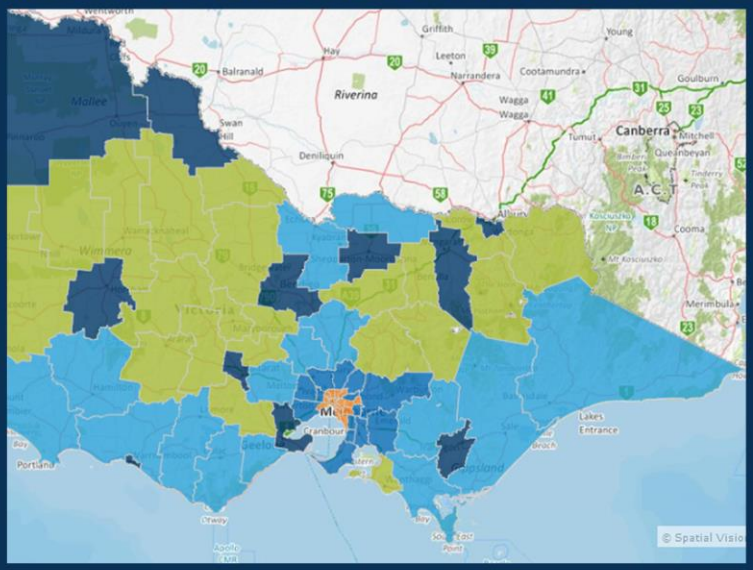
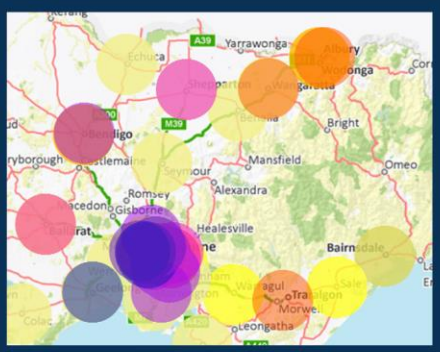
Spatial Vision

Local Government Spatial Reference Group &
Municipal Association of Victoria

Local Government Spatial Strategy

May 2013





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Contact Person	Graeme Martin
Telephone	(03) 9691 3000
Email	Graeme.Martin@spatialvision.com.au

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	Authors	Date
Prepared by	James Peterson and Michael Black	01/05/2013
Reviewed by	Graeme Martin	01/05/2013
Approved by	Graeme Martin	01/05/2013

Disclaimer

Prepared by Spatial Vision Innovations Pty Ltd

ABN 28 092 695 951

Level 4 575 Bourke Street Melbourne 3000 Victoria Australia

Tel +61 3 9691 3000 Fax +61 3 9691 3001 Email info@spatialvision.com.au Web www.spatialvision.com.au

Contents

List of Figures

List of Tables

Executive Summary

Context

Victorians increasingly demand that government services be online, usable and available on mobile devices. Citizens use spatial services such as Google Maps as part of their everyday life and have increasing expectations with regard to location based services. The rapid adoption of smart phones, rise of cloud computing and expansion of the National Broadband Network will transform information management approaches and delivery models for Local Government. Spatial technology and data are part of this transformation.

Background

Councils are faced with budgetary pressures and the challenge to "do more with less" (or at least "more, with the same resources"). In contrast, community expectations in relation to service delivery continue to increase. Communities expect a greater level of interaction with Councils (e.g. follow up and feedback) and this will increase in the future. In addition, users are increasingly demanding personalised and localised services, e.g. "use your current location".

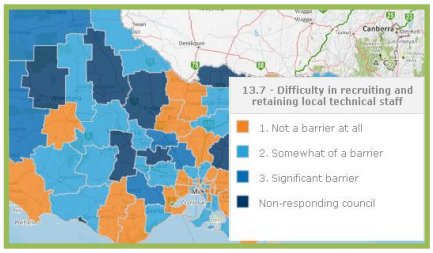
There is significant variation in the spatial capability of each Council. Some Councils have well resourced, established and mature spatial capabilities, other Councils have spatial capability that is constrained by either budget or human resources while some Councils have very limited spatial capability. The challenges faced by many Councils include:

- Limited budgets to address mounting responsibilities and increasing stakeholder expectations;
- Inability to keep pace with technology developments in mobile and cloud computing, open source, web GIS, social media and crowd sourcing;
- Difficulties in finding and retaining appropriately skilled spatial and IT specialists;
- Under-utilisation of spatial information and technologies as a means to disseminate information and deliver services to the community.

In 2003, the Local Government Spatial Reference Group (LGSRG) was formed to address the need for a sector wide group representing the strategic interests of the Victorian Local Government sector with respect to spatial information. In the years since the LGSRG's formation, there have been significant advances in spatial technologies, data capture, maintenance and storage. While there are many examples of effective use of spatial technology and information within individual Councils, this has not been uniform across Local Governments. There are many challenges that remain unresolved and there is a broadly held perception that spatial capabilities are undervalued.

The Local Government Spatial Reference Group (LGSRG) and the Municipal Association of Victoria (MAV) commissioned the development of this Local Government Spatial Strategy. The project involved three key phases:

1. A Spatial Capability Assessment involving input from 69 Victorian councils;
2. Investigation into Emerging Technologies and Government Initiatives impacting the Sector; and,
3. SWOT Analysis by the LGSRG Committee.



The primary target audience for this Local Government Spatial Strategy is the LGSRG. The Strategy provides a framework that will allow the LGSRG to identify priorities, develop detailed implementation plans and monitor progress towards the desired future state for spatial information and technology in the Local Government sector.

Strategic Framework

There are major opportunities for councils to better utilise spatial capabilities and emerging technologies to meet the expectations of stakeholders, including the community. Spatial capability is about far more than just software and data. The Spatial Strategy has been developed around a framework that recognises four critical elements relevant to Councils.

Elements	Operational Goals for 2015
1. Planning & Operations	Spatial capability is embedded in planning and operations at councils ensuring business data is appropriately captured to support planning and operations.
2. Service Delivery & Community Engagement	Spatial capability is recognised and valued as part of effective service delivery and community engagement.
3. Technology & Information Management	Councils have robust and well managed spatial data and technology platforms available to a broad range of users.
4. People, Capability & Governance	Spatial skills are recognised as valuable within councils. Effective sector-wide collaboration and governance frameworks are in place supporting whole-of-sector outcomes.

Vision and Future State

The strategic vision within the Victorian Local Government sector is that:

> *"Appropriate and effective spatial capability is established across all Local Councils and is recognised as fundamental to council efficiency and service delivery"*

The principles that underpin the desired future state for the Local Government spatial sector are:

- All Councils have appropriate spatial capability, taking into consideration the unique characteristics and needs of each Council;
- There is a high level of collaboration between Councils ensuring that the maximum benefit is obtained from investments in spatial capability across the sector;
- There is a high level of collaboration between the Local Government Sector and other levels of Government ensuring that duplication in data, systems and processes is minimized;
- There is a close working relationship between the LGSRG and other MAV groups and committees;
- The LGSRG is recognised as playing a critical role in the promotion of the importance of spatial technology and information;
- The LGSRG is part of the overall governance of the Victorian Spatial Sector through effective representation on the Victorian Spatial Council.

Summary

This Strategy sets out a series of initiatives over a three year timeframe that will collectively, contribute towards transforming the Local Government Spatial sector to its' desired future state. The initiatives represent an ambitious, yet achievable work plan that will be implemented by the LGSRG working in partnership with other stakeholders.

Implementation and monitoring of this Strategy will be led by the LGSRG. Where appropriate, the LGSRG will take advantage of existing regional GIS groups (e.g. Western GIS Group) to progress specific initiatives. In addition, a high level of collaboration between the LGSRG and relevant exemplar Councils will ensure that maximum value is derived from existing activities at individual Council level.

Each individual Council will need to review this Strategy and assess the impact on their particular situation. At an individual Council level, the Strategy provides GIS Managers with a reference from which their Councils unique situation can be compared and reviewed. For those Councils that have a GIS Strategy, this may involve the comparison and potential alignment of their existing Strategy with the framework, vision and initiatives outlined in this report. For those Councils without a GIS Strategy, this report provides a framework by which a more detailed Council specific Strategy can be rapidly developed.

By delivering on the recommendations of this Strategy, spatial capabilities will be strengthened at a sector level, which in turn, will lead to improved operational efficiency within Councils and service delivery to stakeholders. The establishment of a sector wide Spatial Strategy provides a unique opportunity for Local Government to harness new technologies and take advantage of opportunities for collaboration and sharing of resources. The Sector has an opportunity to demonstrate leadership and innovation in service delivery.

1. Introduction

1.1 Background

In 2003, the Local Government Spatial Reference Group (LGSRG) was formed to address the need for a sector wide group representing the strategic interests of the Victorian Local Government sector with respect to spatial information. The main objectives of the LGSRG include:

- Developing sector-wide positions on key issues relating to Local Government;
- Taking advantage of opportunities for Local and State Government collaboration on spatial information initiatives;
- Generating increased awareness of spatial management issues across the sector;
- Seeking the necessary resources to progress priority projects on a sector-wide basis;
- Promoting spatial capabilities, on behalf of local government, to other key stakeholders.

In the years since the LGSRG's formation, there have been significant advances in spatial technologies, data capture, maintenance and storage. While there are many examples of effective use of spatial technology and information within individual Councils, this has not been uniform across Local Governments. There are many challenges that remain unresolved and there is a broadly held perception within the LGSRG that spatial capabilities are undervalued.

In order to meet these challenges and raise the profile of spatial information, the LGSRG identified the need for a sector wide Local Government Spatial Strategy.

1.2 Strategy Scope and Objectives

What is a Strategy?

In general terms, a Strategy describes; the current situation or challenge (i.e. "What's going on?"); a vision or core idea ("Where do we want to be?") and a set of coherent and logical actions to achieve that vision ("the implementation").

It is a coherent approach to defining and solving a particular problem, in which the different elements have to work together. A Strategy is one part of a suite of information products (such as annual plans, project plans etc.) that are required to meet the needs of different stakeholders. By their very nature, Strategies "focus on the whole" and set direction and priority, rather than the details of every aspect of the particular area of concern.

Objectives

The objectives of the Spatial Strategy were to:

- Evaluate and document the GIS capability and maturity of Victorian Councils and establish the "As Is" Situation for the Local Government Sector;
- Confirm the Vision for GIS across the Sector;
- Develop a Spatial Strategy and Associated Three-Year Implementation Roadmap.

Scope and Audience

The primary target audience for this Local Government Spatial Strategy is the LGSRG. The Strategy provides a framework that will allow the LGSRG to identify priorities, develop detailed implementation plans and monitor progress towards the desired future state for spatial information and technology in the Local Government sector. The Strategy, and in particular the Executive Summary will also be used to promote a greater awareness and understanding of spatial data and technology with other groups including Council Chief Executive Officers (CEOs), Council Directors and Council IT Managers.

The scope of the Local Government Spatial Strategy does not include the details (costs, resources etc.) for all of the activities required in the sector for the next 3 years. Detailed tactical implementation plans for approved initiatives will be developed as required, based on priorities set by the LGSRG.

What does this offer My Council?

The Local Government Spatial Strategy is not intended to supersede or replace an individual Council's Spatial Strategy. Each Council is unique in terms of its existing spatial information infrastructure, budget, priorities and specific community expectations and challenges.

At an individual Council level, the Strategy provides GIS Managers with a reference from which their Councils unique situation can be compared and reviewed. For those Councils that have a GIS Strategy, this may involve the comparison and potential alignment of their existing Strategy with the vision and initiatives outlined in this report. For those Councils without a GIS Strategy, this report provides a framework by which a Council specific Strategy can be rapidly developed.

2. Spatial Capability Vision

This section outlines the Vision for the Victorian Local Government Sector's Spatial Capability. The business and technology drivers influencing this vision are also described.

2.1 Strategic Vision

A key part of any business strategy is the core idea or vision. The vision describes the future state that the strategy and underlying roadmap aims to achieve.

The relevant strategic vision within the Victorian Local Government sector is that:

> *"Appropriate and effective spatial capability is established across all Local Councils and is recognised as fundamental to council efficiency and service delivery"*

In the future state, spatial capabilities are:

- Implemented and available at all Councils within Victoria
- Resourced and funded appropriately within each council
- Integrated into the business processes and systems supporting efficient council operations
- Part of sustainable and effective service delivery and community engagement.

As part of implementing this vision, it is anticipated that:

- Councils will take advantage of opportunities to share and collaborate both with each other and with other levels of Government.
- The LGSRG will be recognised as playing a key role in delivering whole of sector outcomes and the benefits of this approach will be well established.

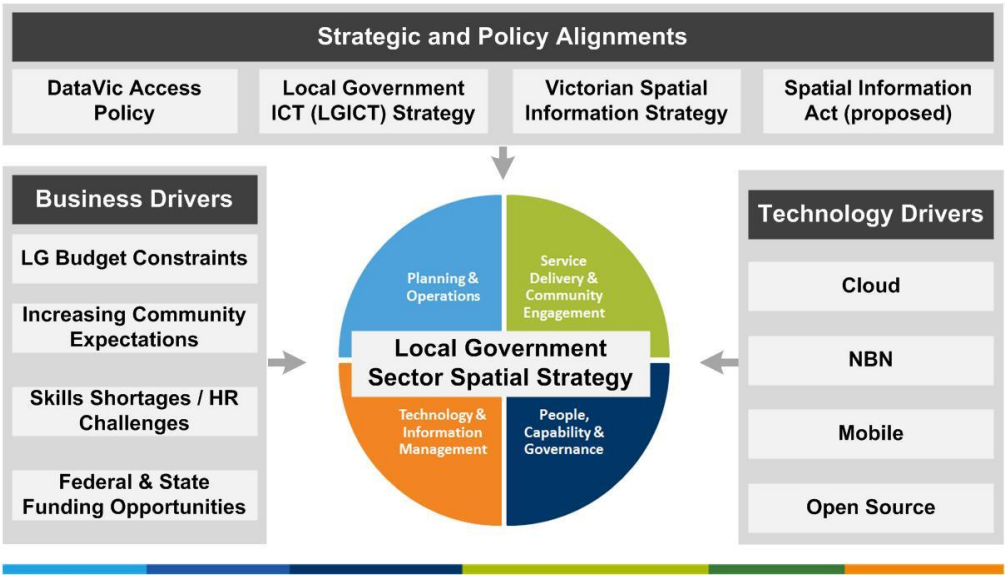
2.2 Rationale for the Strategy

Why bother with a Local Government Sector Spatial Strategy?

Across the seventy nine Victorian Local Councils, there are significant variations in the level of spatial capability, ranging from the mature and sophisticated, to the "barely exists". There is a growing recognition that the current "individual council focused" approach to GIS, and Information Technology more broadly can only achieve "so much", and that better and more sustainable outcomes can be achieved through a whole of sector approach.

In addition, there is recognition that the LGSRG can best meet its objectives by identifying key focus areas and activities that will progress the sector towards an improved future situation. This is driven by business, technology and strategic drivers.

Figure 1: Factors impacting the Local Government Spatial Sector



2.3 Business Drivers

A range of business related drivers are impacting the Local Government sector. Councils are faced with budgetary pressures and the challenge to "do more with less" (or at least "more, with the same resources"). These pressures apply to Council spatial technology and resources. However, spatial technologies and data can be used to improve efficiencies and deliver business process improvements.

In contrast, community expectations in relation to service delivery continue to increase. In general, the community is becoming more "web enabled" (more than 80% of Australians use the internet[1]) and expect services to be delivered via the Web, in many cases, while they are "on the move". Mobile devices made up more than 10% of traffic to Victorian Government websites in May 2012, a 256% increase over the corresponding period the in 2011. By 2016 it is anticipated that, globally, growth in mobile data traffic will be three times that of fixed-line data traffic[1]. Communities expect a greater level of interaction with Councils (e.g. follow up and feedback) and this will increase in the future. In addition, users are increasingly demanding personalised and localised services, e.g. "use your current location". Spatial information and systems are critical parts of the platforms required to meet these expectations.

Historically, Councils have worked in relative isolation from each other. There is increased pressure for Councils to work collaboratively to deliver more efficient outcomes to the community. This is influenced by an increased focus from the Federal and State Government on regional initiatives that span many Councils.

Another issue driving the need for a sector wide strategy is human resources. Many councils face challenges in recruiting and retaining appropriate skilled and experienced GIS staff and this is likely to continue in the future.

2.4 Technology Drivers

Technology developments present both opportunities and challenges for the Local Government sector.

National Broadband Network (NBN)

Across Australia, the underlying communications infrastructure is being expanded and upgraded via the National Broadband Network (NBN). The availability of high speed internet will provide the opportunity to deliver services not currently viable due to existing bandwidth and performance limitations. The challenge for those working in the spatial sector within Local Government is to take advantage of these new opportunities to deliver more effective and efficient outcomes for Councils and the community.

Cloud Computing

Cloud computing is another technology development that is already impacting the Local Government sector and this impact will continue to accelerate over the coming years. Already cloud computing offers a range of Software as a Service (SaaS), Platform as a Service (PaaS) and Infrastructure as a Service (IaaS) options. These offerings, coupled with utility style pricing (e.g. pay for what you use etc.) and the NBN will make cloud computing an attractive alternative to the traditional approach of organisations establishing and managing their own IT software and infrastructure. In the context of spatial data and systems, the Cloud presents a number of specific opportunities including:

- Facilitating the provision of shared web mapping services and applications. There are often barriers in establishing shared services and applications using the "in-house" hosted approaches, including technical (e.g. firewall) and organisational (e.g. cross council funding). Cloud hosting reduces these challenges.
- Scaleable infrastructure and services. Cloud based services facilitate scaling up (e.g. increasing the number of servers used to publish map services) during spikes in demand (e.g. during and emergency).
- Facilitating the storage of very large data sets, without the traditional in-house hosting limitations (e.g. – "not enough room on the server for that LiDAR data")
- Improved ability to integrate spatial systems and data with other services that are external to a particular Council.

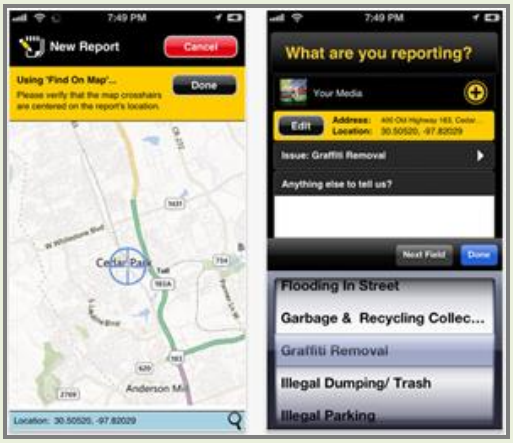
[1] Victorian Government ICT Strategy 2013-2014. Victorian Information and Communications Technology Advisory Committee.http://www.afr.com/rw/2009-2014/AFR/2013/02/12/Photos/1f4a5a1c-74cc-11e2-9f61-744483aef80d_Victorian%20ICT%20strategy.pdf

Mobile Technology

There has been a significant and rapid growth in Tablets and Smartphones (272% increase in average Smartphone usage in 2011 alone[2]). Typically these devices are location enabled and therefore people expect to be able to access location relevant information (e.g. “where is my nearest childcare centre”).

In addition, these devices are a potential source of near real time information that is useful to councils (e.g. there is a damaged tree in my street that is a trip hazard, etc).

Location enabled devices present a number of opportunities in the delivery of information and services as well as engagement with the community. There is a need to understand what use can be made of the numerous mass market offerings that characterise the Tablets and Smartphone market (AppStore, GoogleStore etc).



Adelaide Report It! is a real-time multi-platform mobile app that enables anyone within the Adelaide City Council (ACC) boundaries to identify and report council specific issues which are then reported to the Council for prompt and timely resolution. (https://itunes.apple.com/au)

Open Source

Open Source spatial technology is maturing and becoming increasingly ‘mainstream’ (e.g. OpenGeo, QGIS etc) and a viable alternative to vendor technologies. However, the adoption of open source presents a number of challenges.

The initial low cost of open source software may be offset by the challenges in integrating this technology with corporate information systems and standards. There may also challenges in obtaining and maintaining the expertise required to effectively implement and operate Open Source spatial solutions.

2.5 Strategic Drivers

Alignment with other related strategies is another factor driving the need for a sector-wide Local Government Spatial Strategy. These include:

- The Victorian Local Government ICT Group (LGICT) Strategy (2012). This strategy sets out a number of recommendations and priorities that impact and overlap with the spatial sector including Smartphone and Tablet use, Cloud Hosted Services, and shared services. In order to deliver the maximum value for the Local Government sector, there is a need to align strategic direction and activities of the LGSRG with the LGICT.

- The Victorian Spatial Information Strategy (VSIS) for 2011-14 (Developed by the Victorian Spatial Council). Given the diverse nature and level of spatial technologies in use across the seventy nine Local Councils, there is a need to review the overall state of the sector and identify the level of alignment with the strategic directions set out in the VSIS. In particular, there is a need to review the adoption at a Local Government level of the data custodian and ownership principles set out in the VSIS.

- Victorian Government Open Data Policy. This policy may provide opportunities for Councils to access a broader range of State Government data. The policy and its rationale for facilitating innovation is also very relevant as it offers a model that LGSRG should consider for making Local Government data available.

In addition to these existing strategies, there is a renewed push by the Spatial Industries Business Association (SIBA) for the establishment of a Spatial Information Act in Victoria (and other states). If a Spatial Information Act is formally legislated, it is likely that the LGSRG will need to review and update the Strategy to align with the new legislation.

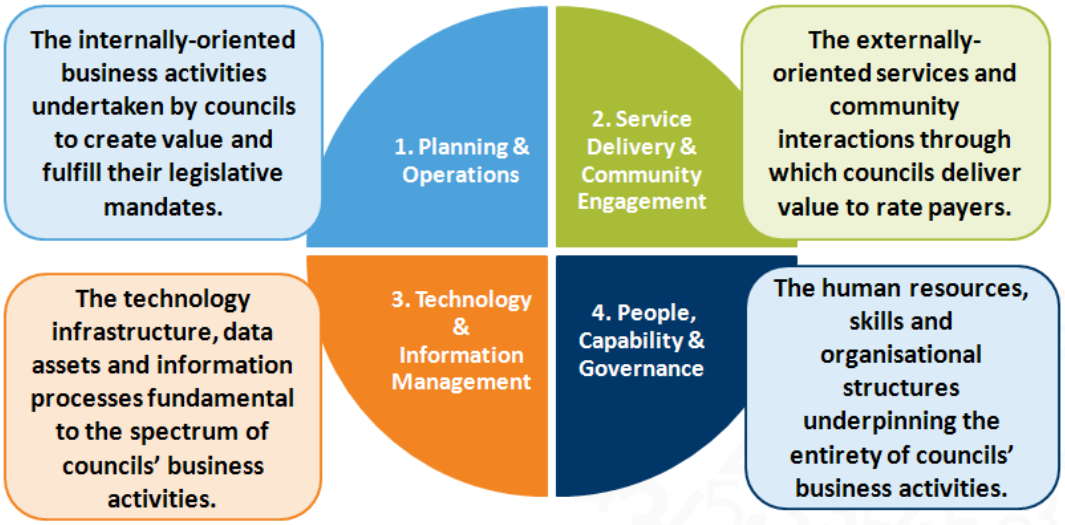
[2] Victorian Government ICT Strategy 2013-2014. Victorian Information and Communications Technology Advisory Committee.http://www.afr.com/rw/2009-2014/AFR/2013/02/12/Photos/1f4a5a1c-74cc-11e2-9f61-744483aef80d_Victorian%20ICT%20strategy.pdf

3. Strategic Framework

This section outlines the Strategic Framework used in the Local Government Spatial Strategy.

A strategic framework is used to identify and group together related aspects that impact a topic area. The strategic framework used for the Local Government Spatial Strategy is based around a modified version of the traditional GIS framework (Software, Hardware, People and Data). The modified framework recognises that technology has now blurred the traditional distinction between software, hardware and data. In addition, the framework recognises the importance of both internal facing business activities and externally facing service delivery.

Figure 2: Strategic Framework for Local Government Spatial Strategy



Each element of the framework is assigned an operational goal for its *future state* as outlined in Table 1.

In the following sections, the strategic framework is used to summarise the current state of spatial information and technology across the Victorian Local Government sector. The strategic framework is also used to group together related elements of the preferred future state. In addition, the strategic framework also provides a mechanism to classify identified priorities and initiatives required to achieve this future state.

Table 1: Strategic Framework for Local Government Spatial Capability

Elements	Operational Goals
1. Planning & Operations	*Spatial capability is embedded in planning and operations at councils ensuring business data is appropriately captured to support strategic planning and council efficiency*
2. Service Delivery & Community Engagement	*Spatial capability is recognised and valued as part of effective service delivery and community engagement.*
3. Technology & Information Management	*Councils have robust and well managed spatial data and technology platforms available to a broad range of users.*
4. People, Capability & Governance	*Spatial skills are recognised as valuable within councils. Effective sector-wide collaboration and governance frameworks are in place supporting whole-of-Sector outcomes.*

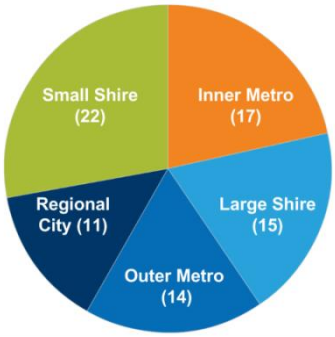
4. Existing State

This section outlines the current state of spatial capability across the Local Government sector.

4.1 Spatial Capability Assessment

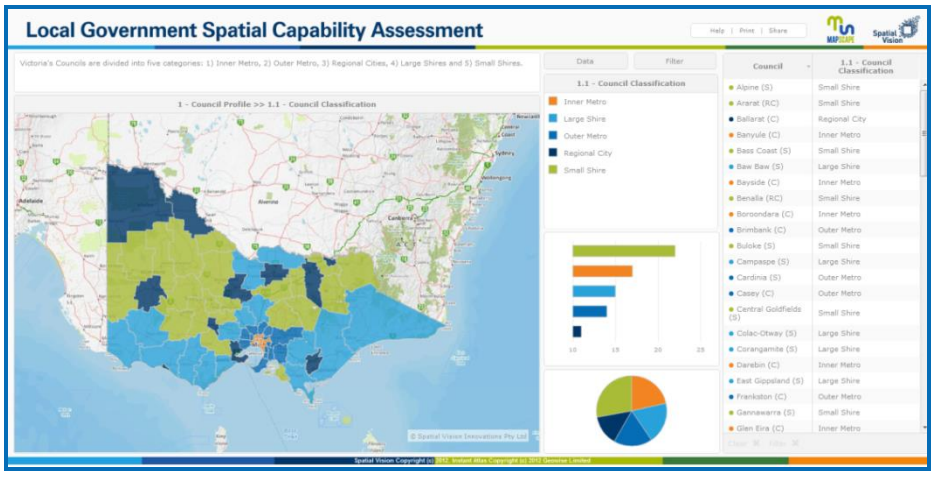
In order to determine the current state of capability within each Council, a capability assessment survey was undertaken. The on-line survey was completed by 69 of Victoria's 79 councils. In order to make logical and common sense comparisons, Councils were classified as either 'Small Shires', 'Large Shires', 'Inner Metro Councils', 'Outer Metro Councils' and 'Regional Cities' (based on the MAV classification).

Figure 3: Council Classification Breakdown



Ten councils did not respond to the questionnaire including seven 'Small Shires', one 'Large Shire', one 'Inner Metro Council' and one 'Regional City'. The results of the capability assessment were published on a WIKI that also included an interactive atlas interface that allows users to browse through the survey results.

Figure 4: Spatial Capability Assessment Interactive Atlas



4.2 Existing State

There is significant variation between the seventy nine Victorian Local Councils in terms of geography, population, finances and many other aspects. This variation is reflected in the spatial capability of each Council. Across Victoria:

- Some Councils have well resourced, established and mature spatial capabilities that are integrated into a range of business systems and processes. Spatial capability forms part of the suite of tools used for community engagement and information sharing.
- Other Councils have spatial capability that is constrained by either budget or human resources and is not widely available across the organisation.
- A small number of Councils have very limited spatial capability, with a small number (less than 5) of desktop users, with no enterprise (Web) capability.

The following Table provides a summary of the key themes arising from the Capability Assessment and LGSRG SWOT Workshop. Where relevant, the Capability Assessment category in the survey has been noted (e.g. SCA 7.2). Further detail on the category may be found in the interactive atlas by using the category number.

Table 2: Existing State

1. Planning & Operations
The integration of GIS with property systems is well established in many Councils (SCA 5.1), although there remains a small number that are yet to implement this capability. While the integration of GIS with other core business systems such as assets is well established at many Councils, this integration is not uniform across the sector (30% of responding councils stated that the GIS was currently not integrated with the asset management system) (SCA5.2).. In general, there is limited integration with other business systems (document management, health etc), other than in a small number of Councils. In some councils the use of analytical tools (i.e. Desktop tools) is limited to a small group of users (often in only one or two business units). Many councils use GIS to improve efficiency and decision making in activities such as building and surveying (SCA 8.3), economic development (SCA 8.6), engineering design and capital works (SCA 8.8), local laws compliance and enforcement (SCA 8.10) and planning (SCA 8.12). Due to a lack of availability of web based GIS at some Councils, staff use other websites (e.g. Google Maps). This can lead to confusion when these systems contain information that is contradictory. Mobile technology has been widely adopted in many Local Councils (60+), mostly focused on field data capture and inspections (SCA 7.3 to SCA 7.8). However, the capability assessment and LGSRG workshop confirmed that in many of these councils, there is a lack of integration between mobile GIS and both the enterprise GIS platform and other business systems. Less than 50% of responding Councils have a strategy that covers mobile GIS and many Councils reported that there was a lack of coordination between Council-wide mobile computing initiatives and mobile GIS initiatives. Over 50% of the responding Councils indicated that they were not currently using 3D GIS technology. Only 20 Councils reported using this technology. Based on the assumption that most Councils have a need for 3D visualisation and analysis, this technology is underused across the sector. (SCA 6.7) There was a general view from some GIS Managers that GIS is under utilised within their Council. This also included a lack of awareness across some Council business areas of the capabilities offered by spatial technology and approaches.

2. Service Delivery & Community Engagement
Only 40% of responding Councils have publicly accessible web mapping applications (SCA 11.1). Of these, some are based on legacy technology and lack a contemporary user interface. There is limited integration between other public facing council services (e.g. customer complaints, venue hire etc) and web mapping applications (SCA 5.6). There is anecdotal evidence that the community make use of service offerings such as Google Maps, when no other options exist. In some cases, Councils reported referring customers to Google maps in lieu of any Council provided web mapping capability. In some cases, this is problematic as the authoritative information that the community may be looking for may not form part of the service offering provided by Google maps or other providers. Lack of appropriate data, or data that was not *fit* for purpose were identified as issues that affect a Councils ability to progress the implementation of publicly accessible web mapping applications. The potential to use web mapping to capture crowd sourced information was identified in the LGSRG workshop, however, at a Council level there appears to be limited examples of this being put into practice. The potential problems of integrating crowd sourced information were identified as one of the challenges to be addressed. In many Councils, there is a lack of awareness, outside of the GIS group about the potential that GIS offers for external service delivery and community engagement.

3. Technology & Information Management

There are a number of Councils that have well resourced, established and mature enterprise spatial systems that are integrated into a range of business systems and processes. Many other Councils face significant challenges in establishing and maintaining corporate GIS systems and skilled GIS staff.

MapInfo Professional is the main desktop GIS used within Councils (49), with Esri's ArcMap the second most common (12) (SCA 6.4).

In terms of GIS Server products, a large proportion of Victoria's councils use MapInfo, followed by Esri, then MapServer (Intramaps) and finally Intergraph (SCA 6.2). For enterprise viewers, MapInfo's Exponare leads, followed by DMS / Intramaps, then Latitude, Weave, Geomedia Webmap and Dekho. A number of other enterprise viewer products are also used throughout the Sector (SCA 6.3).

There was a general view that in many cases, Intranet GIS lacked capability and flexibility. A lack of data to support many business processes was also identified.

Most councils indicated they are either currently using, or have intentions to use, tablets. Only a very small minority of councils indicated they do not intend to make use of tablet devices (SCA 7.10).

The Notification for Editing System (NES) is recognised as an effective means for improving the State's map base.

The Coordinated Imagery Program (CIP) is the most popular means cited by councils for sourcing their aerial imagery while NearMap was the second most common. Contracting was the third most popular means for obtaining aerial imagery (SCA 9.1)

Although strong information management processes are present in a few councils, many lack defined processes and internal data custodianship arrangements.

Where data standards exist, these have generally not been broadly adopted across the sector. In other cases, no data standards exist.

Data custodianship and ownership principles set out in the VSIS are not widely used or adopted within many Councils.

Local Governments have generally not considered how they will leverage the NBN in the context of spatial services.

4. People, Capability and Governance

Over 50% of Councils reported that a lack of senior management support was a barrier to further adoption of GIS (SCA 13.8). In addition, many Councils reported that a lack of available GIS resources (within Council) was a barrier to the implementation of GIS (SCA 13.2). Financial constrains were also identified as major barriers (SCA 13.2 – 13.6).

Over 50% of Councils identified difficulties in recruiting and retaining GIS staff (SCA 13.7) as a barrier to further GIS implementation.

Councils vary in size from roughly 100 staff in the smallest to nearly 2,000 staff in the largest (SCA 1.2). This variation has a significant impact on the ability of smaller Councils to fund GIS resources.

Over 30 Councils do not have a GIS Strategy (SCA 3.3) including a number of major regional and urban Councils.

Many Councils (58) reported that they have no GIS steering committee (SCA 3.1) and a significant number (44) reported that they lack a GIS user group or forum (SCA 3.2). These two measures indicate a significant issue in relation to awareness and coordination of GIS within many Councils.

The majority (48) of councils have a dedicated GIS Manager or Coordinator but others have only a partial resource and some have no 'lead GIS resource' (SCA 1.3).

5. Future State

This section outlines the desired future state for spatial capability within the Local Government sector.

5.1 Future State

The principles that underpin the desired future state for the Local Government spatial sector are:

- All Councils have appropriate spatial capability, taking into consideration the unique characteristics and needs of each Council;
- There is a high level of collaboration between Councils ensuring that the maximum benefit is obtained from investments in spatial capability across the sector;
- There is a high level of collaboration between the Local Government Sector and other levels of Government ensuring that duplication in data, systems and processes is minimized;
- There is a close working relationship between the LGSRG and other MAV groups and committees;
- The LGSRG is recognised as playing a critical role in the promotion of the importance of spatial technology and information;
- The LGSRG is part of the overall governance of the Victorian Spatial Sector through effective representation on the Victorian Spatial Council.

The following Table provides a summary of some of the key capabilities and outcomes that this strategy seeks to achieve.

Table 3: Future State

1. Planning & Operations
Spatial capability is an integrated part of the business systems used by Councils. This integration ensures that spatial information and analysis forms part of the business processes used throughout the organisation. Non-GIS users within Council have access to appropriate spatial capability when and where they require it. As a result of the widespread use of spatial information within Councils, there is an increased awareness and appreciation of the value that spatial information and technology delivers to the efficient operation of a Council.
2. Service Delivery & Community Engagement
Spatial information and technology form part of the suite of services used to support and inform the community. Spatial services are integrated with other external facing services, thereby maximising the potential for the community to access information and self-serve via the Web and from mobile devices. Up-to-date and authoritative spatial information is recognised as forming part of the information products that the community expect the Council to deliver. Spatial information and technology are used to support active community engagement (e.g. to gather feedback on strategic planning proposals etc). Where appropriate seamless views of relevant information are available to the community, independent of Council boundaries. Spatial services support crowd sourced input from the community, and in doing so, enable the community to be the “eyes and ears” of the Council.

3. Technology & Information Management

All Councils have access to a robust, sustainable and well managed spatial platform, based on contemporary technology.

Spatial data and technology platforms are available to a broad range of users within all Councils.

Where appropriate, shared infrastructure and services are used to deliver cost effective spatial platforms and services to Councils.

Spatial platforms underpin a range of spatially enabled mobile services.

Where appropriate, Councils make use of Cloud computing offerings for the provision of spatial services to reduce costs, administration overheads and to maximise performance and scalability.

3D technology and associated modelling methods are utilised for internal decision making and community consultation processes.

Effective processes and systems are used to integrate Council data with the state-wide map base in a streamlined manner.

Metadata standards are universally and consistently adopted in accordance with the principles of custodianship as set out in the Victorian Spatial Information Strategy.

Information management and exchange standards have been adopted and facilitate sector-wide initiatives.

Data custodianship and ownership principles are well established within Councils, leading to more effective spatial data management and integration.

4. People, Capability and Governance

Spatial skills are recognised and valued within councils.

All Councils have the necessary skilled spatial staff to support spatial platforms and services.

Effective sector-wide collaboration and governance frameworks are in place and support whole-of-Sector initiatives.

5.2 The Future of the LGSRG

The LGSRG will be the key body that drives the implementation of the Spatial Strategy.

Figure 5: Future Role of the LGSRG

In the future, the LGSRG will take advantage of web and wiki tools to support initiatives and coordinate activities. The group's role and mandate will be clearly defined, understood and widely circulated. The LGSRG will take a lead role in liaising with DSE, the Victorian Spatial Council (VSC) and the MAV.

The LGSRG will maintain a close relationship with the Information Services Branch (ISB) of DSE to ensure that the needs of Local Government are reflected in DSE spatial policies and initiatives.

6. Risks of Doing Nothing

This section outlines the risks associated with not proceeding with the recommendations of the Strategy.

What are the risks to the Local Government if no progress is made in improving spatial capabilities? Spatial information and technology already play a vital role in Councils. The consequences of maintaining the status quo are significant as demands on Councils continue to increase and challenges in recruiting and retaining skilled staff become more pressing. The most significant risks are described below.

Table 4: Risks of maintaining the current situation

Risks from Complacency	Consequence	Likelihood	Level
Councils fail to meet community expectations in terms of spatial enabled integrated services	3	3	M
Lack of knowledge transfer from experienced staff to existing staff	3	3	M
Failure to keep pace with technology developments and standards	2	5	H
Failure to take advantage of cost effective contemporary service provision approaches (e.g. shared services)	3	3	M
Impact of budget constraints on GIS	4	3	H
Lack of focus within the LGSRG compromising its ability to progress key issues	3	4	H
Lack of awareness of spatial initiatives amongst other areas of the MAV	3	4	H
Lack of coordination between the MAV and LGSRG on high priority spatial issues	3	3	M
Inability to contribute to ongoing improvements to the State's Map Base	5	4	E
Inability to take advantage of the potential of crowd sourcing and social media integration with spatial systems	3	3	M

Risk Levels (Adapted from AS/NZS 4360:1999)

Likelihood	Consequence				
	Insignificant 1	Minor 2	Moderate 3	Major 4	Catastrophic 5
Almost Certain 5	M	H	H	E	E
Likely 4	M	M	H	H	E
Possible 3	L	M	M	H	E
Unlikely 2	L	M	M	H	E
Rare 1	L	L	M	M	H
	Low Risk = L	Moderate Risk = M		High Risk = H	Extreme Risk = E

Adapted from Standards Australia AS/NZS 4360:1999

7. Implementation Roadmap

This section outlines the proposed work packages over a three year period that will enable the Local Government sector to progress towards the vision outlined in this Strategy.

7.1 Overall Approach

The Local Government Spatial Reference Group will implement the Strategy over a three year timeframe. This will progress the Sector from its existing situation to its desired future state. In addition, the principles outlined below provide each Council a framework to compare and align their own Local Government Strategic initiatives. The three years of the Strategy are:

- Year 1 - July 2013 to June 2014
- Year 2 - July 2014 to June 2015
- Year 3 - July 2015 to June 2016

The first year will encompass a series of initiatives that focus on resourcing issues, skills gaps and increased awareness of the value of spatial capabilities within Councils. A series of Best Practice documents will highlight the value of spatial capability and will provide Councils with a mechanism to assess their own capability.

In the second year, the focus is on capitalising technology developments and process improvements. A further series of best practice, business cases and proof of concept demonstrators will advance the Sector towards improved sharing and delivery.

In the third year, further best practice and proof of concept demonstrators initiatives will focus on mobile and cross-council outcomes. A review of the Spatial Capability Strategy will enable the Sector to measure progress and review and update the Strategy.

7.2 Year 1 Work Packages

Work Packages	
1.1 Documenting best practice in GIS & Property System Integration	
The LGSRG will identify best practice cases of GIS Property system integration and document these including challenges and benefits. Key tasks will include: • Collection and comparison of best practice • Benchmarking of identified best practices • Identification of process innovation • Development of implementation approaches and challenges • Monitoring and review of the status of Councils against best practice.	Outcomes: ➢ Identification of best practice ➢ Benchmark by which a Council can measure their maturity and capability in terms of Property System and GIS integration. ➢ Guidelines by which a Council can assess what is required to achieve best practice integration. ➢ Process to enable continual improvement and review
2.1 Documenting Best Practice in Web Mapping	
The LGSRG will identify exemplary web mapping implementations. This will enable Councils to assess their maturity and capability and identify key implementation challenges and issues. Key tasks will include: • Collection and comparison of best practice • Benchmarking of identified best practices • Identification of process and delivery innovation • Development of pragmatic implementation approaches • Monitoring and review of the status of Councils against best practice	Outcomes: ➢ Identification of best practice ➢ Benchmark by which a Council can measure their maturity and capability in terms of Web Mapping. ➢ Guidelines by which a Council can assess what is required to implement Web Mapping. ➢ Identification of cost-effective approaches ➢ Process to enable continual improvement and review

Work Packages

2.2 "The Spatial Value Proposition" Whitepaper

Targeted at Councils' Senior Management, the LGSRG will prepare a Whitepaper communicating the benefits of spatially enabling councils' services and engagement with communities.

A concise and well founded argument will clearly explain the benefits that spatial capability provides a Council. The Whitepaper will be widely circulated to all Councils and will be presented at appropriate forums.

Outcomes:

- Whitepaper will be an advocacy document that will promote the value of spatial capability
- Will prompt renewed interest in spatial capability, especially amongst those Councils which currently lack the required capabilities

3.1 Documenting Best Practice – Core Data (Cadastre, Address and Roads)

The LGSRG will identify best practice cases of core data management covering both Cadastre and Address. Key tasks will include:

- Collection and comparison of best practice
- Benchmarking of identified best practices
- Identification of process innovation
- Development of implementation approaches and challenges
- Monitoring and review of the status of Councils against best practice

Outcomes:

- Identification of best practice
- Benchmark by which a Council can measure their maturity and capability in terms of core data management.
- Guidelines by which a Council can assess what is required to achieve best practice cadastre and address management.
- Process to enable continual improvement and review

3.2 Business Case and Proof of Concept Demonstrator: Tablets and Smartphones

The LGSRG will prepare a business case documenting the rationale for developing and implementing services for tablets and Smartphones.

A Concept Demonstrator will be developed as a 'proof of concept'. This will facilitate efforts at communicating the case for improving mobile integration with corporate GIS platforms

Outcomes:

- Demonstrate the potential for more efficient workflows via mobile GIS integration.
- Highlight the value of mobile integration to senior Council executives
- Identify key technical issues and challenges

4.1 Promotion and Advocacy – CEO and CIO Focus

Present the outcomes from the Spatial Strategy to a forum of Council senior managers and executives.

Outcomes:

- Generate renewed interest in spatial capabilities
- Demonstrate the value and progress made by the LGSRG

4.2 Investigate Resourcing Options for the Spatial Strategy

The LGSRG will investigate, identify and actively pursue options for supplementing the resourcing and funding for the implementation of the Spatial Strategy. This will include the potential of the MAV to provide resource support.

Outcomes:

- Strategy is well supported and resourced.
- LGSRG members who are leading initiatives have appropriate support.

Work Packages

4.3 Annual Spatial Capability Forums

The LGSRG participate in a series of existing forums targeted at different groups (e.g. MAV for CEOs, LGICT for CIO, DSE information sessions for Council GIS officers etc.) to present key achievements and to generate awareness of the value of Spatial Capabilities to the Sector.

Outcomes:

- Promote awareness of the LGSRG.

4.4 Business Case – GIS Training Sector-wide Approach

LGSRG investigates opportunities for sector-wide approaches to GIS training. The business case will cover:

- Council constraints associated with GIS training
- Gauging the suitability and relevance of vendor approaches to training versus the needs of local governments.
- Identifying opportunities for standardised training and use of online delivery mechanisms

Outcomes:

- Identify cost-effective approaches for satisfying training requirements
- Alleviate skills shortages and gaps
- Ensure individual Council knowledge and skills are widely distributed across the sector.

4.5 Align LGSRG with Other MAV Activity Streams

Alignment of LGSRG objectives and initiatives with other groups including LGICT, Assets and other relevant activity streams affiliated with the MAV. This will include:

- LGSRG keeping abreast of the progress and directives of these groups either by establishing representation in their meetings on a rotational basis or by negotiating access to their meeting minutes.
- Investigation of the possibility of leveraging the LGICT's private Yammer network (a social networking platform specifically for business use) to support improved collaboration both within LGSRG and between LGSRG and other groups.
- The Group will review and strengthen the strategic relationships between both MAV and LGSRG with the Victorian Spatial Council (VSC).

Outcomes:

- Improved and broadened relationships and processes for effective collaboration between MAV and LGSRG.
- LGSRG representation across various MAV subcommittees and program streams.
- Strengthened strategic relationships with DSE and the VSC

4.6 Promotion and Advocacy – GIS Manager Focus

The LGSRG will highlight the importance of the role of the GIS Manager within a Council.

A short and concise document will be produced which outlines the benefits of a GIS Manager.

Outcomes:

- Advocate and promote the role of a GIS Manager
- Clearly define the GIS Manager roles and associated roles

Work Packages

4.7 Research Collaborative Funding Opportunities

There are a number of opportunities for local governments to secure funding for whole of sector initiatives.

The LGSRG will spearhead research into funding opportunities. Where appropriate, the Group will attempt to involve the VSC to add further credibility to submissions. Grants may be pursued from the Cooperative Research Centre for Spatial Information (CRC-SI), the Broadband Enabled Innovation Program (BEIP), or the Market Validation Program (MVP) or other relevant bodies or initiatives.

Outcomes:

- Opportunities for funding and enabling collaboration are identified.
- The development of submissions targeted at State and Federal funding sources.
- Sector wide initiatives are advanced and progressed.

7.3 Year 2

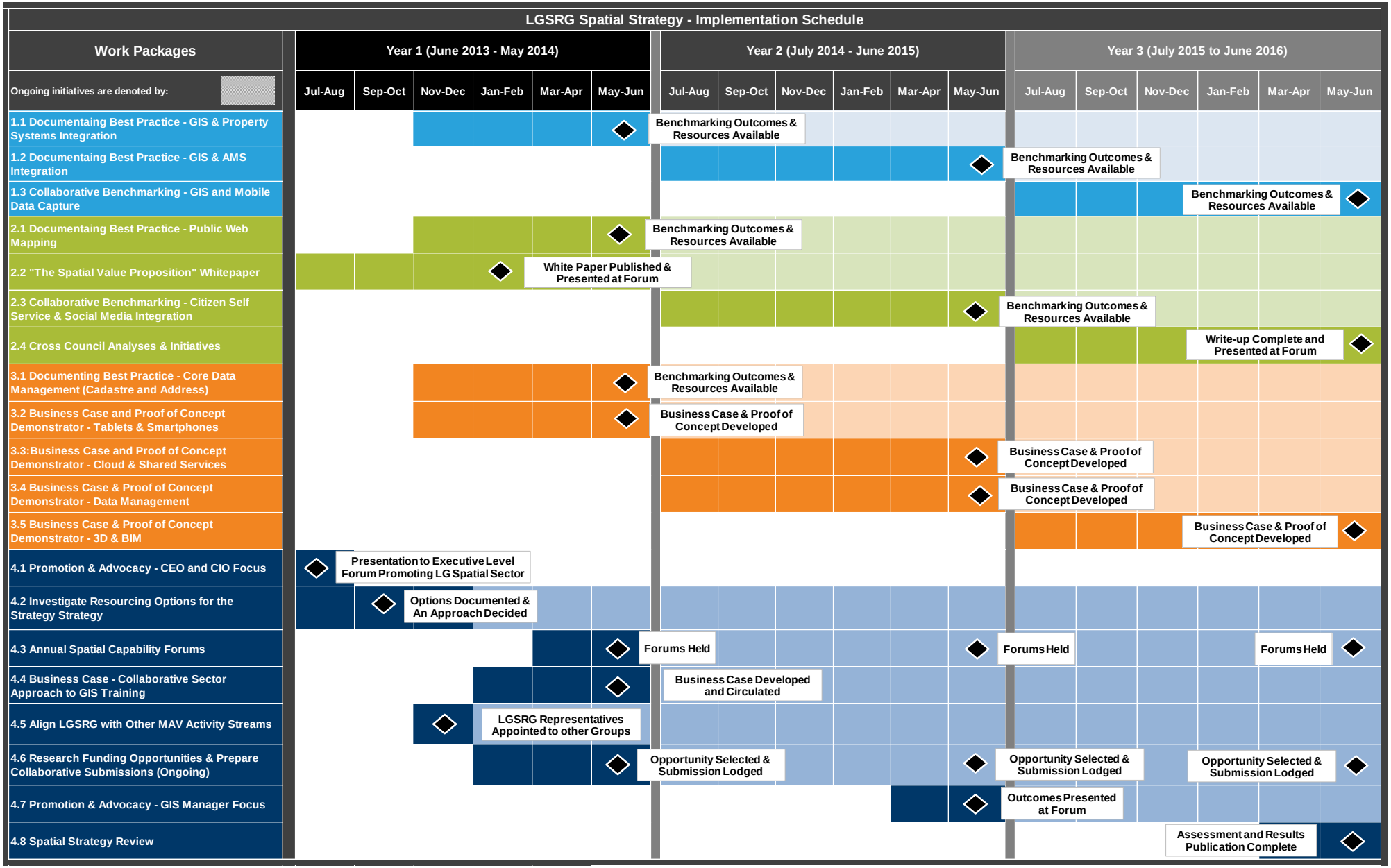
Work Packages	
1.2 Collaborative Benchmarking: GIS and AMS Integration	
The LGSRG will identify exemplary cases GIS / AMS integration. The LGSRG will draw on the capability assessment findings to identify candidate Councils for involvement in this exercise. Keys tasks will include: • Collection and comparison of best practice • Benchmarking of identified best practice • Identification of opportunities for process innovation • Development of implementation approaches • Monitoring and review of the status of Councils against best practice	Outcomes: ➢ Identification of best practice ➢ Benchmark by which a Council can measure their maturity and capability in terms of AMS and GIS integration. ➢ Guidelines by which a Council can assess what is required to achieve best practice integration. ➢ Process to enable continual improvement and review
2.3 Collaborative Benchmarking: Citizen Self Service and Social Media Integration	
The LGSRG will identify the benefits and challenges in using crowd sourcing and social media offerings to enhance services that rely on spatial capability. This will also include a review of current best practice. This will include • Collection and comparison of best practice • Benchmarking of identified best practice • Identification of opportunities for process, delivery and platform innovation • Development of pragmatic implementation approaches • Monitoring and review of the status of Councils against best practice	Outcomes: ➢ Assess the benefits and challenges of integrating crowd sourcing and social media offerings ➢ Document best practice ➢ Guidelines by which a Council can assess what is required to achieve best practice integration. ➢ Process to enable continual improvement and review
3.3 Business Case and Proof of Concept Demonstrator: Cloud and Shared Spatial Services	
The LGSRG will prepare a business case documenting the rationale for the development and implementation of shared services based on cloud computing. A simple “example” service will be identified and prioritised by the LGSRG. This “example” service will be used as a concept demonstrator to generate interest and prompt debate and discussion on the benefits and challenges of shared services. It is anticipated that the concept demonstrator will make use of existing commercial offerings, rather than actual capability development.	Outcomes: ➢ Demonstrate the potential value of shared spatial data infrastructure and services. This will help “demystify” terms such as shared services and SaaS. ➢ Identify key challenges and issues ➢ Establish example platform that can be used for advocacy and funding purposes Progress alignment with the LGICT working group initiatives around cloud computing.
3.4 Business Case – Data Management	
The LGSRG will prepare a business case documenting the rationale for further development and implementation of methods and processes for integrating Council systems with DSE Systems for Data Management. .	Outcomes: ➢ Identify potential benefits for leveraging State Government ICT infrastructure to support Councils to manage their spatial data more effectively.

7.4 Year 3

Work Packages	
1.3 Collaborative Benchmarking: GIS and Mobile Data Capture	
A wide range of approaches are employed for undertaking mobile data capture and integrating this with council GIS. By identifying and defining Best Practice the Sector will benefit from the lessons learnt. Keys tasks will include: • Collection and comparison of best practice • Benchmarking of identified best practice • Identification of opportunities for process innovation • Development of implementation approaches • Monitoring and review of the status of Councils against best practice	Outcomes: ➢ Broader and more effective integration of GIS with mobile applications ➢ Document best practice ➢ Identify opportunities for more efficient workflows ➢ Mobile requirements of councils' are better understood and supported. ➢ Common technical challenges are documented and solutions are identified.
2.4 Cross-Council Analyses & Initiatives	
The LGSRG identifies opportunities for cross-council spatial analyses and initiatives. This will provide an opportunity to develop common terminology, data standards and analytical processes.	Outcomes: ➢ Enhance overall sector capability via collaboration ➢ Progress standardised terminology, data and analytical processes ➢ Demonstrate the value of collaboration
3.5 Business Case and Proof of Concept Demonstrator - 3D & BIM	
Cost effective approaches for 3D visualisation and use of 3D technologies are presented in a Business Case. This includes integration with Building Information Models (BIM).	Outcomes: ➢ Demonstrate the value of 3D spatial technology ➢ Identify barriers to adoption ➢ Identity cost effective implementation approaches ➢ technology is integrated with enterprise GIS
4.8 Spatial Strategy Review	
Review and update the Spatial Strategy. This would include an updated capability assessment review in 2016 and a subsequent refresh of the Strategy.	Outcomes: ➢ Progress towards the objectives of the Strategy is assessed ➢ Overall capability of the Local Government Spatial sector is reviewed ➢ Spatial Strategy is updated to reflect changing conditions, business drivers and technology developments

7.5 Indicative Implementation Roadmap

Figure 6: Indicative Implementation Plan



8. Monitoring Delivery

This section outlines the proposed delivery approach and governance structure required to progress and monitor the activities set out in the Strategy.

8.1 Delivery

The Spatial Strategy sets out a series of work packages over a three year period. In order to deliver these work packages, and progress towards the overall objectives of the Strategy, a delivery approach is required.

The proposed delivery approach structure sits within the existing LGSRG framework and involves:

- Allocated responsibility for the delivery of an individual work package to an LGSRG working group (expected to be made up of 3 to 4 people) who would effectively operate as the project management team for that work package.;
- Regular reporting on the status of active work packages ensuring that the sub committee have visibility of progress, objectives, timelines, resource requirements;

Each work package and associated documents (progress reports etc) would be documented in the Wiki to maximise efficient communication of information and reduce the reliance on regular and time consuming committee meetings.

Consideration should be given to making use of existing regional GIS groups (e.g. Western GIS Group, Gippsland etc) to progress specific work packages. In addition, the need to progress work packages could be used as a catalyst to establish additional regional groupings.

Each individual Council will need to review this Strategy and assess the impact on their particular situation. At an individual Council level, the Strategy provides GIS Managers with a reference from which their Councils unique situation can be compared and reviewed. For those Councils that have a GIS Strategy, this may involve the comparison and potential alignment of their existing Strategy with the framework, vision and initiatives outlined in this report. For those Councils without a GIS Strategy, this report provides a framework by which a more detailed Council specific Strategy can be rapidly developed. In addition, individual Councils that have established capability (e.g. 3D visualisation) may be candidates to progress work packages, in coordination with the LGSRG.

8.2 Governance

In addition to the delivery approach, a governance structure is required to oversee and monitor progress of work packages and overall progress towards the objectives of the Strategy. The LGSRG currently operates as an effective group and is the logical body to oversee the Strategy.

The proposed governance structure sits within the existing LGSRG framework and involves the establishment of a dedicated sub committee to oversee the implementation of the Spatial Strategy. In addition, this sub committee would establish closer working relationships with MAV, particularly through participation in related initiatives.

In addition to governance, the wider LGSRG has an ongoing role to play in promoting both the group and the broader importance of spatial capability within the Local Government sector.

The responsibility for implementing the initiatives identified within this Strategy resides with the LGSRG, including setting directions and priorities, monitoring delivery and establishing appropriate governance arrangements. These arrangements will be crucial to monitor the progress of delivery of the strategic initiatives.

The support of the MAV will be critical in assisting the delivery of work packages and capitalising on potential funding opportunities. The Broadband Enabled Innovation Program (BEIP) and Market Validation Program (MVP) are two examples of candidate funding streams. Where appropriate, the LGSRG should seek to collaborate with other groups such as the Victorian Spatial Council and the CRC-SI.