many other examples of the successful application of spatial services in Tasmania. The pace of innovation and development is accelerating, offering opportunities for greater productivity and new solutions to old problems. The need for ongoing collaboration between government, industry and the community is growing. The challenge is to ensure that policies and processes are in place to realise the potential of these developments and ensure that investment in foundation spatial data is maintained to support existing and emerging technologies and applications.
Priorities for 2017-2020

TASSIC’s priorities for 2017-2020 reflect emerging government priorities and developments in the spatial information sector.

Priority 1 - Promoting the role and value of spatial information to government, industry and the community
TASSIC will provide briefings for senior executives in local and state government, expounding the value of spatial information services to government programs, supported by documented case studies in Tasmania and other jurisdictions. TASSIC will continue its program of seminars and showcase events to promote spatial applications to government and business, including recent examples of successful applications across all sectors. Our website will provide more information on applications of spatial information to help inform stakeholders and the community of the value of spatial information in different applications. The TASSIC Chair will initiate and participate in high-level briefings and presentations as opportunities arise.

Priority 2 – Facilitating the implementation of spatial information projects
Within its mandate of encouraging collaboration between government and the private sector, TASSIC will facilitate and/or champion the implementation of key spatial information projects identified by government organisations. Priority areas include health, human services and planning. Such projects address the specific needs of both government and the community. They will also raise awareness of spatial services within the overall framework of resource management and program delivery. TASSIC will provide a framework for consultation on cooperative arrangements, sources of finance, and implementation plans. This may include consultation with other Australian jurisdictions to identify similar projects, programs, lessons learned and opportunities for cooperation and collaboration to reduce costs.

Priority 3 – Fostering innovation
Technological development is moving at a rapid pace. TASSIC will encourage collaboration between industry, government and, in particular, Tasmania-based research institutions, to identify areas of innovation that could benefit from research and development in Tasmania. TASSIC will maintain contact with national research bodies, including the Cooperative Research Centre for Spatial Information (CRCSI), Rural Research and Development Corporations, the Commonwealth Scientific and Industrial Research Organisation (CSIRO), the Bureau of Meteorology and Geoscience Australia. Our aim is to ensure that these organisations are aware of Tasmania’s potential for innovative pilot projects and to ensure that opportunities for engaging these organisations are fully realised.

Priority 4 – Education and training
Growth in the use and application of spatial systems can be expected to generate additional demand for specialist surveying and spatial skills across public and private sectors. TASSIC will endeavour to create a climate in which Tasmanians can take advantage of these opportunities. TASSIC will work closely with industry and educational institutions to reinforce work already underway to raise train and sustain the skills necessary to support the spatial sector and spatial activities in government and industry. TASSIC will focus on supporting ongoing dialogue between tertiary institutions, government and industry to assess emerging needs and target courses to meet these needs.
Appendix – About TASSIC

The Tasmanian Spatial Information Council (TASSIC) was established in 2008 to facilitate increased collaboration and cooperation between public, private and community sectors in all areas of spatial in Tasmania and to foster:

- improved decision-making in a range of critical areas (for example, emergency management counter terrorism, placement of major infrastructure, planning for service delivery, natural resource management, mining and climate change)
- more informed policy development and implementation
- reduced duplication – especially in terms of data collection
- greater opportunities for data harmonisation
- increased capacity for data discoverability and accessibility
- the development of major spatial systems and alignment between stakeholders’ needs and expectations
- savings for the industry as a whole.

TASSIC’s Terms of Reference are to:
1. Provide a forum for communication and coordination across the sectors in the development of the Tasmanian Spatial Data Infrastructure;
2. Foster partnerships and collaborative initiatives across the sectors in the use of spatial Information;
3. Identify opportunities for coordinated planning for the acquisition of spatial information;
4. Raise awareness about spatial information best practice and promote the use of spatial information within the State;
5. Develop cross-sector strategies for financing, maintaining and developing spatial information and system;
6. Initiate and develop policy recommendations for the Tasmanian spatial information sector;
7. Maintain awareness of and consistency with national initiatives, where appropriate.

The Council has an independent Chair, six permanent member representatives and one interim member, all appointed by the Minister for Primary Industries. Members are nominated by the following selected organisations to represent key sectors of the spatial information industry and thereby ensure that TASSIC has an appropriate balance of competencies and experiences to meet its objectives:

- Surveying and Spatial Sciences Institute (SSSI)
- Spatial Industries Business Association (SIBA)
- University of Tasmania
- Local Government Association of Tasmania
- Tasmanian Government (Department of Premier & Cabinet, Department of Primary Industries, Parks, Water & Environment)
- Australian Bureau of Statistics (ABS).