



PS-SP-#3909686-v1-EM-9101-21996-CA
SAR Incident Data Management
SARNIF Project

Year 2 Report

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ACKNOWLEDGMENTS

CanOps would like to express our gratitude to the numerous organizations that supported our 2022 survey and interview process. We would like to extend our sincere thanks to the members of our SAR Incident Data Management (SARIDMS) Advisory Group, who played a vital role in this project and helped us gain access to the SAR community.

We would like to acknowledge the following organizations for their valuable contributions and participation in the SARIDMS Advisory Group:

- Search and Rescue Volunteer Association of Canada (SARVAC)
- SARSAV, BCSARA, SARMANVA, SARA, NBGSARA, NLSARA, NSGSARA, AQBRS, OSARVA, PEIGSAR, YKSAR, YSAR, Nunavut
- Parks Canada
- Royal Canadian Mounted Police (RCMP)
- Public Safety Canada (PSC)
- Ontario Provincial Police (OPP)
- Ground Search and Rescue Council of Canada (GSARCC)
- Department of National Defense (DND)/Canadian Armed Forces (CAF)
- Aboriginal Firefighters Association of Canada (AFAC)
- Saskatchewan Public Safety Agency (SPSA)
- Sûreté du Québec
- Canadian Air Search and Rescue Association (CASARA)
- Canadian Public Safety Operation Organization (CanOps)
- Canadian Coast Guard (CCG)

We would also like to thank the International GSAR Community and their representatives that contributed their time and shared their insights through participation in virtual meetings and via email communications.

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Executive Summary

In March 2021, the Canadian Public Safety Operations Organization (CanOps) received a Search and Rescue New Initiatives Fund (SARNIF) grant to complete an environmental scan and to define the factors hindering the success of data collection from Ground Search and Rescue (GSAR) in Canada. In March 2022 at the completion of Year 1, CanOps reported two outstanding issues affecting the GSAR data collection. The first of these issues is as follows:

1. A lack of an overarching governance structure/model that provides a sustainable direction and oversight contributing to a holistic national search and rescue program.

Through discussions, surveys and meetings conducted in 2022, the GSAR community clearly identified that the current governance structure was the overarching issue, and that for success of future initiatives a solution for this must be prioritized. Complexities around governance structure has been noted as an issue as far back as 2013 by the National Search and Rescue Secretariat (NSS) in the Quadrennial Review, and as recent as 2021 in the Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons. In the past there have been national initiatives to collect this data; however, without a strong Canadian GSAR governance structure in place, challenges were faced, and it made it difficult to sustain the activities and produce the desired measurements and outcomes. Lack of clear governance at the national level has led to gaps and unfortunate overlap in the current Canadian SAR Committees.

Collaboratively implementing an effective national governance model will ease the facilitation of sustainable direction and oversight of the national SAR program. Although it is recognized that there will be challenges and sensitivities around these changes, the benefit of this implementation will be measurable. The clear governance structure for GSAR nationally will decrease the complexities around future GSAR initiatives, including, but not limited to, data collection, management, and reporting. Successful data collection and reporting will allow for effective SAR program management, and SAR situational awareness through the identification of risks and allowing for targeted preventative measures. By identifying priorities and implementing targeted solutions, there will be cost savings in many sectors, specifically the social sector. New Zealand has indicated that through data collection, analysis, risk identification and targeted solution implementation, that they are saving at a 16:1 cost benefit ratio.

A partnership was forged with Algonquin College to bring a non-biased approach to research, and analysis and for the recommendation of a workable solution for national GSAR governance. Algonquin's report recommends using a collaborative approach to implement a constellation type model of governance. The proposed solution for the governance model and other above noted issues, includes establishing a National Steering Committee that would provide strategic guidance and oversight for collaborative work. This committee would be comprised of representatives from regional and national stakeholder organizations. The National Steering Committee would be supported by a National Coordinating Body that would provide administrative, facilitative and management support to ensure collaboration and that objectives are met. This body has been noted to be the 'backbone' of the organizational structure. It is recommended that this be a Third-Party and not a contributing member of the collaborative. It is also our recommendation that a National GSAR Data Stewardship Committee is formed to provide guidance and support for a national data standard including collection and transfer of

data. This committee would be made up of Local and Regional Data Stewards from the GSAR Community.

The secondary issue reported at the end of Year 1, in March of 2022 was:

2. A lack of a flexible technology platform that provides levels of SAR awareness, lost person behavior statistics and SAR program management.

GSAR data is currently being collected in Canada at local and regional levels in a siloed fashion. This siloed collection was identified through discussions with the Search and Rescue Incident Data Management System (SARIDMS) Advisory Group members, as well as through consultations with the SAR community. With siloed data collection and no single entity at the national level having the structure and platform to collect and manage the data, Canada continues to lack a fundamental view of national GSAR in Canada.

As mentioned previously, there have been national initiatives to collect data, but due to the complexities related to GSAR community structures in Canada, it made it difficult to sustain. Research was completed nationally, as well as internationally to learn what data is being collected, which data the SAR community believes should be collected, as well as how this collection and reporting should happen. The SARIDMS Advisory Group met in November in St. John's, Newfoundland for an update on work completed, round table discussions, and to provide opinions and advisement to the CanOps team. The SARIDMS Advisory Group participant's willingness to discuss and tackle the challenges portrayed at the face-to-face meeting shows the sincere desire of the GSAR community to do what is necessary for the success of national data collection. At this meeting, Public Safety Canada presented on the necessity of the success of data collection, as well as the benefits it would provide to the nation.

Through Algonquin College's analysis of the research data, they were able to lay out and recommend the steps for the success and sustainability of a national data continuum. Algonquin completed research around some previously noted GSAR Community concerns regarding data ownership, liability, and privacy. Algonquin's research and subsequent report demonstrates that data ownership does not only imply control over the data, but also the 'right to share' the data. In fact, with appropriate agreements and policies in place to reduce real or perceived concerns over privacy and liability it is proportionately important to share the collected data to allow for identification of risks and to prioritize targeted solutions and as a result, save lives.

In the SAR Governance section above, it was mentioned that a Data Stewardship Committee would be a part of a successful governance structure for a successful data continuum. With proper data stewardship, the GSAR community would be reassured that data will be protected, transmitted, and stored securely by a trusted source.

The Algonquin Report recommends we "explore the potential capabilities of the existing, but defunct, Search and Rescue Knowledge Management System (SAR KMS) housed within the National Search and Rescue Secretariat at Public Safety Canada, and whether it could be restored for usefulness within the current GSAR and technological environments."¹ CanOps is recommending a feasibility assessment of

¹ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 64

SARKMS, including inputting data into SARKMS, if possible, to determine the state of SARKMS and its reporting abilities. If an alternative to SARKMS is required, CanOps recommends following Algonquin’s alternative solution indicated in their report, “as a viable alternative, explore a Business Intelligence (BI) platform as a national data management system to aggregate, analyze, and report back on both real-time and historical data”².

In conclusion, to have a successful national data continuum, the GSAR Community must start with implementing the above recommended governance structure including a Data Stewardship Committee. Data policies and sharing agreements must be put in place, as well as completion of the recommended feasibility assessment on SARKMS.

² Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 64

ACRONYMS

- AFAC - Aboriginal Firefighters Association of Canada
- AHJ – Authority Having Jurisdiction
- AQBRS - Association Québécoise des bénévoles en recherché et Sauvetage
- BCSARA – British Columbia Search and Rescue Association
- CAF - Canadian Armed Forces
- CASARA - Civil Air Search and Rescue Association
- CCG - Canadian Coast Guard
- CISARIS – Canadian Inland Search and Rescue Incident System
- COSPAS-SARSAT - International Satellite System for Search and Rescue
- DMS - Data Management System
- DND - Department of National Defense
- DSC – Data Stewardship Committee
- E-Scan - Environmental Scan (Group/Community Survey)
- GSAR - Ground Search and Rescue
- GSARCC - Ground Search and Rescue Council of Canada
- ICSAR - Interdepartmental Committee on Search and Rescue
- ISRID – International Search Rescue Incident Database
- LPB – Lost Person Behaviour
- NBGSARA – New Brunswick Ground Search and Rescue Association
- NLSARA - Newfoundland and Labrador Search and Rescue Association
- NSGSARA- Nova Scotia Ground Search and Rescue Association
- NSP - National Search and Rescue Program
- NSS - National Search and Rescue Secretariat
- OPP - Ontario Provincial Police
- OSARVA - Ontario Search and Rescue Volunteer Association
- POC – Proof of Concept
- P/T – Province/ Territory
- PEIGSAR – Prince Edward Island Ground Search and Rescue
- PSC - Public Safety Canada
- RCAF - Royal Canadian Air Force
- RCMP - Royal Canadian Mounted Police
- SAR - Search and Rescue
- SARA – Search and Rescue Alberta
- SARIDMS – Search and Rescue Incident Data Management System
- SARKMS – Search and Rescue Knowledge Management System
- SARMANVA – Search and Rescue Manitoba Volunteer Association
- SARNIF – Search and Rescue New Initiatives Fund
- SARSAV – Search and Rescue Saskatchewan Association of Volunteers
- SARVAC - Search and Rescue Volunteer Association of Canada
- TOR – Terms of Reference
- UK – United Kingdom
- YKSAR – Yellow Knife Search and Rescue
- YSAR – Yukon Search and Rescue

INTRODUCTION

The Search and Rescue New Initiatives Fund was established by the federal government in 1988 and is managed by Public Safety Canada (PSC), in partnership with other federal, provincial, and territorial Search and Rescue (SAR) organizations. The Search and Rescue New Initiatives Fund (SARNIF) provides annual funding for projects that will improve the National SAR Program.

June 2021, CanOps was awarded a two-year SARNIF project. During the first year, the problems, impediments, and requirements around a national incident data collection system for Ground Search and Rescue (GSAR) were defined, and a communication platform was created to foster regional and national collaboration between GSAR groups. The Year 1 report was finalized in March 2022. In Year 2 of the project (2022/23), strategies were developed for increasing national coordination and collaboration among GSAR groups, as well as to identify the requirements for a national incident data continuum for GSAR.

The *SAR Incident Data Management SARNIF Project Year One Report*³ identified two main obstacles currently standing in the way of the collection of national data:

1. **A lack of an overarching governance structure/ model that provides a sustainable direction and oversight contributing to a holistic national search and rescue program.**

National governance is crucial for Canadian ground search and rescue operations as this could ensure that there is a coordinated and effective response to emergencies, as well as coordinated data collection. Canada's vast and diverse geography presents numerous challenges for search and rescue operations, including extreme weather conditions, rugged terrain, and remote locations. Therefore, a national governance structure provides a framework for developing and implementing search and rescue policies and procedures that are tailored to the specific needs of different regions. It also ensures that resources, such as equipment, training, and personnel, are allocated effectively across the country. National governance also facilitates collaboration between various levels of government, non-governmental organizations, and the private sector to ensure that SAR operations are carried out efficiently and with a common goal in mind. A strong national governance framework is essential for ensuring that Canadians receive prompt and effective assistance in times of crisis, and that the lives of those in need are saved, no matter what jurisdiction they live in.

2. **A lack of a flexible technology platform to bring provincial/ territorial SAR data together.**

Having a single, flexible technological platform to bring SAR data together across Canada is important for several reasons. Firstly, it allows for situational awareness across jurisdictions, enabling emergency responders to assess the situation quickly and accurately at hand and make informed decisions about how best to coordinate a response. Secondly, it provides access to lost person behaviour statistics, which can assist search and rescue teams to better understand how to locate missing individuals in the moment and prevent future incidents. Finally, a centralized platform for SAR data allows for effective program management in each jurisdiction, as well as nationally, ensuring that resources are allocated efficiently and that teams are able to work together effectively. Successful data collection and reporting will allow

³ McKay, Daniel (2022) PS-SP-#3909686-v1-EM-9101-21996-CA SAR Incident Data Management SARNIF Project Year 1 Report p. 24

for effective SAR program management, and SAR situational awareness through the identification of risks and allowing for targeted preventative measures nationally. By having a single, flexible technological platform for SAR data, Canadian authorities can ensure that they are equipped with the tools and information necessary to respond to emergencies quickly and effectively, leading to better outcomes for those in need of assistance.

Year 2 of the project focused on the continuation of the SARIDMS Advisory Group that includes membership from the National Authorities Having Jurisdiction (AHJ), representation from the federal government, and representation from members of the Search and Rescue Volunteer Association of Canada (SARVAC). The SARIDMS Advisory Group was designed as a space for national representation. The group brings together the participants that have the proper authority to make decisions from all jurisdictions, as well as other agencies that are able to give a broad SAR perspective. These agencies include RCMP, provinces/territories, Parks Canada, Public Safety Canada, and representation from the Ground Search and Rescue Council of Canada (GSARCC). New partnerships were explored and created in Year 2, including Algonquin College and several international SAR Communities. Year 2 also focused on facilitating discussions during a face-to-face meeting in Newfoundland with the SARIDMS Advisory Group and Algonquin College. Discussions with Algonquin College, external agencies, international agencies (NZ, UK, AUS, USA), survey respondents, and provincial/territorial associations occurred throughout the year.

The goal for Year 2 was to find an achievable, workable solution for the above two mentioned challenges.

METHODOLOGY

Algonquin Academic Collaboration

In order to add an academic perspective, pull in the valuable and established SAR research and program expertise, and to broaden the overall view and perspective of the project, a collaborative agreement was entered into with Algonquin College Victimology Research Center. Algonquin agreed to conduct research, analyze the resulting information, and provide a report on four key items:

1. Identifying the data governance model that would best contribute to a pan-Canadian GSAR program capable of providing sustained direction and oversight.
2. Defining the difference between a missing person and a lost person, which helped to clarify the terminology used in the project. A lack of clarity on the difference between the two items and how each term is used in different jurisdictions continues to hamper the evolution of a national GSAR data model and trend analysis.
3. Identifying which type of data collection model would optimize evidence-based decision making; a critical aspect of the project.
4. Identifying the key elements necessary for a flexible technology platform, which would ensure the program's scalability and adaptability to changing needs. This included looking at capability, usability, maintainability, and affordability attributes.

Algonquin representatives utilized three methods in their approach to this work: a literature review, a secondary analysis of data, and observation at face-to-face SARIDMS Advisory Group meetings. The

research and work conducted by Algonquin College was instrumental in advancing the project and provided valuable insights that will inform the project's direction moving forward.

Data Category Gap Analysis

For the Year 2 goal of identifying a mechanism for the establishment of a national technology platform for GSAR to facilitate aggregated incident data collection, it was necessary to look at a data standard for that platform. As part of the work towards such a standard, a gap analysis on current data collection was conducted. The data fields and values of the following systems were compared for commonalities, differences, and gaps:

1. ISRID Koester Schema App - Online data
2. ISRID Koester - Online download template (Koester's SAR Database - Short)
3. SARSAV Schema for KMS (KMS Memorandum of Understanding Fields)
4. D4H Field List - Robin Blandford
5. SARKMS Schema (KMS SAR Incident Files)
6. SARMASTER/CISARIS
7. National Search and Rescue Secretariat
8. SARKMS data fields development

From there, the most common categories and fields, and any additional fields seen to be beneficial at the national level were chosen as the starting point of a national GSAR data schema that can be further developed and refined.

Survey and Interviews

While working toward the goal of creating a national GSAR data standard, it was necessary to evaluate what is currently being collected within the GSAR Community, as well as what the GSAR community sees as relevant to data collection moving forward. To accomplish this, an online survey was conducted using data fields derived from the gap analysis work. These fields were grouped into three categories including Administrative Data, Subject Data and Weather Data. The survey was sent out to the GSAR community via Survey Monkey. Virtual interviews were offered and conducted for those in the GSAR community that preferred a consultation versus than the online survey. Along with a review of and touchpoint on the individual data fields and categories as part of the survey, respondents were asked to suggest any additional fields and categories they felt would be beneficial at the national level. Understanding what downstream information would be beneficial to PSC, ICSAR and SARVAC at this time ensured that all relevant data fields were captured, and that all angles of the data desired by the survey participants were covered.

Additionally, questions were included that relate to governance, the implementation and management of a national GSAR data system and standard, and questions about whether data that is currently being collected by Agencies Having Jurisdiction were included in the survey.

International scan

To enhance and broaden the overall view on SAR governance, data standards, data collection, cleaned data reports and their benefits, and to learn what is working and what is not, we looked to the international SAR community. Although many countries including Sweden, Finland, Chile, France, and Brazil were contacted, the United Kingdom of Great Britain and Northern Ireland, Australia, New

This priority was confirmed based on the results of the governance-related survey and interview responses, based on the initial information presented by Algonquin College at the face-to-face meeting in November 2022 and the significant discussion that followed the presentation, as well as based on the inherent limitations identified in the current decentralized governance model.

The *Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons, Newfoundland/Labrador*⁵ remains a key case study that highlights the impacts of Canada not having a national GSAR governance body and formal system of collaboration and coordination. The inquiry shines a light on how both the provincial/territorial government, as well as the federal government, are involved in GSAR in Canada; however, that GSAR is legislated only at the provincial/territorial level, and only as a voluntary activity for provinces and territories. This information, when looked at in the context that GSAR incidents are initiated and controlled through police incident command, and that incidents often span beyond jurisdictional boundaries, shows how a ground search and rescue effort can easily become bogged down and much less effective, as well as how the absence of a cross-jurisdictional system hampers the ability for the GSAR community to collect data at the national level. Specifically, the Inquiry states:

*“While everyone understood the mandate of this Inquiry is limited to directing the Province and not the federal government, this field of search and rescue is occupied by both governments. There is a wish to see the Province continue its efforts to seek high level cooperation with their federal counterparts so that people do not feel interjurisdictional misunderstanding or excessive protocols hamper searches.”*⁶

Algonquin College Governance Research Governance Model

Algonquin College researched and provided recommendations on several governance models, including the value and applicability of each of these models, in order to identify and recommend a feasible and effective solution for national GSAR governance. The models researched included:

1. Collaboration Spectrum

Algonquin College found that the Tamarack Institute, based on years of supporting collaborations on the ground, has identified a ‘collaboration spectrum’, which defines different types and levels of collaboration. The spectrum highlights ‘competition’ between stakeholders at one end, and ‘integration’ amongst stakeholders at the other, with varying levels of either ‘turf’ (a.k.a. defensive stance) or ‘trust’ (a.k.a. collaborative stance) along the spectrum.

“There are many different models of collaboration, and the literature on collaborative governance is just as vast. A recent review by Collaborate CIC (2019) in the United Kingdom identified seven (7) main forms of collaboration that can be seen across many different sectors.

⁵ James J. Igloliorte, Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons, St. John’s: Queens’s Printer for Newfoundland and Labrador, 2021, [Final Report - Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons \(nlqsarinqury.ca\)](#)

⁶ James J. Igloliorte, Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons, St. John’s: Queens’s Printer for Newfoundland and Labrador, 2021, p. 9, [Final Report - Public Inquiry Respecting Ground Search and Rescue for Lost and Missing Persons \(nlqsarinqury.ca\)](#)

These models of collaboration are: (1) Networked collaboration, (2) Decentralised collaboration, (3) Collective Impact, (4) System Connectors, (5) Catalyst Collaborators, (6) Coalitions, and (7) Mission-oriented collaborations (Collaborate CIC, 2019). The report describes the value, purpose, structures and processes of each different approach.”⁷

2. Constellation Model of Governance

Secondly, Algonquin College looked at the Constellation Model of Governance, as described by the Tamarack Institute in 2021. The model identifies the need for strategic guidance and support from a ‘steering committee’, coordination and management from a ‘backbone organization’, and contributions from various community partners and stakeholders. These community partners and stakeholders may already have their own smaller constellations of collaboration (i.e. local or regional coalitions or associations), and/or these may be developed along the way. Within a complex system of stakeholders, the Constellation Model of Governance allows for structuring of the group in an intentional way, while also recognizing and respecting uncertainty in a dynamic and changing environment.⁸

As described by the 2023 Algonquin Report, the Constellation Model of Governance “places many different actors within a complex community eco-system in equal positions of connection and influence, but with different roles and areas of focus.”⁹ (Bania, PhD & Newbold and PhD with Zoe Tysick 2023). As described by Surman & Surman, 2008, “the Constellation Model of Collaborative Governance is a complexity-inspired framework designed to ‘hold’ collaborations within dynamic systems. Balancing chaos and order, energy and structure, the governance model supports multi-organization partnerships and networks within complex systems.”¹⁰

The Constellation Model of Governance was identified by Algonquin College as “perhaps the most relevant to the current state and future aspirations of the GSAR community in Canada, given how many different jurisdictions and stakeholders there are within this realm.”¹¹ The figure below provides a visual overview of the Constellation Model of Governance recommended by Algonquin College for use by the Canadian GSAR community:

⁷ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 26

⁸ Liz Weaver, Solving the Puzzle of Collaborative Governance, Tamarack Institute: 2021, p. 17, [Solving the Puzzle of Collaborative Governance_Final.pdf \(tamarackcommunity.ca\)](#)

⁹ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 26

¹⁰ Tonya Surman & Mark Surman, Listening to the Stars: The Constellation Model of Collaborative Social Change, 2008, [Social Space-mag.indd \(commons.ca\)](#)

¹¹ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 26

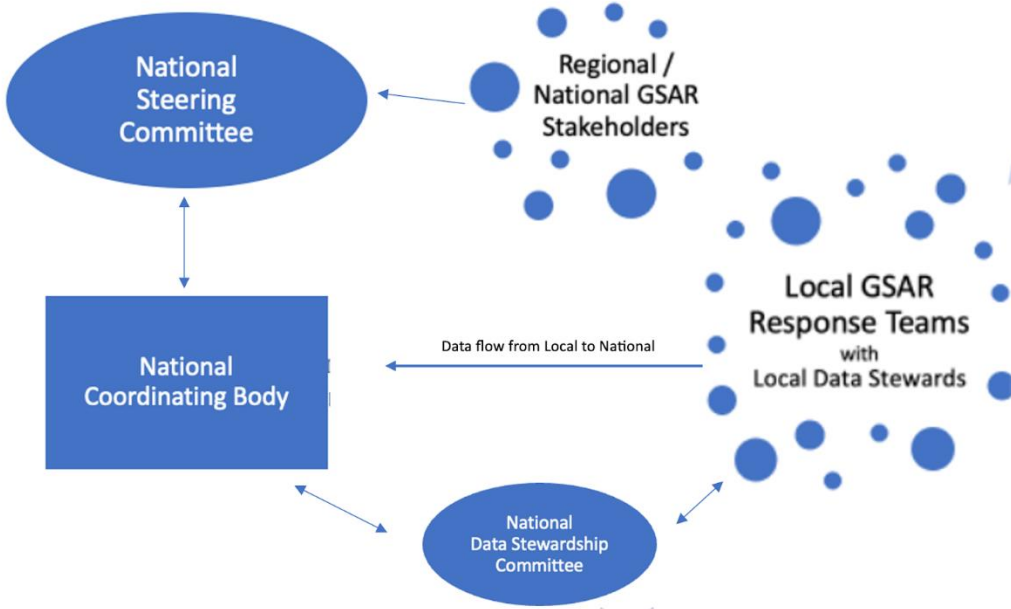


Figure 1 Recommended National GSAR Governance Model

This model integrates six principles of data governance¹²:

1. **Integrity** - data governance participants practice integrity in their interactions with each other, are truthful and forthcoming when discussing the drivers, constraints, options, and impacts of data-related decisions.
2. **Transparency** - data governance processes will be transparent and it will be clear to all participants how and when and why data-related decisions were made.
3. **Auditability** - data-related decisions will be accompanied by proper documentation to support transparency.
4. **Standardization** - data governance will introduce and continually support the standardization of data for the purposes of informed decision-making and positive outcomes.
5. **Stewardship** - data governance will clearly define and invest in stewardship activities amongst individual contributors and groups of Data Stewards, and identify accountabilities for data management along the data continuum.
6. **Change Management** - data governance will support proactive and reactive change management activities.

Roles and Responsibilities

Algonquin College highlighted how Weaver identified that “as in the case of all models and cases of collaborative governance, a clear description and understanding of each partner’s role and

¹² Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 30

responsibilities is required.”¹³ Establishing and maintaining clear roles and responsibilities for all involved in GSAR governance is vital. Each must have a clear understanding of their role, as well as other’s roles. This will ensure a strong foundation for effective governance. Algonquin College’s report states that based on the findings in this report, it is clear that a national governance model for GSAR oversight and data sharing would require structures that fulfill the following roles and responsibilities: (1) convening key players to provide strategic guidance and oversight, and ensure continuous improvement, (2) coordinating and managing the work at the national level, and (3) contributing actively at the local level.¹⁴

The following charts are excerpts from the Algonquin report outlining their recommendations for the following roles, responsibilities and key member attributes:

National GSAR Steering Committee (Bania, PhD & Newbold, PhD, 2023) p. 54

Role	Responsibilities	Key Attributes Needed from Members
<p>Provide strategic guidance and oversight for the collaborative work.</p> <p>Made up of representatives from key regional and national stakeholder organizations.</p>	<ul style="list-style-type: none"> • Identifying cross-cutting issues and opportunities for common work • Contributing to setting up effective structures and processes • Respecting a balance of power, ownership, and accountability for the common work • Engaging other partners and allies and promoting participation in the collaboration • Finding and leveraging resources • Advocating on behalf of the collaborative work • Planning for and facilitating good communication with the sector 	<ul style="list-style-type: none"> • Being a representative of a regional, national, or specialized stakeholder organization • Having a good understanding of current issues and opportunities • Having a growth and developmental mindset for GSAR in Canada • Having time and commitment to contribute to a collaborative effort • Having influence within their realm of operations

¹³ Liz Weaver, Solving the Puzzle of Collaborative Governance, Tamarack Institute: (2021), [Solving the Puzzle of Collaborative Governance_Final.pdf \(tamarackcommunity.ca\)](https://www.tamarackcommunity.ca/wp-content/uploads/2021/07/Solving-the-Puzzle-of-Collaborative-Governance-Final.pdf)

¹⁴ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 9

	<ul style="list-style-type: none"> • Planning for and facilitating change management • Planning for continuous development, improvement and sustainability 	
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National GSAR Coordinating Body (Bania, PhD & Newbold, PhD, 2023) p. 54

Role	Responsibilities	Key Attributes Needed
<p>Provide administrative, facilitative, and management support to ensure the collaborative stays on track and meets the objectives it set out for itself.</p> <p>Recommend this be a Third-Party (not a contributing member of the collaborative).</p>	<ul style="list-style-type: none"> • Conducting partner engagement and relationship-building • Providing project coordination and management • Providing group facilitation • Preparing and maintaining collaborative governance documents • Being the fiscal sponsor and agent • Planning for and facilitating change management and conflict resolution • Housing and maintaining the national data platform • Ensuring proper data collection/ pull, cleaning and analysis • Preparing and disseminating results/ reports • Operationalizing the communication and sustainability plans of the National Steering Committee 	<ul style="list-style-type: none"> • Having a good understanding of current stakeholders, issues and opportunities • Having a growth and developmental mindset for GSAR in Canada • Having the trust and respect of the GSAR community, including being seen as objective (with no conflicts of interest) • Having the knowledge, skills and resources required to ensure effective partner engagement, group coordination and facilitation, and project/ data management

	<ul style="list-style-type: none"> • Contributing data to the national collaboration • Adjusting and aligning work based on learnings from national evidence 	
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Governance Related Survey Results

The survey responses related to overall governance indicated that for effectiveness and success of data collection, the governance structure of GSAR must change from its current decentralized model and must move to the national level. Specifically, the implementation of a data continuum including data aggregation must occur at the national level. Based on the survey responses this endeavour would have a greater chance of success if the data was collected, cleaned, and provided to the various clients/stakeholders by a third-party organization outside of government. It was also indicated that most believe if a successful data management program was implemented, the impacts would be very positive. Respondents indicated that they would look forward to the appropriate people having the data/information needed for fact-based decision making, which would allow for identification of vulnerabilities as well as of targeted solutions.

International Governance Research

Through an analysis of the researched international governance models, it was identified that there are various governance models in use across the globe. Australia and New Zealand, recognizing that the size and configuration of these countries differ from Canada, have implemented a successful national governance structure for SAR and have established a level of national data management. New Zealand and Australia both have an in-depth national data standard. The United Kingdom (UK) has a governance model in place but has not advanced this model to the point of active national data collection. The UK has identified that it is collecting data; however, is currently doing so in a very siloed manner. The U.S. does not have a national governance model for GSAR, nor are they collecting national level data. In certain states within the U.S., some data is being collected at the state level.

In the case of the above-mentioned national governance models, all have a strategic committee or council made up of the AHJs. The various committees/councils provide national strategic governance and leadership to their country’s SAR sector. The committees/councils are supported by a coordinating body and a consultative committee. That coordinating body provides information, support services and advice. It also provides sector leadership and implements measures to affect strong coordination of the SAR sector. The consultative committees are usually comprised of representatives from the many organizations in the country’s broad SAR sector. These organizations include the volunteer search and rescue components and vary from country to country. The consultative committees may be supported to varying degrees by a variety of working groups.

GSAR National Data

Data Schema Survey

The survey developed for the GSAR community included data categories and fields derived from the gap analysis conducted as part of the work done for this report. Twenty-three survey links were sent out to the GSAR community including the GSARCC membership, SARVAC representatives, RCMP, and military representatives. A response rate of 75% was achieved.

The data was broken down into three categories: Administrative Data, Subject Data, and Weather Data. A description was included with each field. The respondents were asked to choose for each data field whether they regarded the field as mandatory, as optional, or whether they disagreed with it. If the respondent disagreed with a field, they were asked to provide their reasoning for the disagreement. To ensure a broad-spectrum dataset with a solid base, respondents were asked to suggest any further data categories and fields that they felt would be beneficial at the national level.

The following data fields and categories were identified to be of importance in a national data schema:

Data Categories and Fields

Administrative Category

Mission#	Untrained Spontaneous Volunteers
Incident Location	Incident Status at Time of Reporting
Incident Date/Time	Incident Costs
Incident Type	Man Hours
Involved Agencies	Mission Contact

Weather Category

Low Temperature
High Temperature
Precipitation

Subject Category

# Of Subject(s)	Subject Status
Subject Category	Subject Found Mobility
Age	Elevation Change
Gender	# Of Hours Subject Mobile
Total Search Time	Track Offset
Total Time Lost	Population Density
Distance from Last Known Position	Find Coordinates
Subject Found By	Subject Find Feature

Administrative Data Field Responses

The survey responses to the Administrative Data fields are indicated below in Figure 2. The responses highlighted in green are the fields where many respondents indicated that these fields should be mandatory. For the responses highlighted in blue, most respondents indicated that these fields should be optional. As noted in the table, a few respondents disagreed with the inclusion of some of the fields. Specifically, there was some concern that the incident date and time fields were not expansive enough, and that more detail needed to be captured on man hours and incident costs. As well, one agency had concerns about releasing their internal information through the mission ID number. For clarity, it needs to be pointed out that if this field were to be included, this Mission number would in fact be generated by the end point system and would not use the submitting agency's original mission ID number. One

police agency and one volunteer SAR agency were also concerned about the names of mission contacts being entered into the system. The concerns around this were that specific member involvement would be considered internal information and should not be released. This field could be changed from ‘mission contact’ to ‘Person Entering/Submitting Data’.

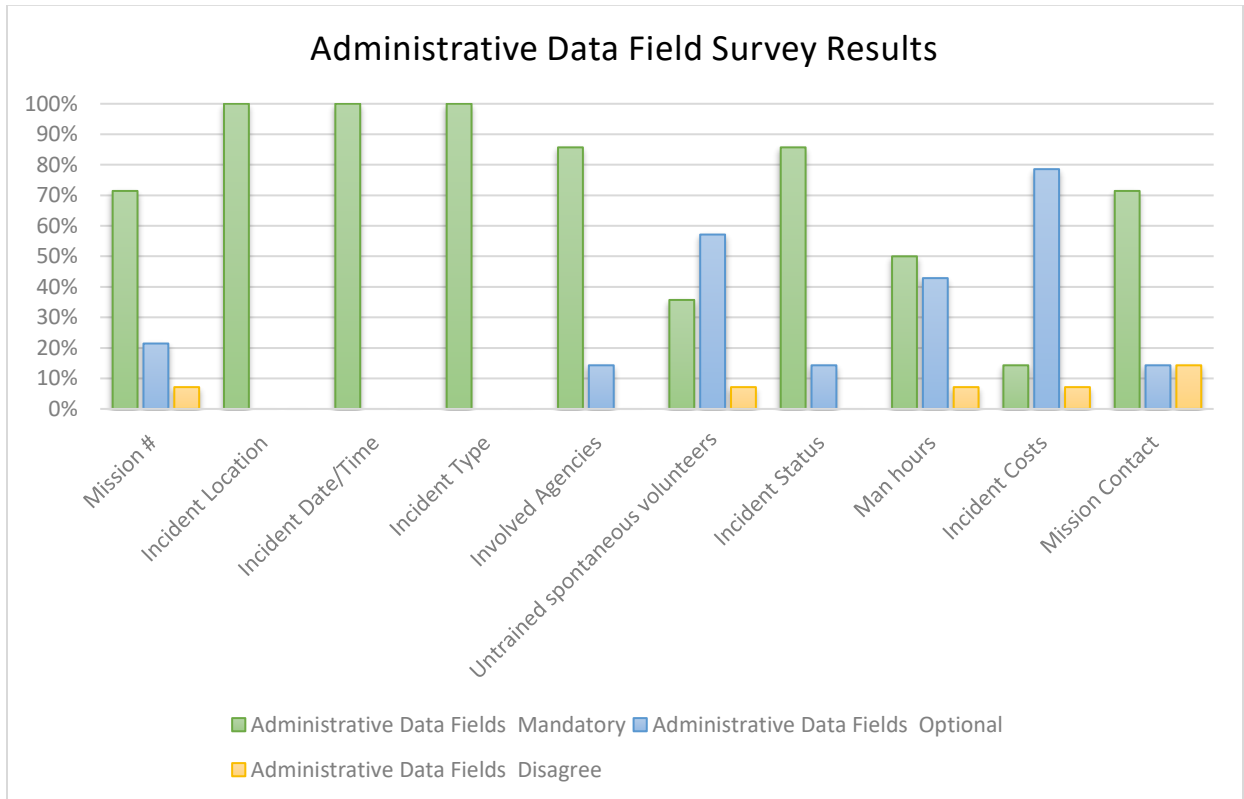


Figure 2 Administrative Data Field Survey Results

Weather Data Field Responses

The survey responses to the Weather Data fields are provided in Figure 3. Respondents indicated either ‘mandatory’ or ‘optional’ for all weather fields, i.e., there was no disagreement with these fields. There was a suggestion to auto-sync the weather with Environment Canada’s weather via date and location.

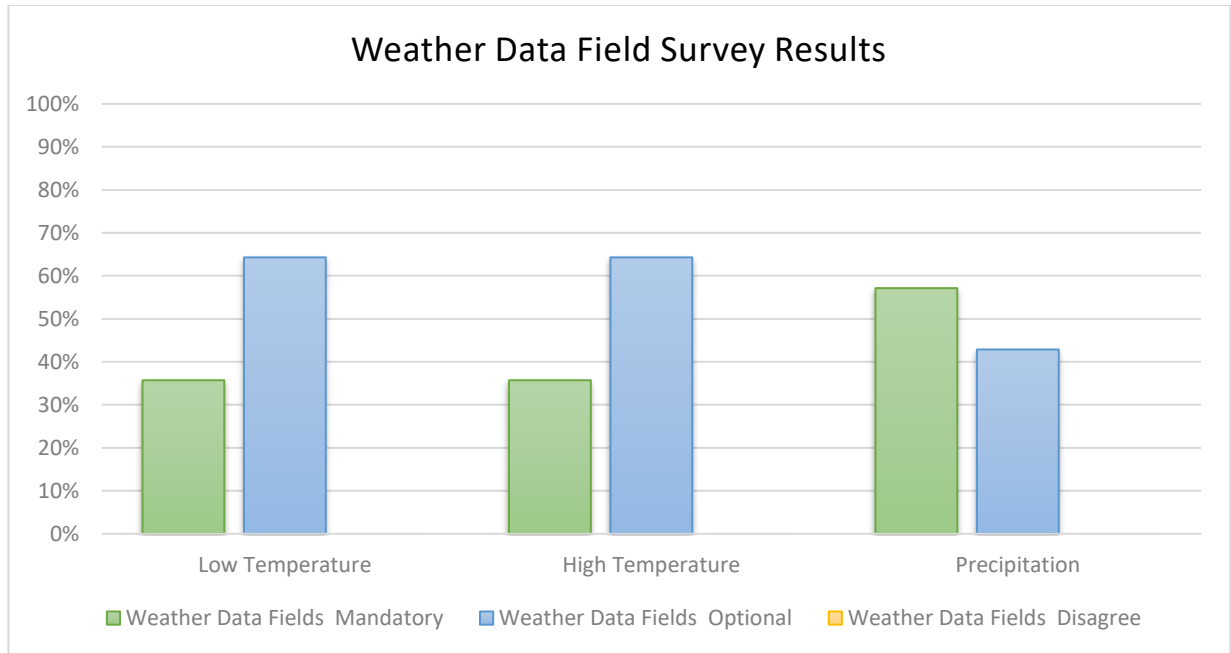


Figure 3 Weather Data Field Survey Results

Subject Data Field Responses

The survey responses to the Subject data fields are indicated in Figure 4 below. For the green highlighted fields, the majority of respondents indicated that these fields should be mandatory, and for the blue highlighted fields, the majority of respondents felt that these fields should be optional. There was some disagreement noted in the event of ongoing police investigation and file status. In the case of all data fields, it would be appropriate to withhold information related to an ongoing investigation as per the AHJ. Some GSAR members were concerned that the data schema needs to serve Canadian SAR situations, where the data fields need to allow for Canadian values. This would be followed up on during the development of a Canadian data standard. Expansion of some specific fields within the categories to enhance detail, were recommended for future consideration. One respondent disagreed with several categories and the reasoning behind this was that minimal incident information is shared by the tasking agency with the volunteer teams in their province. These volunteer GSAR teams would be unable to supply data for these fields.

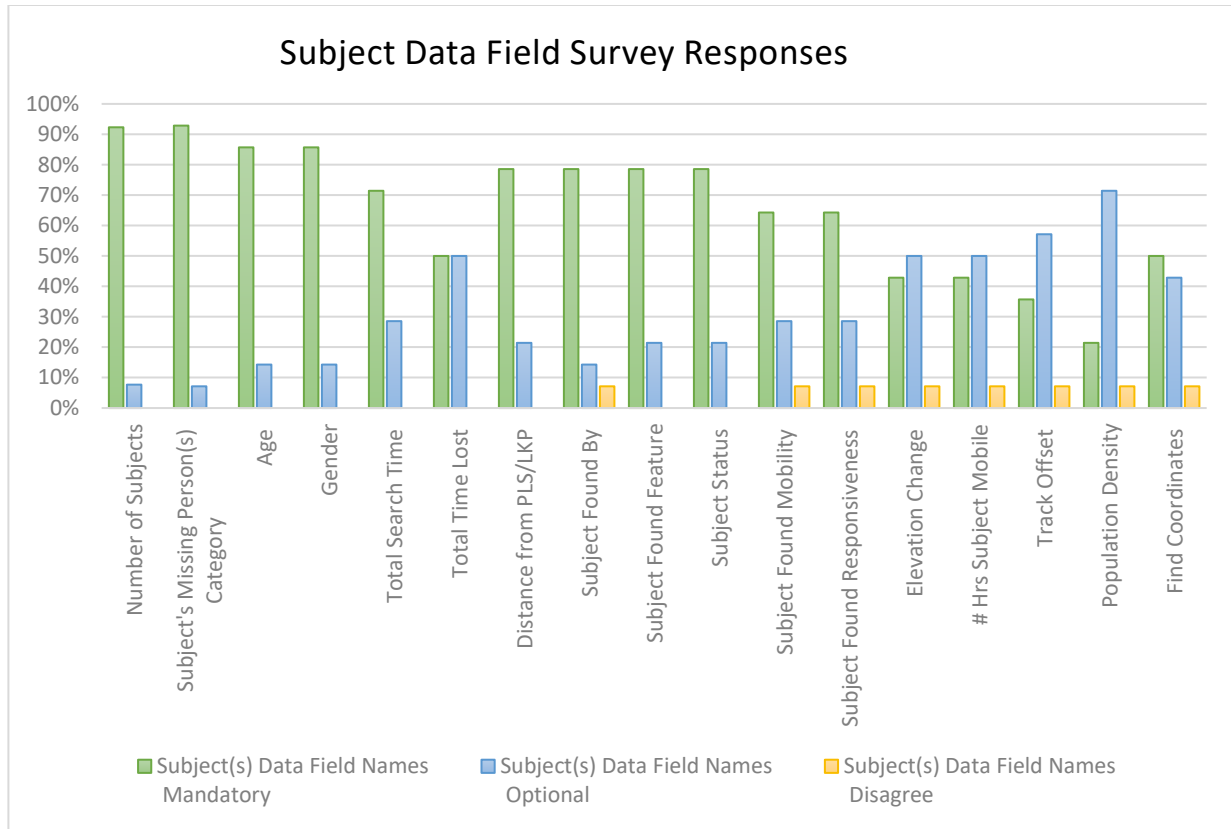


Figure 4 Subject Data Field Survey Results

Survey Response Additional Category Recommendations

Respondents were asked to provide any categories that they felt were missing from the data set. The additional categories submitted by respondents were:

1. Further categories on type of response, not specifically related to search (i.e. motor vehicle accident, recovery, rescue, emergency management related, etc.).
2. Find location of the subject in relation to the point last seen.
3. The reason that the subject was lost or missing.
4. The ability to add a secondary or tertiary lost person behavior category.

Current Data Collection

As indicated by the SARIDMS Advisory Group and as heard through survey and interview responses, various levels of data are currently being collected. Current data collection is happening in silos by many GSAR agencies including by the AHJ.

PSC/ ICSAR Perspective

The National Search Secretariat (NSS) under the Department of National Defense (DND) previously piloted and implemented a data management system called the Search and Rescue Knowledge Management System (SARKMS). The initial pilot of this system, with a move of the NSS to Public Safety Canada (PSC), ran from 2014 – 2018 and included the setup of CISARIS. During this time, the Canadian Armed Forces cut data flow due to a Cyber Attack in 2017. From 2019 onwards, the CISARIS component was replaced with the National Emergency Management System (NEMS) (a SharePoint site), which

included ArcGIS components. This system was, at the time, intended as a place for provinces/territories to contribute their data into. The right future fit for the KMS moving forward needs to be identified.

PSC/NSS represents the national perspective on GSAR in the sense that PSC/NSS are not federally mandated to cover GSAR, but do include time and effort in support of GSAR and issue funding to GSAR-related projects. In contrast, the Interdepartmental Committee on Search and Rescue (ICSAR) represents the federal perspective in relation to GSAR as it is comprised of representatives from federal SAR delivery departments and agencies. It provides advice to PSC on SAR programs, including SARNIF.

The NSS and ICSAR have both indicated that they lack a fundamental view of SAR incidents across the SAR domain due to lack of national data. During the Quadrennial Search and Rescue Review in 2013, it was identified that “standardized reporting and improved data management across the NSP must continue to be pursued without delay, as this would serve to inform future decision-making and would set the SAR community on the proper footing for successful reviews in the years to come.”¹⁵ As this was identified as far back as 2013, it is imperative to find and implement a successful solution as soon as possible.

Through PSC’s November 2022 presentation at the face-to-face meeting in November 2022, and during the subsequent meeting discussions, it was identified that continuous, consistent, reliable SAR data would provide an ongoing detailed understanding of incident trends and patterns and would thus facilitate evidence-based decision making. To be effective, the collected data should include SAR preparedness data, prevention data, and incident data. Figure 5 illustrates the inter-relationships of this GSAR data. The analysis and synthesizing of these streams of data would help to identify and validate SAR vulnerabilities and to choose priorities and effective solutions accordingly.¹⁶

¹⁵ Government of Canada, Quadrennial Search and Rescue Review, Public Safety Canada, 2013, p. 16,), [archive-nss-qdrnrl-rvw-en.pdf \(publicsafety.gc.ca\)](#)

¹⁶ Steve Nason, National Search and Rescue Secretariat, Emergency Management and Programs Branch Public Safety Canada, Government of Canada [Presentation, 2022]

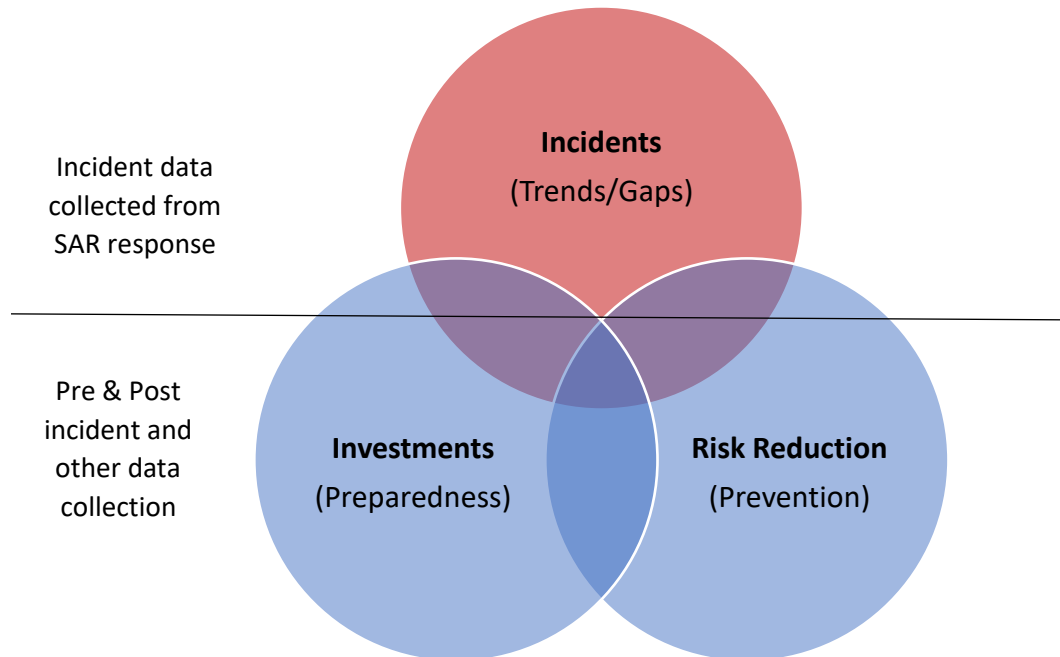


Figure 5 SAR Data Facilitates Evidence-based Decisions (Nason 2022)

A base level of raw SAR incident data, cleaned and submitted into a reporting system such as the KMS, can bring together valuable information into a single bigger picture. According to the *Quadrennial Search and Rescue Review in 2013*, “accurate and comparable data on SAR incidents across jurisdictions in Canada would prove invaluable to charting the future course of the NSP. More specifically, it would improve shared understanding amongst SAR partners, better enable decision-making and command and control in each organization, and help to define where the real gaps and seams are in the system – both in terms of response and prevention.”¹⁷ Incident data coupled with preventative SAR Program data, and Preparedness Data would allow PSC to identify risk groups and/or areas and allow PSC to develop policy and plans regarding preventative measures to decrease or eliminate the risks in the identified areas. An example of this would be the increasing trend of new immigrants getting lost in wilderness areas and the implementation of a preventative education course specifically for this demographic in order to decrease the number of incidents. Reliable SAR data would also allow PSC to invest funding into additional GSAR related prevention measures in order to minimize existing safety vulnerabilities identified through data trend analysis. An example of this would be the identification of national priorities and solutions; this would be an expected and valuable outcome of such funding measuring. According to the *Quadrennial Search and Rescue Review in 2013*, “standardized reporting and improved data management across the NSP must continue to be pursued without delay, as it would serve to inform future decision-making and would set the SAR community on the proper footing for successful reviews in the years to come.”¹⁸ Figure 6, below, illustrates the anticipated benefits of national GSAR data aggregation as identified by PSC.

¹⁷ Government of Canada, *Quadrennial Search and Rescue Review*, Public Safety Canada, 2013, p. 15,), [archive-nss-qdrnnl-rvw-en.pdf \(publicsafety.gc.ca\)](#)

¹⁸ Government of Canada, *Quadrennial Search and Rescue Review*, Public Safety Canada, 2013, p. 3,), [archive-nss-qdrnnl-rvw-en.pdf \(publicsafety.gc.ca\)](#)

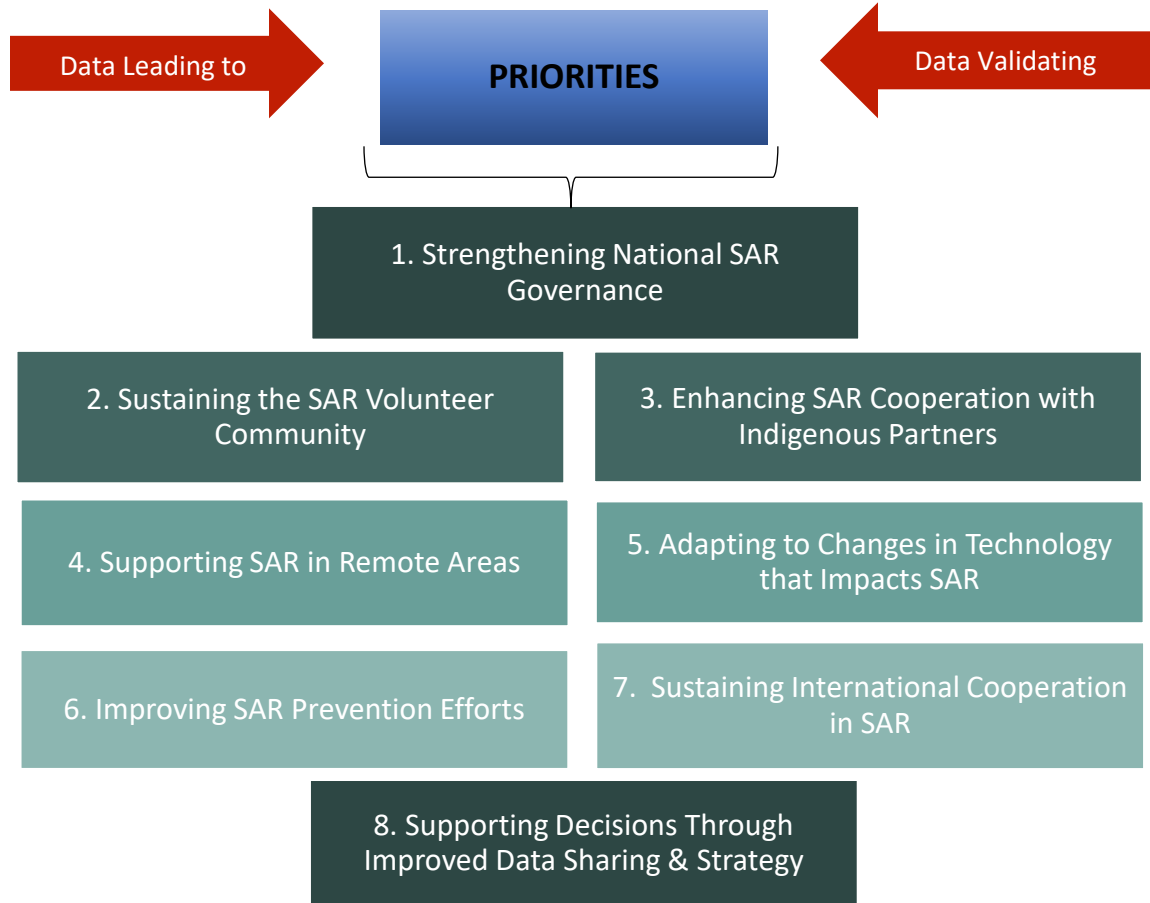


Figure 6 SAR Priorities (Nason 2022)

SARVAC Perspective

The Search and Rescue Volunteer Association of Canada (SARVAC) is a not-for-profit organization that represents the thirteen provincial and territorial GSAR associations in Canada. Regional GSAR associations are collecting data at various levels and are currently supplying their provincial and territorial associations with some of this data. The provincial and territorial associations then submit some base level data to SARVAC; however, the information supplied to SARVAC is not standardized. SARVAC currently includes the following information in their aggregated data:

1. number of searches along with the geographical location and the call out agency;
2. number of rescues and the contributing factor;
3. number of emergency management events their members are tasked to respond to, including the type of event and number of responders;
4. number of volunteers per association, the number of indigenous responses;
5. training hours completed by the associations and the type of training;
6. number of hours spent teaching preventative SAR;
7. number of volunteer hours the associations donated to community events;
8. number of hours spent searching/rescuing; and
9. number of hours spent completing administrative work and fundraising.

An example of how some of the above noted data is used by SARVAC, in relation to the Adventure Smart Program, is this data gives SARVAC the ability to track program delivery, personnel training, as well as the capability to identify program gaps.

Through SARVAC's presentation and subsequent discussion during the face-to-face meeting in November 2022, it was identified that continuous, consistent, reliable SAR data would provide an ongoing detailed understanding of incident trends and patterns and would thus facilitate evidence-based decision making. To be effective, the collected data should include a requirement for the use of a defined data schema and data standard, in order to ensure data consistency. The cleaned data that SARVAC has indicated that they would benefit from receiving from their regional teams through their provincial and territorial associations would include:

1. number of searches (plus geographical location, callout agency);
2. number of search hours;
3. number of rescues (plus relevant data, lost person behavior);
4. number of emergency management events (plus type and number of people/regions affected);
5. number of emergency management hours;
6. number of volunteers (nationwide, provincewide, per team);
7. number of Indigenous responses;
8. number of training hours (broken into training type);
9. number of prevention hours;
10. number of community hours;
11. number of administration hours; and
12. number of fundraising hours.

For SARVAC, one of the benefits of consistent data collection, data cleaning and data reporting is that it opens the potential for improved support between the AHJ's, GSAR associations, and GSAR teams. Having standardized local data, provincial/ territorial data, and national data available would also lighten the administrative workload on GSAR volunteers at every level, by enabling tracking of all activities and eventually of all volunteer member qualifications. Having this type of data would benefit SARVAC when:

1. creating reports for stakeholders as well as when preparing funding applications;
2. to support business planning and sustainability;
3. to support SARVACs increased awareness of prevention program delivery throughout the country, by tracking current statistics, training, and identifying existing gaps;
4. to validate SARVACs contribution to Canada and the National SAR Program; and
5. to strengthen SARVACs voice as a key player in Public Safety for all Canadians.

The data could also allow for analysis of GSAR finances and identification of trends within. Such analysis would highlight the savings to the broader SAR community, including other SAR organizations and the federal government, as well as the extensive hours put in by the 9,200 volunteer GSAR members.

[Algonquin College Report – Common Concerns in GSAR Data Sharing](#)

In consultation with Algonquin College, some common concerns with data sharing were identified by the GSAR community as stated in the CanOps Year 1 report. Algonquin college set out to address these concerns within their report by exploring the following:

1. Common concerns in GSAR data sharing and proposed solutions (Bania, PhD & Newbold, PhD, 2023)¹⁹
 - i. Data Ownership
 1. Any existing data policies and agreements within and between organizations should be reviewed and any real or perceived barriers to data sharing should be thoughtfully addressed to reduce 'data hoarding' and to uphold the general norms of public policy, emphasizing the principle of openness.
 2. Once this exploration and understanding takes place, procedures can be established for releasing and using data, and documented through Secure Data Sharing Agreements, for instance, that clearly outline what data can or cannot be shared, under what circumstances, by and with whom, and for what purposes.
 - ii. Privacy
 1. In this specific case of GSAR incident data, personal information about individuals is not required to meet the objectives of sharing the information into a national framework.
 2. In this case, the simplest answer is the best answer - local incident data shared to the national platform can be deidentified and no personal information about individuals needs to be shared, which will protect privacy.
 - iii. Data Handling and Liability
 1. A national data sharing and management system for GSAR in Canada would not require any personal information to be of value, which greatly minimizes any potential liability in this case.
 2. The organization tasked with national data storage and management should be a trusted source with a demonstrated ability to properly secure, store and manage the data.
 3. The data storage and protection details should be clear to those contributing data and should be outlined in the data-sharing agreements.
 - iv. Local Financial and Human Capacity
 1. In data governance partnerships where activity and capacity are lower in certain partners, data-related responsibilities are often either shared between several organizations or assigned to existing functional roles rather than creating new Data Stewards.
 2. Similarly, technology-sharing agreements can be reached in certain cases where licenses can be shared or grouped to reduce costs.
 3. Either way, organizations with the capacity to engage in initial data-sharing should be recruited into the data governance program, and those lacking initial capacity should be supported by the data governance program to explore options and leverage internal and external resources for eventual participation in the collaboration.

International Data

The purpose of this research and review on international data was to conduct an environmental scan of what GSAR data collection looks like in other countries around the world, with the goal of identifying which countries currently successfully collect and aggregate GSAR data at their national level. As

¹⁹ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 50-52

mentioned previously, Australia and New Zealand, recognizing that the size and configuration of the countries differ from Canada's, have both established and implemented a level of national data management. Specifically, and as stated previously, New Zealand has an in-depth National Data Standard (<https://nzsar.govt.nz/sar-operational-support/operational-sar-information/sardonyx-information/>). Australia has recently implemented a data standard. The United Kingdom (UK) has a governance model in place, and has identified national data as essential, but has not advanced that initiative to the point of national data collection, although some data is being collected in silos. The U.S. is not collecting national GSAR data; however, there is some data being collected at the state level in some states.

RECOMMENDATIONS

Based on the findings of the 2021/22 and 2022/23 research, including the recommendations from Algonquin College, the following three-year plan, is recommended in order to establish GSAR governance and national aggregation of GSAR data in Canada.

Year 1 (2023/2024):

Assessment of the current state of the KMS

To evaluate the best path forward towards the establishment or maintenance of a national data collection platform, it is recommended that an assessment of the existing KMS be conducted.

Data collection Proof of Concept

The national GSAR community has indicated that national data aggregation must be prioritized. This provides the ability to scan the GSAR environment which will provide stakeholders necessary information to set GSAR priorities and to make evidenced based decisions with a holistic perspective. It is recommended that a data collection proof of concept (POC) be conducted in 2023/24, and be repeated annually, making revisions each year as necessary based on the lessons learned of the previous year. In collaboration with the SARIDMS Advisory Group, this POC would paint the latest picture of the state of GSAR data in Canada. This collaborative approach would include collecting and consolidating the data that is already being collected regionally, and in turn, report back to the stakeholders responsible for GSAR with that amalgamated data. Outcomes should include the identification of gaps in data sharing agreements, and the production of a report summarizing GSAR data numbers, statistics, and trends across provinces and territories. This would achieve the goals of enhancing situational awareness regarding GSAR incidents within Canada and would demonstrate the value of data collection in assisting partners and stakeholders in making informed decisions towards developing priorities around GSAR program strategies.

Data Stewardship Roles

Local/regional data steward positions should be built out starting in 2023/24 and on an ongoing basis, reporting into a Data Stewardship Committee (DSC). In the interim, for the POC, the SARIDMS Advisory Group would fill the DSC role in the necessary capacities.

Technology Implementation

Implementation of the chosen data platform technology should be started in 2023/24 to coincide with the proof of concept.

Year 2 (2024/2025):

Data Stewardship Committee

It is recommended that a Data Stewardship Committee (DSC) be officially formed in 2024/25.

Roles and Responsibilities

Roles and responsibilities within the existing GSAR structure, as outlined in the Results section of this report, were defined in the report prepared by Algonquin College. As well in 2024/25, these roles and responsibilities should be reviewed and recommendations made on how to match these up with existing organizations, in support of the goal of coordinated national data collection.

Value Statement

A value statement should be developed for the DSC to help guide the newly established committee.

Terms of Reference

Also in 2024/25, a Terms of Reference (TOR) should be developed to meet the needs of the new DSC. Amongst other things, the TOR should allow for data reporting and clarify how data reporting will be achieved. As well, a contract should be put in place for a third-party national coordinating body.

Data Dictionary

It is recommended that the DSC choose and adopt a data dictionary/schema in 2024/25, following the data collection POC.

Year 3 (2025/2026):

Sustainability Model

Starting in 2025/26 and onwards as needed, a sustainability model should be identified, including permanent funding. This should include considerations around risk management, business continuity

planning, program longevity planning, and normal program management.

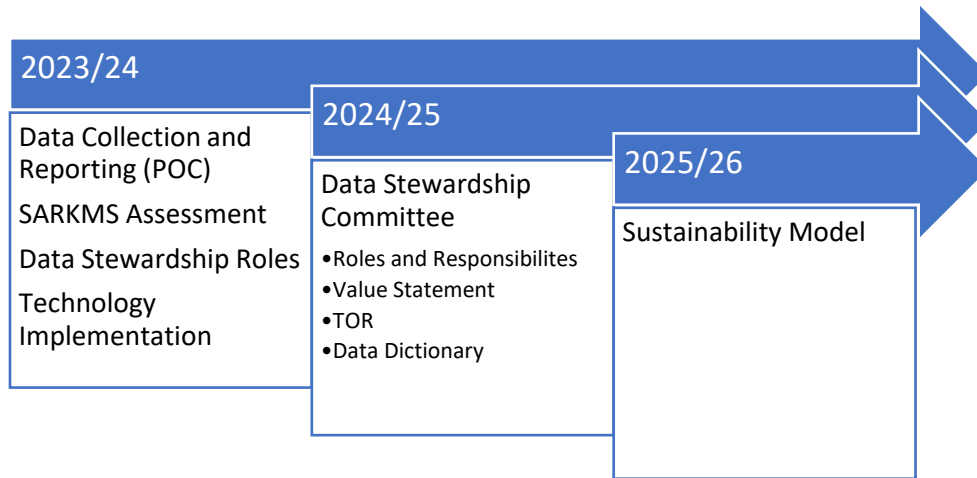


Figure 7 Recommendations

CONCLUSIONS

Following the Year 1 report CanOps set out to focus its time on a solution for GSAR governance and a way of creating sustainable SAR data collection in Canada. These conclusions are based on the consultations of the SAR community, International SAR Environmental Scan results, Algonquin College Applied Research and recommendations, and the input of the SARIDMS Advisory Group. The conclusions are described below:

GSAR Governance

Upon looking further into the international SAR community, the analytics from the surveys, and the Algonquin College research and recommendations, all evidence suggests that success comes from collaboration, continuity, and accountability. This can be achieved by making small adjustments within the current construct of the roles and responsibilities that currently exist within Canada.

A sustainable process and system can be accomplished through collaboration, trust, and transparency. The importance of co-design in this process was identified in the applied research completed by Algonquin College. The Algonquin report recommended implementation of the Constellation Model of Governance. By utilizing the existing structure of GSAR governance, falling under the scope of the current entities, the existing SARIDMS Advisory Group would be refined and transitioned into a Data Stewardship Committee.

In the cases of success described in this report, a coordinating body is providing consistency, continuity, and administrative support to the priorities brought to the discussion. This coordinating body provides administrative, facilitative, and management support that will ensure the collaboration stays on track and meets the objectives it sets out for itself. The coordinating body would also provide continuity with agendas, meetings and priorities which ensures continuous forward progression. Algonquin’s report recommends that the coordinating body be a third-party, and not a contributing member of the

collaborative. The reasoning for this body to be outside of the collaborative is to ensure that there is no alteration of the power dynamic, real or perceived. Having a coordinating body and ensuring that it is a separate entity, is an important strategy for Canada due to the many complexities surrounding GSAR governance and national diversity and demographics.

In the research Algonquin College provided, it is noted that “ensuring that partners have a clear understanding of their own role, and of the role of others, is crucial in ensuring a strong foundation for working together (Bryson, Crosby, & Stone, 2015; Collaborate CIC, 2019; Weaver, 2021; Wortley & Mirvis, 2013).”²⁰ Providing accountability through clear roles and responsibilities, reporting structures, and a strong Terms of Reference supporting the initiatives and mission statements of the Data Stewardship Committee, is imperative to the success of the Constellation Model of Governance.

When taking the size of Canada into consideration, and respecting the different jurisdictions that exist within, it is recommended we take the Constellation Model of Governance as the guide in building a successful GSAR national data management system that is right for Canada. With the provinces and territories currently collecting data through their own processes, a multi-level framework should be considered when building a national data collection structure. Starting at the provincial and territorial level, utilizing their existing data committees, these data stewards would report into the national Data Stewardship Committee. The Data Stewardship Committee would oversee the consolidation of the data and support the deidentification of the data and finally report into the National GSAR steering committee. If this framework is developed with collaboration, continuity, and accountability as a shared priority, and supported by a coalition of the willing it will ensure success of national data collection and reporting.

SAR Data

GSAR data is being collected across Canada by the GSAR Community, and it has been indicated by this same community that there is willingness and motivation to share the collected data. There have been previous concerns voiced around data ownership, liability, and privacy. As indicated in Algonquin’s Applied Research Report, not only does the ownership of the data imply control over access to the data, but it also includes the right to share the data as well as to share access to the data. It is necessary to have data policies and sharing agreements in place to reduce real or perceived barriers to this sharing and access, and to help people understand the necessity and positive outcomes of sharing data. Policies and agreements can also include measures that help to allay privacy concerns around the sharing of data. Having policies and procedures in place to define what and how data is shared, to protect the disclosure of sensitive information, will reduce risk and sensitivities around privacy concerns. The simple answer to the privacy and sharing concerns, is that data can be ‘deidentified’, meaning that personal information regarding individuals is removed. Often, concern about privacy goes hand in hand with liability concern. As previously noted, agreements, policies and procedures reduce the risks associated with liability concerns. In the SAR Governance section conclusions above, it was mentioned that a Data Stewardship Committee would be a part of a successful governance structure for a successful data

²⁰ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 18

continuum. With proper data stewardship, the SAR community would be reassured that data will be protected, transmitted, and stored securely by a trusted source.

The Algonquin Report recommended to “explore the potential capabilities of the existing but defunct SARKMS housed within the National Search and Rescue Secretariat (NSS) at Public Safety Canada, and whether it could be restored for usefulness within the current GSAR and technological environments.”²¹ It is CanOps’ recommendation that a feasibility assessment is conducted by inputting data into the software to determine the state of SARKMS. The report also suggests “as a viable alternative, explore a Business Intelligence (BI) platform as a national data management system to aggregate, analyze, and report back on both real-time and historical data”.²²

In conclusion, to have sustainable and successful data gathering, cleaning, analysing, and reporting the GSAR Community must start with implementing the above recommended governance structure including a Data Stewardship Committee, as well as having data policies and sharing agreements in place.

²¹ Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 64

²² Bania, Melanie PhD & Newbold, Graham PhD with Zoe Tysick, Mathuran Ketheeswara, and Mai Khalil (2023) Recommendations for a National Governance & Data Management Model for Ground Search and Rescue (GSAR) in Canada p. 64