Surveying and Spatial Volunteer Strategy

2022-25

Making a Difference Through Knowing Where

Prepared by the SSSI Disaster Management and Recovery – Special Interest Group

CONSULTATION DRAFT MAY 2022

SSSI
SURVEYING & SPATIAL SCIENCES INSTITUTE

Our vision

A strong connected community of surveying and spatial volunteers – building community resilience through knowing where.

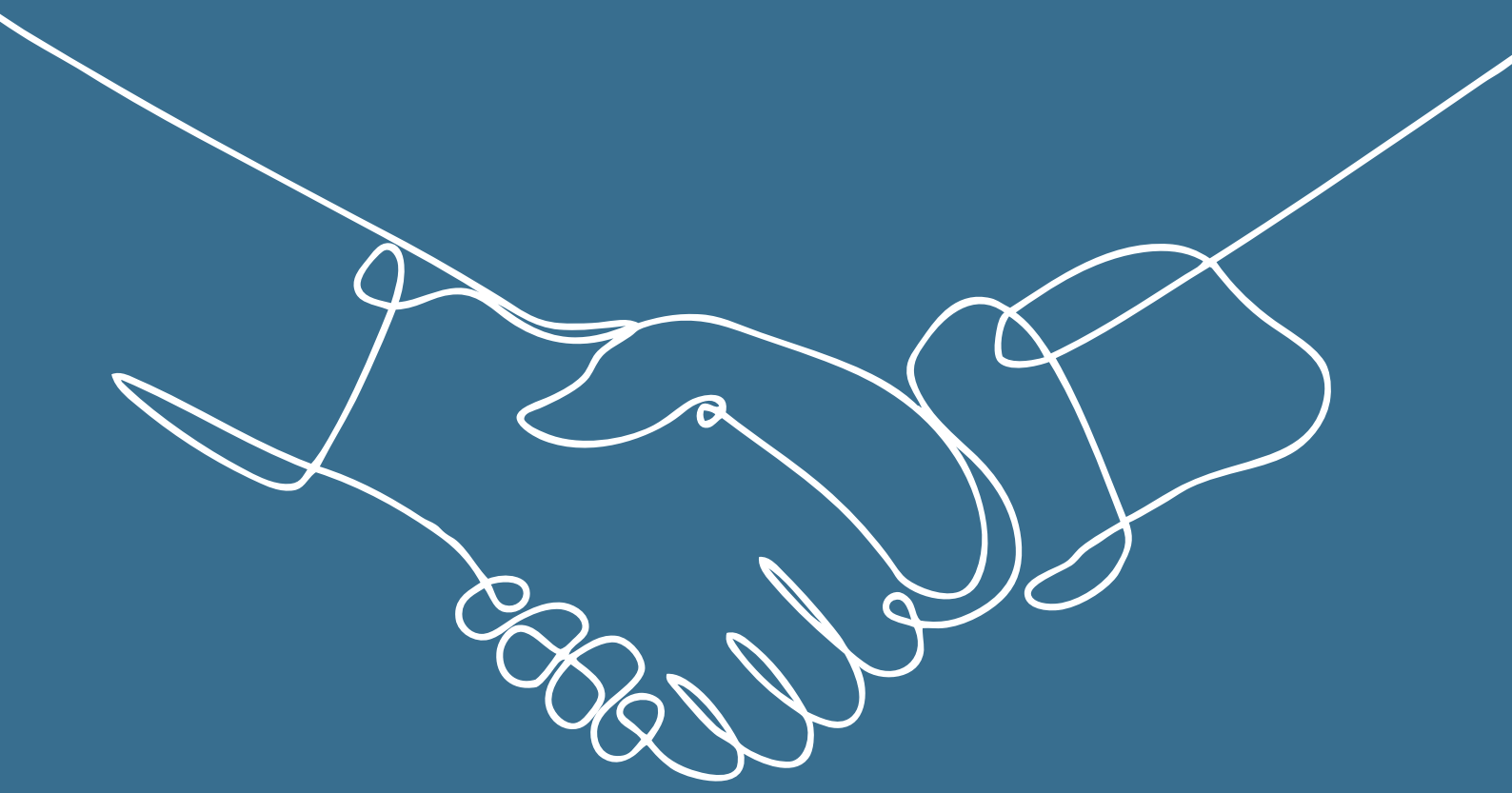
This strategy has been prepared by the Surveying & Spatial Sciences Institute (SSSI), Disaster Management and Recovery – Special Interest Group (DMR-SIG).

This strategy is a collaborative work, developed with a commitment to diversity and inclusivity in volunteerism.

The SSSI Board approved the establishment of the DMR-SIG in April 2020, in response to calls from SSSI Members and the surveying and spatial community for more advocacy and support for volunteering in community resilience building. One of the main objectives of the SIG was to prepare this strategy.

DMR-SIG Committee Members:

Dr Lesley Arnold (Chair, DMR-SIG and Geospatial Frameworks), **Nathan Eaton** and **Brittany Dahl** (NGIS Australia), **Cristiane Ramos** (Parks Victoria, now DELWP), **Alena Moison** (DELWP), **Shane Crossman** (Geoscience Australia), **Warwick Hehir** (NSW Department of Planning and Environment), **Dr Martin Tomko** (ASIERA), **Jodie Mewett** (National Bushfire Recovery Agency), **Roshni Sharma** (FrontierSI), **Dr Petra Helmholz** (Curtin University), **Robert Campbell** (Lotsearch), **Judy Chang** (Nearmap), **Tim Taylor** (formerly Nearmap), and **Joanna Ross** (formerly Nearmap), **Amy Steiger** (Cardno), **John Santiago** (Red Cross Australia), **John Ruciak** (Flinders University), **Leo Gaggl** (Growing Data Foundation), **Tapasya Arya** (Police Victoria) and **Johanna Gastevich** (SSSI).



Call to Action

We are pleased to introduce our Surveying and Spatial Volunteer Strategy – "Making a difference through knowing where".

We take this opportunity to acknowledge the Traditional Custodians of the lands on which we work and live, and pay our respects to their Elders, past, present, and emerging.

We have taken this initiative to facilitate surveying and spatial volunteerism across Australia and globally.

The purpose of this document is consultative and represents the first stage in seeking broader input and support for a volunteer program targeted at using surveying and spatial skillsets for community resilience building.

There is something special about the camaraderie that develops when teams of surveyors and spatial professionals work together to make a difference to the community. We witnessed this firsthand when the international geospatial community joined Australian volunteers in mapathons to support bushfire readiness and recovery after the 2019-20 Australian Bushfires.

Volunteerism is an opportunity to use our reach, skills and expertise, and build capabilities and arrangements to support the wider community to prevent, prepare, respond and recover from natural disasters.

Our aim is to work with existing volunteer organisations and networks to provide opportunities for our members and the surveying and spatial sector more broadly.

We will work closely with government and non-government organisations (NGOs) to understand the trends, issues and needs across our sector. This will enable us to adapt and develop projects targeted towards volunteering where it matters most.

There are many benefits to serving and working with the community, and many surveyors and spatial scientists already play a critical role as volunteers in supporting disaster resilience in our community. They currently do this through a range of organisations - the Australian Red Cross, MAPS-WA and MAPS-ACT, Engineers Australia, Australian Volunteers, RedR Australia and more. In addition, several businesses are supporting local communities on specific projects. The work they perform delivers critical surveying and mapping services, particularly in regions outside our major cities.

However, for many of our members, the pathways to volunteering are not clear, and the time critical nature of some activities means that opportunities are often missed. There is also a lack of national coordination, and a disconnection between available volunteering opportunities and peoples' interests.

We need to make it easier for our profession to get involved. However, we can't do this alone. This initiative will require a collective effort to develop the necessary pathways and partnerships to suit the various community needs and preferences of our volunteers.

Your input is essential to working towards and realising a nationally coordinated SSSI Surveying and Spatial Volunteer Program. We are keen to know if you share our aspirations, and how you can contribute. Information on how to participate is available on the inside back cover. A feedback form is available and the consultation period closes 31 August 2022. Your input will inform the final strategy.

We look forward to you contribution.

Paul Digney
SSSI, President

Dr Lesley Arnold
Chair, SSSI Disaster Management and Recovery Special Interest Group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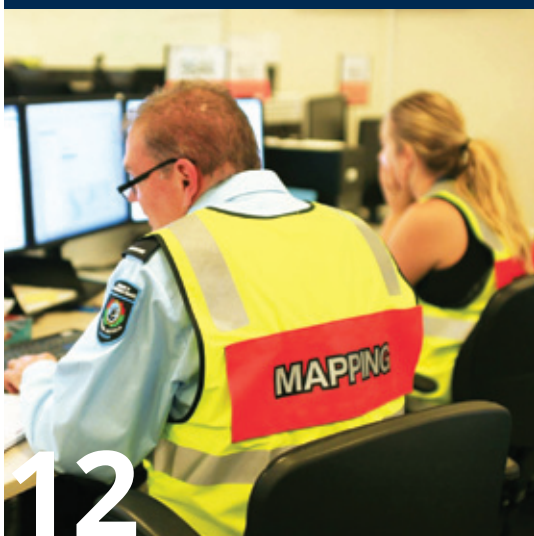

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Spotlight

GIS: Emergency response

Boundary re-establishment

On 2 February 2021, a bushfire started in Wooroloo east of Perth with devastating impact on the community. The fire raged for 6 days, burning an area of more than 10,500 hectares – destroying 86 homes and causing extensive damage to over 100 residential properties within the City of Swan and Shire of Mundaring [1].

Following the bushfire, RM Surveys volunteered their services to resurvey 43 lots in the Tilden Park area of the City of Swan. They repositioned survey marks and replaced burnt survey pegs so that residents could erect new fencing. According to one resident "This was more than a survey; this was a boost to our morale during sad times" [2].

Councillor Keven Bailey Mayor thanked Geoff Robb, RM Surveys CEO, for waiving fees for bushfire impacted residents. He said "This kindness has not gone unnoticed. Your actions have made a world of difference to our community, and we deeply appreciate your assistance and support."

One resident noted that, due to the damage and enormity of the work required, it was difficult to get things done. RM Surveys came to their aid quickly and the work was done promptly, including arranging for drawings so they could get fencing quotes.

Licensed Surveyor, Samudra Sarubin, worked closely with residents, and was shown by one Gidgegannup resident through her burnt-out home. He said, "Belongings, memories and treasures – all reduced to charred rubble, it was a humbling experience, to say the least".

The generosity of RM Surveys, in volunteering their time, has meant that residents can quickly rebuild fencing to protect their livestock, with the confidence to know it is in the correct location.

Why have a Volunteer Strategy?

According to the Australian Institute of Disaster Resilience, "Australia's capacity to respond to disasters relies on emergency management volunteers." However, "today's volunteer leaders must negotiate a maze of relationships, networks and expectations to lead effectively in the disaster environment [3]."

This volunteer strategy enables us to bring volunteering opportunities to the attention of surveyors and spatial scientists. One of the key aims is to provide a national coordination role and pathways for volunteers to meet the demand for volunteers in times of crisis. Currently, there are challenges in capturing volunteer availability, and mobilising the full depth of volunteer capacity in the surveying and spatial community.

The Volunteer Strategy adopts **four pillars** – prevention, preparedness, response and recovery (PPRR), as the foundation for volunteering for resilience building.

With this foundation, our vision is for a strong connected community of surveying and spatial volunteers building community resilience through knowing where.

The strategy provides the groundwork on which our Surveying and Spatial Volunteer Program will grow. It presents the challenges to be addressed as well as opportunities to be harnessed, and provides a broad framework of actions to be implemented.

The strategy strives to:

- Champion volunteering by raising awareness of volunteering opportunities and needs.
- Increase the number of surveying and spatial volunteers by providing pathways to high quality accessible and well supported volunteering opportunities.
- Harness the collective strengths and assets of the surveying and spatial community.
- Engage and collaborate with partner organisations to deliver volunteer services to communities – locally, national and globally.
- Help create a diverse and inclusive network of volunteers by improving accessibility to volunteering opportunities for all.
- Value the volunteer contributions that surveying and spatial scientists make in having a positive impact on disaster resilience building.
- Provide a framework to ensure volunteers have a positive experience through adequate resourcing of volunteer management and support activities.
- Work with communities to create a safer environment and build resilience so that when emergencies do happen, our communities are better prepared and recover faster.

Developing a ‘can do’ mindset

Volunteering for overseas development supports communities in developing countries – it’s also a career starter – just ask **Kate Rickersey** and **Kate Fairlie** from Land Equity International (LEI).

Kate Rickersey is Managing Director at LEI. Over the past 15 years, she has worked across 10 countries on various Land administration research and implementation projects. Her rewarding career, started when she put her hand up to volunteer. “I spent a year as an Australian Youth Ambassador, on a Land Titling project in Laos – a year of teaching, learning, travelling, building friendships and knowledge of a new culture and language.”

Kate grew up in a family of volunteers. “My mum volunteered - tea/coffee, cakes and endless dishes for fetes, the Church and any fundraising that came her way. My dad volunteered around race tracks with head phones, walkie-talkies and skipping lunch to ensure events ran within speed and noise safety limits. It felt natural to jump into a volunteer role when my time came.”

Volunteering for overseas development is a daunting place to start, but Kate was thrilled to be using her professional skills in a volunteer capacity. “Volunteering aligned with my desire to put into practice my knowledge and test out the international development project space”.

Kate gained more from volunteering than she could have ever imagined. “I intended to ‘serve’ the project and the people who needed help. But in the end, I found it was far more than a service to others, it’s also a service to yourself. Volunteering was an opportunity to become a better me. I learnt compassion, consultative skills, tolerance and flexibility.

Now, thanks to her early volunteering experiences, Kate is able to continually adapt her style to how people work in other countries. “Being able to diversify your interactions with people, locally, internationally, by age profile and culture, helps to widen your view of the world, it helps you acknowledge your privileges, and helps you to see what you can give back. I wouldn’t change a day of my life and the experiences I have said ‘yes’ to.”

Kate Fairlie, a Land Administration Specialist at LEI, started volunteering on Vision Australia’s radio channel, which was an excellent stepping stone to DJ’ing on radio. She went on to volunteer with the International Federation of Surveyors (FIG). “My motivation was that I thought more needed to be done to meet the needs of young surveyors (locally and internationally) and I could either continue to complain or step-up.”

> “I’ve had so many amazing opportunities: joining conferences around the world ...”

As it turned out, immersing herself in FIG was rewarding on many levels. “I’ve had so many amazing opportunities: joining conferences around the world, receiving and then running training on women’s land rights, and playing a contributing role in establishing an indicator for the Sustainable Development Goals.

Volunteering has led Kate to jobs with the United Nations and now LEI. Early on in her career, Kate found it energising to be able to drive ambitious projects and see ideas realised that she might not have had the opportunity to be involved in otherwise – whether it was the inaugural international young surveyors’ network conference or a proof-of-concept precision viticulture test at a biodynamic vineyard in Orange, NSW – Kate rose to the occasion. “It’s so easy to ‘volunteer’ when it’s all so closely aligned with your passion, your work and a network of colleagues that become close friends.”

Making a Difference Through Knowing Where!

The nature of volunteering, and the role of the volunteer is changing – requiring more professional skills in location intelligence, remote sensing and surveying, to help build community resilience to disasters.

Extreme events continue to impact Australians, and countries around the world. When disaster occurs, social, economic and environmental impacts are severe. Disaster management requires a range of skills, knowledge and experiences including geospatial science, which shows what is happening when, where and why.

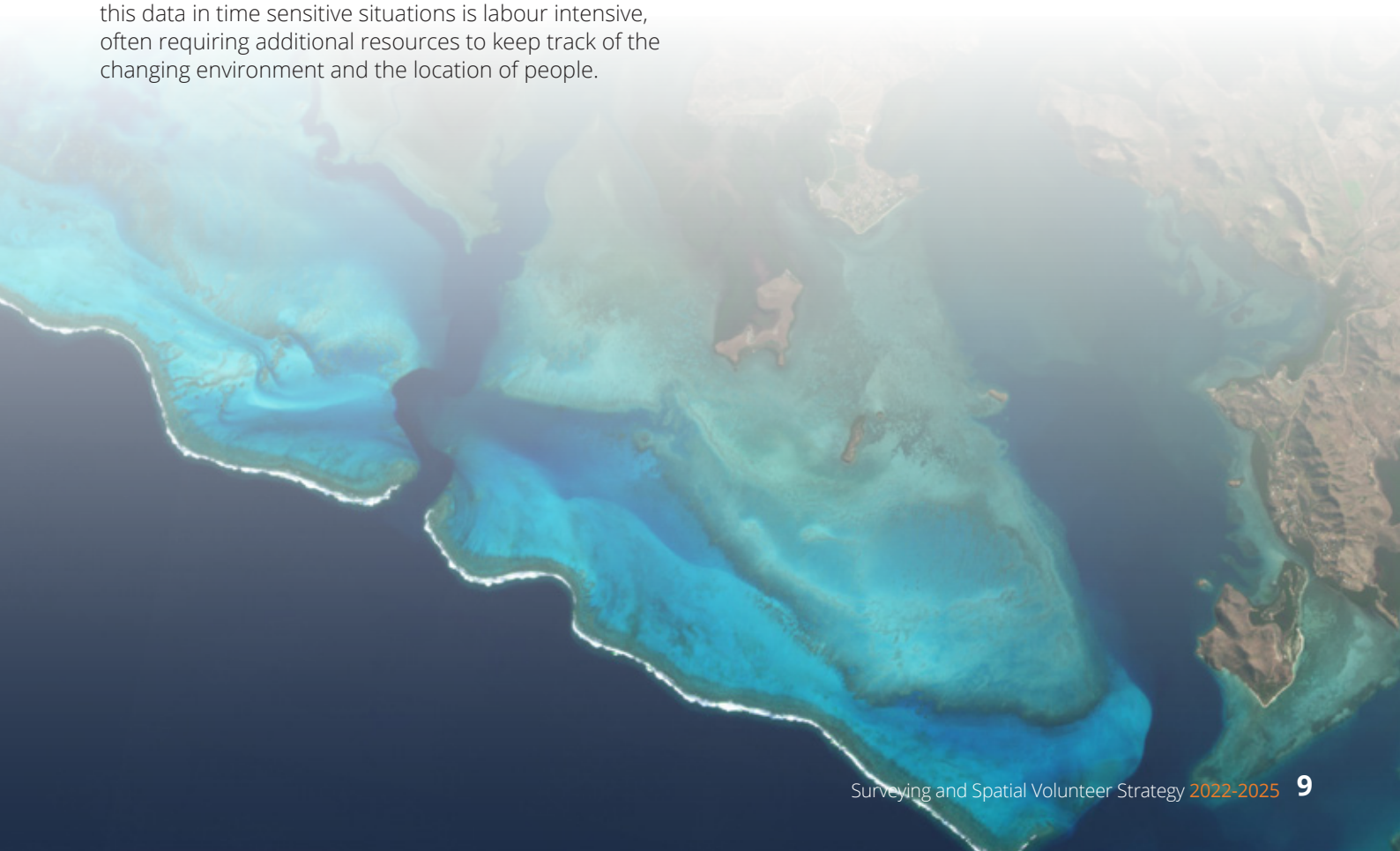
The location of geographic features, infrastructure, population and demographics are integral to prevention, preparedness, response and recovery activities. In the wake of a disaster, data-driven maps that harness geospatial technologies can be a true lifesaver - providing emergency responders with the knowledge of where people are in relation to flood, fire, cyclonic winds and storm surges.

However, collecting geospatial information, and keeping it up to date is time consuming, and maps become out-of-date very quickly. In addition, capturing and managing this data in time sensitive situations is labour intensive, often requiring additional resources to keep track of the changing environment and the location of people.

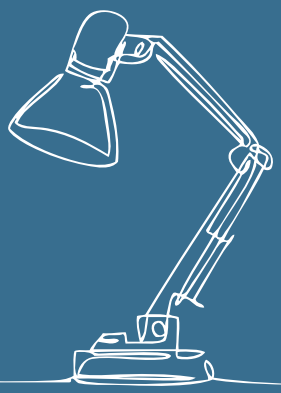
Surveying and spatial volunteers have an important role in supporting government agencies, community groups, aid agencies and NGOs to prevent and prepare for future disasters, and support urgent response and recovery activities, where this work cannot be accomplished by other means.

In some parts of the world, mapping is poor or non-existent, and increasingly, there are calls on volunteer surveyors and spatial professionals to be more responsive to resilience building challenges globally.

This growing reliance on volunteers is challenging, and is the subject of this strategy, which aims to provide leadership to build a strong connected community of surveying and spatial volunteers.



Firewater App: The fastest route to water



In the aftermath of the Australian 2020 Black Summer bushfires, firefighters identified difficulties accessing water. Access to dams and mains water was significantly restricted in some regions, and there was no real-time data available to inform local crews of the location and level of water storage in nearby water tanks, swimming pools and dams [4].

The Grow Data Foundation, Water Warriors chose to tackle this problem by creating an innovative web application 'FireWater' to demonstrate how low-cost, long range radio technologies (LoRaWAN) and open GIS mapping systems can be used to provide real time water source data to on-the-ground fire crews; in particular, the location and status of fire hydrants, water tanks and natural water sources. The App has been piloted in South Australia, and the intention is to continually add functionally [5].

The Firewater App relies on having access to good data showing the location of water tanks and farm dams across Australia. However, this data is in short supply, and the task to collect static water features is enormous. In Victoria alone, it is estimated that there are well over one million water tanks in rural areas and over 450,000 dams. Water tanks, in particular, are dynamic and updating data is an intensive task.

This is where the SSSI FireWater Mapathon volunteers came in. On 30 October 2020, volunteers from across 40 countries collected over 37,000 static water features in a 24 hour period. This may be one of the largest Mapathons ever held in the Australasian region. The data was collected using OpenStreetMap and Nearmap imagery, and is now accessible to the FireWater App.

Not only are water sources critical to firefighters; the static water infrastructure also supports critical research into disaster resilience; helping to understand water storage capacity in rural communities for drought management and risk assessment; introducing preventative measures through risk mitigation planning where dams afford protection from flood waters; monitoring water resources to safeguard biodiversity from urbanisation; and understanding our complex hydrology systems - where static water supplies have largely remained hidden from research because there is no data.

With the aim of ramping-up data collection, a team of SSSI volunteers participated in the Maxar Spatial Challenge 2021. Their innovative project received a highly commended for 'Water Sources Detection with Machine Learning'. The data collected by volunteers during the Mapathon was used as training data to trial machine-learning techniques to automatically detect static water features. A deep learning (DL) model was developed by NGIS using Maxar imagery and the training data.
The model requires further refinement and the DMR-SIG is considering ways to engage further with industry and the research community to improve the model.

How do volunteers support resilience building?

While government provides leadership in disaster management and response; building community resilience requires the collective effort of the whole surveying and spatial community, and volunteers are an important intrinsic component.

Volunteers support community resilience building through:

E-volunteering: Collecting geographic data via mapathons, datathons and volunteered geographic information (VGI) projects – locally, nationally and globally.

Community Service: Providing 'On call' support to community groups that need assistance. Activities range from preserving survey monuments to delivering GIS capabilities to aid organisations.

Geospatial Challenges: Developing innovative community location-based applications via hackathons, mapathons and code sprints.

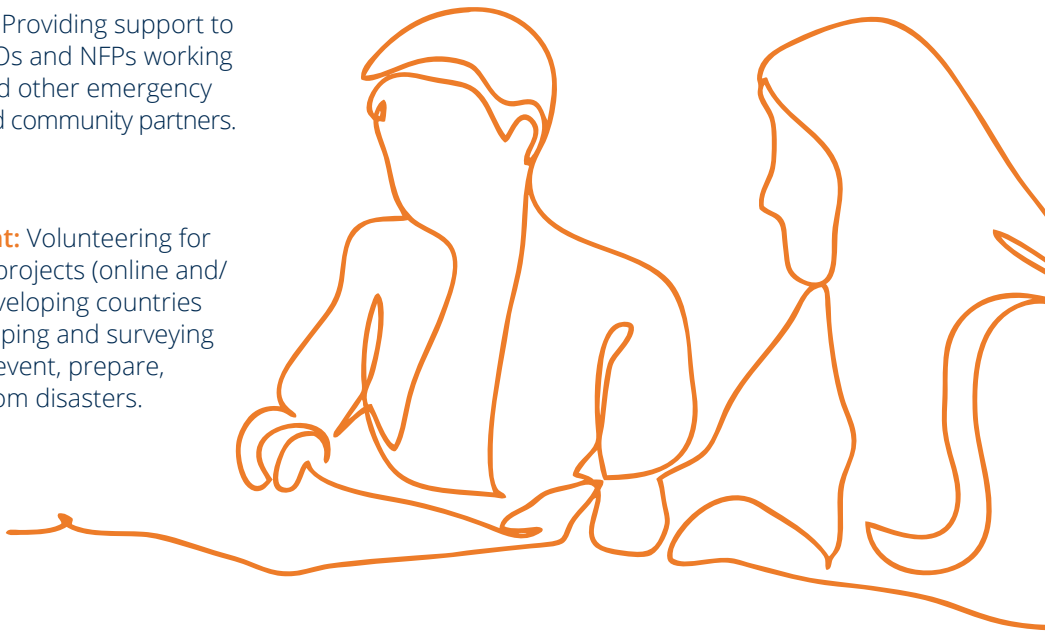
Mentoring: Mentoring young professionals to become the next generation leaders in humanitarian activities.

Corporate Volunteering: Providing direct services such as boundary re-alignment, to help disaster impacted residents recover quickly.

Committee Representation: Participating in SSSI Commissions and Committees to foster the use of geospatial information and technologies for community resilience building activities.

Emergency Response: Providing support to community groups, NGOs and NFPs working alongside police, fire and other emergency services, government and community partners.

Overseas Development: Volunteering for overseas development projects (online and/or in-country) – help developing countries to strengthen their mapping and surveying capabilities to better prevent, prepare, respond and recover from disasters.



Supporting emergency response

For many, volunteering in the area of emergency response can be daunting. But rest assured, volunteers are not thrust into high pressure situations without appropriate training.

In Western Australia, the Mapping and Planning Support team (MAPS-WA) is a volunteer fire and emergency services group. The MAPS-WA Team are highly trained volunteer mapping professionals who use their expertise in GIS to assist the Department of Fire and Emergency Services (DFES) during emergency incidents – fire, flood and cyclone events.

MAPS-WA was formed in 2012, in response to significant bushfires in WA during 2011 where key response agency mapping teams suffered high-levels of fatigue during prolonged fire events, which required mapping support for 24 hours a day, 7 days a week. The group has 22 active members from state government agencies and industry, as well as retirees.

Similarly MAPS-ACT, was formed in 2006, in response to the experiences of the 2003 bushfires in Canberra. There are now some 50 members in the MAPS-ACT, supporting incidents on the east coast of Australia.

MAPS-WA conducts specialist training for all new volunteer recruits, and the team meets monthly to hone their skills in readiness for a fire emergency. They also get involved in State emergency exercises, which provides situational experience.

According to Craig Carpenter, Captain of MAPS-WA, "Disaster events are very location-driven – 'where is the bushfire, where are critical assets and property that need protection, where are the closest fire-fighting resources, which roads can be used to provide access, and where is the nearest water supply?' All of this information can be summarised and communicated quickly and easily, when it is represented on a map. So, mapping support has a really important role during these incidents."

Major fire incidents can last many weeks. The MAPS-WA Team is ready to relieve and support the DFES mapping team at the State Operations Centre, and can be deployed to fire incidents in the rural and remote regions of the State. Their role is to provide mapping support during a 12 hour shift, capturing data about an unfolding event to understand what is at risk, and provide context for mitigation and containment strategies, as well as to support transport planning (e.g. road closures) and produce maps for community consultation and logistical management to support catering services for fire crews.

> "It's also an opportunity to engage with other GIS peers in both a professional and social capacity."

According to Craig, geospatial professionals join MAPS-WA to give back to the community, using their skills to support those in need during emergency events. He said, "It's also an opportunity to engage with other GIS peers in both a professional and social capacity."

What is the impact of volunteers?

Volunteering has quadruple impact – bringing benefits to individuals, businesses, organisations and the community – through working together to address key disaster management and recovery challenges facing our nation.

Volunteering can be empowering for **individuals**, who develop a heightened sense of self-worth through helping others. Volunteering brings new skills, knowledge and experiences, that can lead to enhanced career opportunities and the chance to try something different. Volunteering is a positive emotional experience, often shared with others around a common cause. It provides an opportunity to meet new people and get to know the local community through activities and projects.

Businesses gain through their involvement in community volunteering. It often cements a company's brand, culture and values within the community, which may otherwise go unnoticed. Working within new environments leads to new opportunities and customers. Employees also benefit, with job satisfaction, better morale and skills development often cited as benefits. Volunteering helps to attract and retain employees in a whole new way. A 2017 study revealed that millennials who frequently participate in workplace volunteer activities are more likely to be proud, loyal and satisfied employees [6]. Put simply, people want to be part of a business that gives back.

Volunteers enable **organisations** and community groups to increase capacity to deliver crucial services, particularly in times of crisis. Organisations, such as the Australian Red Cross, benefit from having mapping efforts boosted to support their emergency prevention and preparedness activities, as well as their response and recovery services [7].

The **community** benefits – whether it be through a local project, national initiative or an overseas development assignment - the impact of volunteering on the community is improved economic, social and environmental stability. Strengthening mapping and surveying capabilities has the potential to: (a) reduce the financial impact of disasters through better preparedness and the ability to mitigate risk; (b) save lives and help people recover quickly after an event; and (c) reduce damage to the environment through better planning, protection and preventative measures. In a nutshell, volunteering leads to increased wellbeing of citizens, enhanced resilience and an improved environment for all.

Individuals: New skills, knowledge, experiences and heightened sense of self worth.

Organisations: Increased capacity to deliver services in times of crisis.

Businesses: New relationships, opportunities and employee satisfaction.

Community: Improved economic, social and environmental stability.

How does volunteering support priorities?

Disaster Risk Reduction

Australia endorsed the Sendai Framework for Disaster Risk Reduction 2015-2030 [8] in March 2015. This global blueprint guides Australia's approach to disaster risk reduction in Australia as well as overseas through the Australian aid program. SSSI will partner with Australian Volunteers, which needs specialist skills and experience to assist other countries to reduce disaster risk and achieve sustainable development.

Australian Bushfire and Climate Plan

Surveying and spatial professionals have a role to play in the Australian Bushfire and Climate Plan [9]. The plan states that "Community led approaches to disaster preparedness and disaster recovery, in which community members are actively involved in designing and implementing initiatives, can have higher rates of success and strong benefits for mental wellbeing." This emphasises that volunteering delivers important intrinsic and measurable benefits to society, and the need for targeted geospatial research and advocacy to support fire risk assessment and hazard reduction activities.

NSW Bushfire Inquiry

There is no question that geospatial technologies are critical to disaster management. After the 2019-20 bushfires, NSW conducted an inquiry [10] to make recommendations for improving how NSW plans, prepares for, and responds to bushfires.
This resulted in recommendations that target investments in geospatial technologies to assure the survivability of people and assets through the ability to predict megafires, risk modelling and spatial mapping. Recommendations include the need to: (a) establish a Spatial Technology Acceleration Program to maximise use of remote sensing technologies; (b) establish a Bush Fire Technology Fund to assist in rapid development of technologies, research and training; (c) spatially identify remote bushfire prone areas; (d) undertake long-term ecosystem and land management monitoring, modelling, forecasting, research and evaluation, and harness citizen science in this effort; and (e) implement a multi-agency MOU for resource sharing.

National Natural Disaster Arrangements

A finding from the Royal Commission into National Natural Disaster Arrangements [11] highlights that a, "whole-of nations effort and cooperation is necessary to make Australia more resilient to natural disasters. This calls for action, not only by governments and individuals, but also by industry, businesses, charities, volunteers, the media, community groups and others." The report recommends that "there be regular and ongoing national forums for charities, NGOs and volunteer groups with a role in natural disaster recovery."

Digital Economy Strategy

Australia's Digital Economy Strategy 2030 [12] aims to deliver digital technologies and business models to boost productivity, create jobs and solve real world problems. A major contribution to this strategy is the Digital Atlas of Australia [13], which will bring together trusted datasets from across government in an interactive, secure, and easy-to-use online platform. The platform will give governments, businesses and the community the ability to explore, analyse and visualise data on a map so they can make evidence-based, data-driven decisions. Volunteered geographic information has a role in contributing to Australia's digital economy – supporting the collection of local knowledge using location as the connecting thread to meet the current and future needs of Australians.

Sustainable Development Goals

Volunteers are indispensable to achieving the Sustainable Development Goals (SDGs). The 2030 Agenda recognises that volunteers are stakeholders to achieving the 17 SDGs. Volunteers effectively facilitate all Sustainable Development Goals by raising awareness, and inspiring or engaging in grassroots efforts to building resilience [14, 15].

Geospatial innovation

Volunteering programs provide the opportunity to foster innovation and entrepreneurial skills, which is a key pillar of the 2026 Spatial Industry Transformation and Growth Agenda [16] (2026 Agenda). In the aftermath of Hurricane Harvey in Houston, two developers from Crowdsource Rescue [17], developed an application to geolocate 'calls for help' gathered from social media, so that those who were able to assist could rescue trapped or stranded individuals. To date, the public safety platform has helped more than 50,000 people, not just in Houston, but also in the Carolinas following Hurricane Florence and in Florida following Hurricane Michael [18]. Closer to home, the Growing Data Foundation has developed an award winning application that enables our firefighters to locate water points in an emergency [5] (See Spotlight page 10).

Workforce development

Workforce development is a priority for SSSI, and providing members and supporting partners with opportunities to develop their teams and address skills shortages, is paramount. Volunteering outside the day job affords employees the chance to learn new professional skills while sharpening others. Skills are transferable – ranging from public speaking, events management, committee experience and mentoring, to honing leadership skills through managing teams and coordinating projects. In addition, community involvement and volunteering help attract and retain employees in a whole new way.

National Strategy for Volunteering

Volunteering Australia is developing a National Strategy for Volunteering, the first in ten years [19]. Currently in the research phase, the strategy aims to provide a blueprint for a reimagined future for volunteering in Australia. As part of the robust information gathering phase, SSSI is contributing input to promote the use of geospatial technologies for contemporary volunteering, to inform the strategy.

Early career development

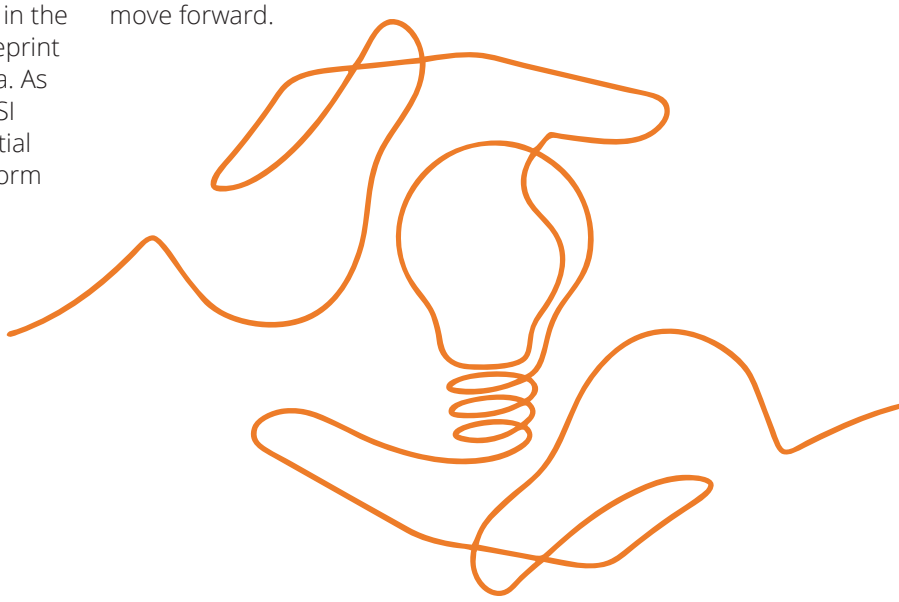
Volunteering provides an opportunity to engage school children in geospatial science. Events such as mapathons, map-clubs and GIS In-Schools Programs foster students' knowledge about core GIS concepts, such as scale, demographic patterns, and relationships between people and geographic features. Student-level geospatial challenges have escalated in recent times – taking on social challenges, such as mapping fire hydrants to support emergency responders and working out emergency evacuation route scenarios depending on the location of a natural disaster [20]. Engaging students early and encouraging their interest in geospatial science is critical to workforce planning, and volunteers can make a huge contribution to stimulating workforce development.

Awareness raising

Our stories matter. Many people don't understand the value that location intelligence brings to the Australian economy and society, nor understand what surveyors and spatial scientists do. Volunteering provides a forum to demonstrate real-world applications. Our volunteers are ambassadors - showcasing how we make a difference through leadership, passion, knowhow and commitment.

Advocacy

Society does not have access to a national 'spatial view' of unfolding disaster events, nor the digital infrastructure to enable VGI on a national scale to support disaster preparedness. This strategy and the proposed SSSI Volunteer Program, aims to raise awareness of the constraints that impact on our ability to service the community, and the requirements to enable us to move forward.




“
Together we can do great
things for others.”

How will we deliver this strategy?

SSSI will work with partners to deliver a range of activities to identify volunteer opportunities, and provide for volunteer management, training and support capabilities.

The Partnership Program enables partner organisations, businesses and individuals to contribute to volunteer activities:

- Coordinating Partners: Enable us to link volunteers to a range of opportunities that will have benefits for the community.
- Mobilising Partners: Help us to identify and develop volunteer projects for specific beneficiaries and support their deployment and ongoing management.
- Resourcing Partners: Support volunteers with the technology resources (data, software and hardware) needed to deliver a range of activities.
- Training Partners: Deliver training programs and materials to ready volunteers for activities, projects and missions.
- Mentoring Partners: Provide coaching and guidance to volunteers.
- Funding Partners: Sponsor individuals, projects and initiatives to support resilience building initiatives, particularly in the area of natural disasters.

Coordinating: Link volunteers to new opportunities.

Training: Deliver training programs and materials.

Mobilising: Support deployment and volunteer management.

Mentoring: Provide coaching and guidance.

Resourcing: Provide resources to deliver volunteering activities.

Funding: Sponsor individuals, projects and initiatives.

SSSI Volunteer Strategic Framework

Vision

A strong connected community of surveying and spatial volunteers building community resilience through knowing where.

Mission

To lead, strengthen, celebrate and promote an inclusive Surveying and Spatial Volunteer Program that delivers benefits to the community – locally, nationally and globally.

Four Pillars

The Volunteer Strategy adopts four pillars – prevention, preparedness, response and recovery (PPRR), as the foundation for resilience building.

- **Prevention** – activities that strengthen geospatial data management to support risk mitigation, planning and analysis capabilities that reduce or eliminate the likelihood or effect of an event.
- **Preparedness** – activities that support the collection of geospatial data to support effective response and recovery operations.
- **Response** – actions that bolster the mapping efforts of organisations during emergency response situations to help contain, control and minimise the impacts of a disaster event.
- **Recovery** – activities that assist organisations to deliver services to help those impacted by disaster, by minimising disruption and reducing recovery times.

Principles

- **Inclusive** – Diversity, inclusivity and equity are valued priorities. Volunteering is available to everyone, and pathways provide a welcoming experience for all.
- **Safety First** – All volunteers have access to induction and training, have a safe and healthy working environment, and are supported by robust governance processes and policies.
- **Respectful** – All volunteering activities and volunteers respect the rights, dignity and culture of others.
- **Fair** – Volunteers are supported and enabled to participate in a way that respects the values of volunteerism and considers the competing demands on their time.
- **Rightful** – Volunteering does not replace paid workers nor constitute a threat to their job security.
- **Meaningful** – Volunteers have a sense of pride and accomplishment in using their skills and abilities for the betterment of society.
- **Ethical** – Data collection, sharing and use are cognisant of respected rights and the preservation of individuals' privacy.

Goals

The Surveying and Spatial Volunteer Strategy has five goals. Their purpose is to achieve a SSSI Volunteer Program that:

1. Provides a nationally coordinated approach to surveying and spatial volunteer activities.
2. Streamlines and simplifies pathways for surveying and spatial professionals to engage in volunteering programs.
3. Stimulates the use of surveying and geospatial technologies by volunteers to support resilience building efforts.
4. Delivers a robust governance structure, policies, standards and best practices to manage the volunteer program.
5. Provides comprehensive information, resources and training programs to support volunteers and recognise their endeavour.

Our Vision

Recognises geospatial professionals deliver community benefits when working together for a common cause.

A strong connected community of surveying and spatial volunteers building community resilience through knowing where.

Our Mission

Makes complex collaboration possible for volunteering.

To lead, strengthen, celebrate and promote an inclusive Surveying and Spatial Volunteer Program that delivers benefits to the community – locally, nationally and globally.

Our Pillars

Are the foundation for volunteering towards resilience building.

Prevention Preparedness Response Recovery

Our Principles

Guide the Volunteer Program – its operation and service delivery

Inclusive Safety First Respectful Fair Rightful Meaningful Ethical

Our Goals

Define what we seeking to achieve.

Deliver National Coordination	Establish Partnerships and Pathways	Leverage Data and Technology	Provide Robust Governance and Policy	Raise Awareness, Conduct Training and Celebrate Achievements

Our Actions

Our actions and innovations will put us on the right path to achieving our goals.

Deliver National Coordination	Establish Partnerships and Pathways	Leverage Data and Technology	Provide Robust Governance and Policy	Raise Awareness, Conduct Training and Celebrate Achievements
Establish Governing Body	Develop Partnership Framework	Develop VGI Road Map and Streamline Data Supply	Formulate Governance Model	Undertake Sector-wide Survey
Stakeholder Identification and Management	Establish Partnership Program	Engage Resource Partners	Implement Volunteer Management Framework	Raise Awareness
Implement the Strategic Plan	Implement a National Volunteer Notice Board	Promote Innovation	Develop Legal and Policy Framework	Develop Communication Plan
Advocate for Volunteers and Beneficiaries	Implement a National Volunteer Register	Adopt Standards	Establish Risk Register	Conduct Training
Research Emerging Trends and Issues		Uphold Data Quality	Undertake Program Monitoring and Evaluation	Develop Volunteer Handbook
Apply for Grants		Apply Data Protection and Security		Establish Recognition Program
Conduct Foundation Feasibility Study		Implement a Unified VGI Infrastructure		Provide Mentoring
				Support Networking

Our Outcomes

Knowing the outcomes we want to achieve will guide the focus of our actions and their priority.

Deliver National Coordination	Establish Partnerships and Pathways	Leverage Data and Technology	Provide Robust Governance and Policy	Raise Awareness, Conduct Training and Celebrate Achievements
A common point of reference for volunteering	A coalition of individuals and organisations contributing benefits to the community	Increased use of geospatial technologies in volunteering	A rewarding experience for volunteers through robust operations	Volunteers recognised and celebrated
Nationally coordinated activities for resilience building	Multiple pathways for volunteers	Contemporary volunteering through greater focus on innovation	Uniform policies standards and guidelines	Volunteers are equipped to undertake volunteering activities
Surveying and spatial science recognised and valued	Increase in the number of surveying and spatial volunteers	Improved community access to location-based services and data	Program efficiency and prudent regulatory compliance	The SSSI Volunteer Program is sustained


“Coordinating the talents of many, so we can do more together.”

Goal 1: National Coordination

Provide a nationally coordinated approach to surveying and spatial volunteer activities.

Objective

To create a high value surveying and spatial volunteer community that can be mobilised rapidly, safely and effectively - where they are needed most.

Current Situation

Natural disasters know no boundaries, and there is a growing reliance on resource sharing, including the deployment of volunteers across jurisdiction borders in times of crisis.

However, there is currently no endpoint for the coordination of surveying and spatial volunteering nationally, and organisations that need assistance do not know where to seek help. This is also the case for overseas development, as there is no mechanism to coordinate a geospatial volunteering capability from Australia.

SSSI Members, government, businesses, NGOs, NFPs, and the research community have no forum to come together to strategise how geospatial science can be put into the hands of volunteers to better support community resilience building activities. Yet, this is crucial, as many volunteer community groups lack awareness of how geospatial information can be used to increase their capacity and capability to service the community.

This calls for greater advocacy on the power of geospatial technologies and the potential of surveying and spatial professionals to contribute in a volunteer capacity to support disaster prevention, preparedness, response and recovery activities.

Australia's crisis management framework does not include a role for volunteers, and VGI is rarely sourced for public datasets. There is significant potential to boost the collection of information and the use of geospatial technologies for disaster management, through a 'call to action' by volunteers.

Actions

The following actions are designed to facilitate the coordination of the SSSI Volunteer Program:

- **GOVERNING BODY:** Responsible for coordinating volunteering nationally, setup within SSSI - potentially as a sub-entity.
- **STAKEHOLDER MANAGEMENT:** Identification of stakeholders and their ongoing coordination.
- **IMPLEMENTATION PLAN:** Detailed actions and timeframes that enable the delivery of this strategy.
- **ADVOCACY:** A campaign to highlight the value of surveying and spatial volunteering and how activities can be supported.
- **RESEARCH:** A study of emerging trends and issues to advance our understanding of how geospatial technologies improve the resilience of individuals and communities.
- **GRANT APPLICATIONS:** Apply for grants to minimise the financial and administrative barriers to volunteering for individuals, businesses and organisations, nationally.
- **SSSI FOUNDATION:** Conduct a feasibility study for a charitable trust to support and provide community groups with geospatial capabilities to enable community resilience building activities.

Outcomes

Goal 1 aims to achieve:

- A common reference point for surveying and spatial volunteering.
- A nationally, coordinated volunteer program with funding for geospatial activities that support resilience building.
- Surveying and spatial science is recognised and valued for the contribution it makes to our communities.


“
Providing a pathway to volunteering – locally, nationally and globally.
”

Goal 2: Partnerships and Pathways

Streamline and simplify pathways for surveying and spatial professionals to engage in volunteering programs.

Objective

Establish collaborative partnerships with local, national and international organisations, and community groups to develop volunteering pathways and opportunities.

Current Situation

There are multiple ways that surveyors and spatial scientists can contribute their knowledge, skills and expertise to serve the community, however these opportunities are not easily found.

Building partnerships is a core SSSI activity – enabling us to deliver a broader range of services, and we have established successful alliances with likeminded associations on education, knowledge-sharing and networking opportunities for Members.

This strategy builds on this strength. It recognises that there are volunteer organisations that we can learn from, and partner with, to deliver volunteering opportunities to surveying and spatial scientists. Engineers Australia, Urban and Regional Information Systems Association (URISA), Probono Australia, GovHack, Hackathons Australia, Maptime Oceania, Humanitarian OpenStreetMap, MapAction, RedR and Australian Red Cross, to name a few; all provide mechanisms to deploy technical specialists in humanitarian and resilience building efforts.

Today, volunteering opportunities for surveying and spatial scientists exist, but it is difficult to keep track of them, and we currently don't have mechanisms to build engagement across the resilience spectrum – prevention, preparedness, response and recovery.

Partnering with established organisations to provide pathways for our volunteers, is one way to overcome this gap in capability.

Actions

The following actions are designed to enable, encourage and facilitate participation in collective resilience building efforts, and make volunteering a reality for all.

- **PARTNERSHIP FRAMEWORK:** Develop a 'local to global' partnership framework structured around four focus areas – shared vision, principles, delivery and capability.
- **PARTNERSHIP PROGRAM:** Progressively partner with local, national and global organisations to support and provide flexible volunteering opportunities.
- **NATIONAL VOLUNTEER NOTICE BOARD:** A list of volunteer opportunities where organisations can post links to encourage people to get involved.
- **NATIONAL VOLUNTEER REGISTER:** Implement an online portal to enable people to register their interest to be a volunteer.

Outcomes

Goal 2 aims to achieve:

- A partnership network that is a coalition of engaged individuals and organisations that contribute maximum benefits to the community through volunteering efforts.
- A partnership framework and program that includes multiple volunteering pathways to suit the skills, availability and varied interests of volunteers.

“Leveraging geospatial data and technology for prevention, preparedness, response and recovery.”

Goal 3: Data and Technology

Surveying and geospatial technologies are used by volunteers to support resilience building efforts.

Objective

To promote the collection, mapping and analysis of geospatial data within the volunteer community, as well as the skills to use location-based applications, to better understand the location of people and their relationship to places and events.

Current Situation

Geospatial data and technologies are fundamental to prevention, preparedness, response and recovery activities, and yet, are an untapped resource for many community groups and NGOs. There is a significant opportunity to boost capabilities for these organisations through data collection and the innovative use of location-based applications.

However, there is currently no nation-wide platform to support VGI activities. While OpenStreetMap provides a global basemap, this data is not utilised by government as it is inconsistent with agency databases in terms of currency, content and accuracy, and as such, data integration is a complex task.

Access to high-accuracy and timely imagery is also a major issue for volunteers and volunteer organisations. Current methods rely on business and organisations to provide this data philanthropically.

There is a need for more emphasis and national coordination of geospatial challenges, such as GeoHackathons, code sprints and mapathons, to tackle priority resilience building using the power of geospatial technology and collaboration to solve problems.

Actions

The following actions are designed to support and promote the use of surveying and geospatial technologies in volunteering:

- **VGI ROADMAP:** Working with government, determine high-value datasets for disaster prevention, preparedness, response and recovery, and support collection according to an agreed VGI roadmap.
- **STREAMLINE DATA SUPPLY:** Work with organisations to develop efficient mechanisms to integrate and validate VGI with authoritative sources.
- **ENGAGE RESOURCE PARTNERS:** Identify and acquire essential data and technology resources that enable volunteer activities to prosper.
- **PROMOTE INNOVATION:** Establish an Innovation Sub-committee to work with universities and research institutes to enhance volunteer services, capabilities and experiences, and to foster a culture of innovation and process improvement among volunteers and partners.
- **ADOPT STANDARDS:** Embed data and technology standards in all volunteering activities to assure data is findable, accessible, interoperable and reusable [21].
- **UPHOLD DATA QUALITY:** Adopt best practice data governance, quality control and validation as an integral component of all volunteer activities.
- **DATA PROTECTION AND SECURITY:** Apply relevant policies and laws to protect data, individuals' privacy and respected rights, and safeguard ethical data use.
- **UNIFIED VGI INFRASTRUCTURE:** Work with government to implement a VGI platform for data collection on a national scale.

Outcomes

Goal 3 aims to achieve:

- Increased use of geospatial technologies in volunteering activities.
- Contemporary volunteering through greater focus on geospatial innovation.
- Improved community access to location-based services and data.

“Having the right processes to support our volunteers at home and overseas.”

Goal 4: Governance and Policy

Delivers a robust governance structure, policies, standards and best practices to manage the volunteer program.

Objective

To develop and implement a SSSI Volunteer Management Framework and methods to assure the effective and efficient coordination of volunteers, partners and services.

Current Situation

SSSI has a strong governance framework – having a Board, well defined roles and responsibilities, and accountability and transparency to members and stakeholders. This provides a solid governance foundation in which to develop the SSSI Volunteer Program.

However, a gap analysis will need to be undertaken to determine what governance mechanisms and processes are needed to serve volunteers and the partner network into the future. Elements that require review include planning, supervision and support, policies and laws, risk management, recognition and rewards, and program evaluation and review.

The Volunteer Management Framework will evolve as different volunteering activities are implemented over time. The framework will need to take into consideration the needs of volunteers, types of activities, training required, and support mechanisms that need to be put in place.

The framework will need to consider the requirements of partners and beneficiaries and include mechanisms to build positive relationships, operating procedures between partners and responding volunteers, clear roles and responsibilities, volunteer induction, training and mobilisation, health and safety, and targeted communication methods.

Actions

The following actions are designed to deliver robust volunteer management and coordination practices:

- **GOVERNANCE MODEL:** A clearly defined governance model that includes roles and responsibilities, and accountabilities of SSSI, volunteers and collaborating partners.
- **VOLUNTEER MANAGEMENT FRAMEWORK:** The processes, tasks and tools that provide guidance and structure for operationalising the volunteer program.
- **LEGAL AND POLICY FRAMEWORK:** Defines the legal obligations towards volunteers and partner organisations, such as workplace safety, data licensing, working with children; as well as the policy implementation process.
- **RISK REGISTER:** Identifies potential risks and their impact, and a risk response plan that includes mitigation strategies.
- **FINANCIAL MANAGEMENT:** The process for effectively managing grant funding and sponsorship associated with volunteer activities.
- **PROGRAM MONITORING AND EVALUATION:** An analysis of the program's impact, as well as feedback from volunteers and partner organisations with a view to enhancing the SSSI Volunteer Program over time.

Outcomes

Goal 4 aims to achieve:

- A rewarding experience for volunteers and partners through operational and process efficiency.
- Uniform policies, standards and guidelines for volunteering locally, nationally and globally.
- Program efficiency through prudent regulatory compliance, and financial and risk management processes.


“
Sharing experiences and the confidence and competency to act in the service of others.”

Goal 5: Awareness, Training and Celebration

Provides comprehensive information, resources and training programs to support volunteers and recognise their endeavour.

Objective

To attract geospatial professionals and provide them with the opportunity to hone their skills and knowledge to effectively contribute to disaster management and community resilience, in a volunteer capacity.

Current Situation

When the 2019-20 bushfire crisis was unfolding in New South Wales, Victoria, Canberra and Kangaroo Island in South Australia, SSSI received calls from the surveying and spatial community offering support. This 'call to action' showed a keenness by our professionals to volunteer.

However, implementing a volunteer program comes with responsibilities; first and foremost is to ensure the program is sustainable. Volunteer fatigue can occur, and the reliance on the same people can cause burnout and stress. Many people have already done a day's work before volunteering. For the program to be maintained in the longer term, there is a need to continually attract and retain volunteers to invest in a cause.

This requires targeted communications and key messaging, celebrating achievements, keeping the volunteering interesting by broadening the scope of volunteering to suit a range of needs and motivations, and above all, thanking volunteers for sharing their time and talent.

For this reason, the SSSI Volunteer Program will need to place emphasis on building relationships, raising the profile of volunteering, recognising returned volunteers, providing inclusive networking opportunities to share stories, and making volunteering fun for everyone.

Actions

The following actions are designed to attract and enable volunteers and celebrate their achievements:

- **SECTOR-WIDE SURVEY:** To understand and respond to what motivates people to volunteer and respond to their needs.
- **AWARENESS:** Targeted promotion of volunteering opportunities to raise awareness and understanding of volunteering and its benefit to the community.
- **COMMUNICATION PLAN:** Develop a communication plan and identify methods to encourage information sharing and two-way communication between volunteers and partner organisations.
- **CAPACITY DEVELOPMENT:** Build the capacity of SSSI and partner organisations to respond to emerging trends and issues.
- **TRAINING:** Conduct training workshops and development opportunities to ready volunteers for activities, and to encourage diversity in volunteering.
- **VOLUNTEER HANDBOOK:** Provide resources that explain the volunteer process and opportunities to engage and on-board potential volunteers.
- **RECOGNITION PROGRAM:** Develop innovative ways to recognise, value and celebrate volunteering.
- **MENTORING:** Provide mentoring opportunities to guide and coach those new to the surveying and spatial volunteer community.
- **NETWORKING:** Hold events that enable volunteers to make valuable connections and share volunteering experiences.

Outcomes

Goal 5 aims to achieve:

- Volunteers recognised and celebrated.
- Volunteers equipped with the skills and knowledge they need to undertake volunteering activities.
- A SSSI Volunteer Program sustained by a high volume of volunteers.

Appendix A: Explanation of Terms and Acronyms

Term	Definition
2026 Agenda	2026 Spatial Industry Transformation and Growth Agenda aims to transform and realise the potential of the local spatial industry and see it recognised as an underpinning element of the Australian digital economy.
Australian Bushfire & Climate Plan	A broad plan and practical ideas for governments, fire and land management agencies and communities to help us mitigate and adapt to worsening fire conditions.
Australian Institute of Disaster Resilience	An Australian Government, National Recovery and Resilience Agency institution that develops, maintains and shares knowledge and learning to support a disaster resilient Australia. Operates a Volunteer Leadership Program to equip volunteers from community organisations, not-for-profits, disaster relief organisations and local government within the emergency management sector, with the skills and confidence to grow as leaders.
Australian Volunteers	The Australian Volunteers Program matches a broad range of skilled Australians with partner organisations in the Indo-Pacific region, to support them to achieve their own development goals.
Code Sprint	A gathering of a group of programmers to complete a short, rapid development project.
Crowdsource Rescue	A Houston-based non-profit that uses next-generation technology to quickly connect both professional first-responders and vetted volunteers with response cases immediately before, during, and after a disaster.
DMR-SIG	Disaster Management and Recovery - Special Interest Group – SSSI working group.
Engineers Australia	The Australian engineers professional peak body.
FIG	International Federation of Surveyors (FIG) is the UN-recognised global organisation for the profession of surveying and related disciplines.
Growing Data Foundation	A volunteer-based Not-for-Profit organisation that has members from across the South Australian and Australian Internet of Things (IoT) ecosystem.
HOT Tasking Manager	Based on Open Street Map, the Tasking Manager divides a large mapping project into smaller tasks that can be completed rapidly and collaboratively, with many people contributing to a collective project goal.
MapAction	A non-profit organisation that collaborates with partners around the world to help anticipate, prepare for and respond to humanitarian emergencies by applying geospatial expertise.
MapsWA	Mapping and Planning Support – a group of GIS and Mapping professionals available to support Emergency Services activities across Western Australia.
Maps ACT	Mapping and Planning Support – established to provide a mechanism for spatial professionals to assist the ACT Emergency Services Agency during complex emergencies as volunteers.
OpenStreetMap	A collaborative project to create a free editable geographic database of the world.
NGO	Non-Government Organisation – a not-for profit, voluntary citizen's group that is organised on a local, national or international level to address issues in support of the public good.
Not for profit organisations	Organisations that provide services to the community and do not operate to make a profit for its members (or shareholders, if applicable).
RedR Australia	A leading international humanitarian response agency that selects, trains and deploys technical specialists. RedR Australia is the implementing partner of Australia Assists – an Australian Government funded program.
Sendai Framework for Disaster Risk Reduction 2015-2030	The Sendai Framework focuses on the adoption of measures which address the three dimensions of disaster risk (exposure to hazards, vulnerability and capacity, and hazard's characteristics) in order to prevent the creation of new risk, reduce existing risk and increase resilience.
URISA	Urban and Regional Information Systems Association – a multi-disciplinary geospatial organisation that provides professional education and training, a vibrant and connected community, advocacy for geospatial challenges and issues, and essential resources.
VGI	Volunteered Geographic Information – harnessing of tools to create, assemble, and disseminate geographic data provided voluntarily by individuals
Volunteering Australia	The national peak body for volunteering, working to advance volunteering in the Australian community.

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SSSI is thankful to the DMR-SIG committee for their passion and drive, and professional viewpoints and personal experiences that contributed to this valuable strategy. Congratulations on achieving this milestone.

Call for Submissions

SSSI invites your comments on this consultation document. Your feedback will help us to make informed decisions on the final version of the strategy. Please assist us in getting this important strategy right.

- Are we moving in the right direction?
- Do our goals and objectives reflect your own aspirations?
- Do you support the underpinning principles?
- Would you like to be involved?
- Do we have your support?

Submissions can be made via our online feedback form at https://forms.office.com/r/DTyQsS7XJH
or via info@sssi.org.au.
Contributions are welcome from all interested organisations and individuals.

The closing date for submissions is 31 August 2022.

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