An Assessment of the Current and Desired Roles of
Volunteer Search and Rescue Groups in British Columbia

By

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We accept this thesis as conforming
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Abstract

This study provides an opportunity to explore and identify options to increase emergency and disaster response capacity and capability through an expanded use of the existing volunteer search and rescue (SAR) groups in British Columbia. The research provides an examination of the current and desired roles of provincially-recognized ground and inland waters SAR groups. The research also provides insight into how the existing skills, equipment and experience of the province's SAR groups could be applied in potential emergency and disaster response roles such as urban SAR, leading convergent volunteers, conducting emergency notifications and evacuations, and assisting with emergency incident management. The study results could lead to increased opportunities for financial and other support for SAR groups while assisting local and provincial emergency managers increase resiliency and address potential response gaps.

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I would like to dedicate this thesis to the SAR volunteers of British Columbia who, at a moment's notice, leave the warmth and security of their homes to serve those in need no matter where they have ventured or what predicament they have found themselves in.

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Acronyms

BCERMS – British Columbia Emergency Response Management System

BCSARA – British Columbia Search and Rescue Association

FEMA – Federal Emergency Management Agency (United States)

GSAR – Ground Search and Rescue

HUSAR – Heavy Urban Search and Rescue

ICS – Incident Command System

IEPC – Interagency Emergency Preparedness Committee

INSARAG – International Search and Rescue Advisory Group (United Nations)

JEPP – Joint Emergency Preparedness Program (Canada)

LUSAR – Light Urban Search and Rescue

MUSAR – Medium Urban Search and Rescue

NIF – New Initiatives Fund

NSS – National Search and Rescue Secretariat (Canada)

PEP – Provincial Emergency Program (British Columbia)

SAR – Search and Rescue

SARVAC – Search and Rescue Volunteers Association of Canada

TEAMS – Temporary Emergency Assignment Management System

UBCM – Union of British Columbia Municipalities

USAR – Urban Search and Rescue

Chapter 1 - Study Background

Opportunity

Through the work of the British Columbia (BC) Provincial Emergency Program (PEP), the province has identified fifty-seven different types of hazards that could impact to public safety, the environment and the economy of the province (Van Dongen, 2008). The varied geography and climate of the province contribute to this wide range of hazards and the frequency of their occurrence.

Some of the identified hazards, such as an earthquake, could result in widespread destruction and loss of life. This level of impact may quickly overwhelm the existing response capacity provided by traditional first responders such as police, fire and ambulance services. Even for many of the smaller scale incidents traditional professional responders may quickly find themselves overwhelmed and unable to meet the needs of the local population.

Over the years, BC has developed a very robust network of provincially recognized ground search and rescue (GSAR or simply SAR) groups. These groups formed to assist lost, injured, or missing persons in their community or nearby wilderness areas, and to support those agencies legally responsible for providing these services. The local police forces that maintain the legal responsibility for dealing with lost and missing-person cases simply may not have the level of staffing required to manage and execute extensive search efforts. Provincially recognized SAR groups not only provide additional capacity for police forces, but also provide specialized skills, experience and equipment, which helps increase the efficiency and effectiveness of search and rescue operations carried out in the province. The recognized SAR

groups in the province are supported and coordinated through PEP and its Public Safety Lifeline Volunteers program.

Based on the high demands that emergencies and disasters can place on traditional first response agencies, it would seem prudent for the province (as well as local governments) to identify additional human resources that could be called upon to augment the existing ranks of first responders and meet public safety needs. Modern emergency management principles clearly emphasize the need for appropriate pre-planning to ensure that preparedness needs identified through hazard, risk and vulnerability analyses are met.

The focus of this research paper is to review both the current and desired emergency and disaster response roles of PEP-recognized volunteer SAR groups in BC in order to assess whether this existing resource could provide an effective and efficient way for the province to increase its emergency or disaster response capacity and capability in BC. The good geographic distribution of SAR groups around the province, their experience working in life saving situations, the specialized equipment and training they possess, and the organizational structure and callout procedures that are in place would seem to indicate that these groups are well suited to provide increased emergency and disaster response capacity in the province. This research paper endeavors to determine whether or not this bears true.

Significance

Ground Search and Rescue groups are located in up to 100 communities in BC with the number fluctuating from year to year, as some existing groups may fold while others new ones emerge. In their 2004/2005 ground SAR report, the Provincial Emergency Program state's that there are approximately 100 existing SAR groups in the province compromised of approximately 4700 individual SAR volunteers (Provincial Emergency Program, 2008b, p. 2).   However, a review of the BC Search and Rescue Association's (BCSARA) website shows a total of 83 SAR groups, although at least one of the groups listed is no longer in existence (BC Search and Rescue Association, 2008f). Regardless of the exact number of SAR groups, the number is significant in that it shows that SAR groups have a strong community presence both in distribution and overall volunteer numbers. In regards to potential emergency and disaster response roles for SAR groups, the numbers indicate that SAR groups could provide a substantial resource.

The SAR groups in the province not only represent a potentially large human resource pool, but also bring other valuable assets that could be of use in emergency and disaster incidents. Each SAR group member possesses (at a minimum) completion of the comprehensive ground SAR course (70 hours of class and field training) and standard first aid certification. Due to the high volume of SAR calls that occur annually in the province, most SAR volunteers have significant operational experience. SAR groups also possess a variety of specialized equipment for communication, navigation, transportation, and rescue activities. This combination of training, experience and specialized equipment increases the likelihood that these groups could play a significant role in increasing the province's emergency and disaster response capacity and capability.

The research presented in this paper could be significant for the SAR groups themselves in a number of important ways. The survey provides the groups with an opportunity to express their interest in potential emergency and disaster response roles and an avenue to raise their concerns or issues related to the possibility of accepting some or all of these roles. Funding for training and equipment is a significant issue for a large number of SAR groups in the province. If it can be demonstrated that SAR groups are suitable for emergency and disaster response roles it may lead to additional support from local, provincial and federal levels of government to the SAR groups in the province. Additional support (both financial and in-kind) to the SAR groups could assist them in addressing not only the current deficiencies that exist, but it may also free up the time they currently devote to fundraising activities. Time currently spent on fundraising activities could instead be devoted to completing additional training required to fulfill new response roles in emergencies and disasters.   This could result in little or no increase in current time demands on the volunteers and possibly even a reduction.

Emergencies and disasters occur throughout Canada and the world, and response capability and capacity is likely an issue in many jurisdictions. Therefore this research may be transferable to other jurisdictions, especially to those where volunteer SAR groups are already in existence. If, through the research being undertaken in this project, the hypothesis outlined proves to be valid and the role of existing SAR groups in emergency and disaster response is supported and expanded, then BC may find itself an innovator in emergency and disaster management.

In summary, this research provides a significant opportunity to explore and potentially enhance emergency and disaster response capacity and capability from the local to the national level. The research provides a significant opportunity for existing SAR groups to examine their

current and desired roles. The research may also result in raising the SAR program's profile with community emergency program coordinators, provincial ministries and other existing and potential users of SAR services. This in turn could lead to increased opportunities for financial and other support (e.g. additional or new funding from provincial or local governments), both for the existing roles of SAR groups and the potential new roles that SAR groups and the tasking agencies may agree to.

Organizational Setting

BC is a province with a complex geography and climate, which contributes to the variety of hazards that it is exposed to. The province is located within the pacific *rim of fire* and is, therefore, exposed to seismic activity that could result in earthquakes or tsunamis. The mountainous terrain, vast forests, and variable climatic conditions expose the province to other hazards such as landslides, flooding, severe weather events, and forest fires. Human activities and the province's position as Canada's Pacific Gateway increase the potential for a variety of human induced hazards such as marine oil spills, hazardous material incidents, and pandemic influenza.

In order to ensure the province is properly positioned to address the emergencies and disasters that could result from the identified hazards, Emergency Management BC and the Provincial Emergency Program are tasked with ensuring the provincial, local, and regional governments develop the capability and capacity to respond to emergencies and disasters. At the provincial level, one of the key achievements in this regard has been PEP's establishment of the Public Safety Lifeline program. This program is comprised of approximately 13,000 volunteers

from across the province who provide five key services (Provincial Emergency Program, 2008e). These include ground and inland SAR, emergency social services, PEP air SAR, road rescue, and emergency radio communications.

The provincial government has taken a number of other key steps to support emergency and disaster management and the response capacity and capabilities in the province. The Temporary Emergency Assistance Management System (TEAMS) was developed to train staff members from across the provincial government to support local governments during emergencies and disasters. Requirements have been enshrined in legislation for provincial ministries to provide emergency capacity for specific hazard types. Non-governmental organizations capacity and capabilities have been integrated through the activities of the Inter-Agency Emergency Preparedness Council (IEPC).   Legislation requiring local and regional governments to plan and prepare for emergencies and disasters within their area of geographical responsibility has been adopted (Emergency Program Management Regulation, 1994). Included in the provincial and local government response capacity are police officers, firefighters, ambulance personnel, wild land firefighters, environmental emergency response personnel, Red Cross staff and volunteers, and many others.

In terms of large emergencies and disasters, the existing capacity and capability outlined above may still not be sufficient to address needs. When one considers a destructive earthquake, tsunami, province-wide flood events, or situations such as the firestorms of 2003, the province and local governments could quickly encounter a shortage of trained responders. It is likely not financially feasible or justifiable to increase the number of full time paid responders to a level that would insure sufficient capacity and capability to address large emergencies or disasters. There is, however, an opportunity to examine existing resources (in this case SAR groups) to

determine whether an expansion of their current role(s) and an increase in the support provided would permit them to provide surge response capacity when required.

Chapter 2 - Research Methodology

Research Methods

This study includes a literature review, which examines the roles that SAR groups currently perform in BC and some of the potential roles these groups could provide in emergency and disaster response. The literature review includes an investigation of how other jurisdictions around the world utilize volunteer SAR groups, or similar type organizations, to meet their emergency and disaster response needs.   The level of need for responders in emergencies and disasters (to ensure an appropriate response capacity to effectively manage these incidents) is also investigated. The literature review includes an overview of the organization of SAR in BC, which covers information on what a PEP-recognized SAR group is, how such groups operate, and how they are structured, along with information on the roles of associated organizations such as the tasking agencies, BCSARA, and others.

Two surveys were conducted to explore the current and desired roles of existing SAR groups in the province.   The first survey was targeted at existing volunteer SAR Groups in the province as well as the Regional Directors of BCSARA, who represent these groups within their respective regions of the province. The survey was intended to identify the SAR groups' current roles, existing skills and experience, the equipment they possess to support these roles, and whether they would be applicable in emergency and disaster settings.   The survey was designed to identify the impediments that may preclude SAR groups from taking on desired new roles in emergency and disaster management, as well as those factors that would support the SAR group's adoption of these roles.

A second survey targeted the various agencies that utilize or may utilize existing SAR groups in the province. These organizations include local government (community or regional districts) emergency program coordinators, provincial ministries and agencies with pre-determined emergency response mandate, police forces, fire departments and any other agency that uses or may be interested in using volunteer SAR groups to assist them in emergency and disaster situations. The survey was designed to elicit the views of these key stakeholders on the current roles and responsibilities of SAR groups, as well as the potential use of SAR groups in emergency and disaster response roles. The survey also posed questions around current and potential support provided by the targeted respondents to the SAR groups in the province, which is a critical element that enables the SAR groups to function.

Both surveys included questions designed to identify which additional emergency or disaster roles the SAR groups could or should be assigned based on the skills, experience, and equipment SAR groups typically possess. Collectively, the surveys attempted to identify the level of interest to assume new roles by SAR groups, and the interest of tasking agencies to assign and support SAR groups in emergency and disaster roles.

The literature review and the two surveys combined are intended to provide the researcher with sufficient information to answer or provide comment on the following sub-research questions:

- What do PEP-recognized SAR groups in BC identify as their current roles and responsibilities?
- What are the current roles and responsibilities that tasking agencies perceive SAR groups as having?

- What, if any, additional roles and responsibilities do SAR groups desire to take on?

- What, if any, additional roles and responsibilities do tasking agencies desire SAR groups to take on?

- What skills or capabilities do SAR groups possess that support (or detract) from SAR groups expanding into these additional desired roles and responsibilities?

- What do SAR groups and tasking agencies see as impediments to SAR groups in fulfilling their current and desired roles?

- Given all of the above, what are the implications for emergency or disaster response capacity in BC?

Study Conduct

The literature review was undertaken to provide information and context on the following topics: organization of SAR in BC; the existing roles of volunteer SAR groups in BC; the potential roles of BC's SAR groups in emergency and disaster response; emergency and disaster response capacity and capability needs; and, approaches taken in other jurisdictions to address emergency and disaster response needs through the use of organized volunteer groups.

The literature review component of this paper covers the organization of SAR in BC, as well as the existing roles of SAR groups in BC.   Included is a review of Provincial Emergency Program policies, procedures and reports related to the provincial SAR program in BC. The review included information available from the BC Search and Rescue Association including the minutes from the association's meetings. Other sources of information included the Justice Institute of BC, the BC SAR Advisory Committee (predecessor to BCSARA) and the National

Search and Rescue Secretariat (NSS). Documents related to emergency related roles of existing

SAR groups and related requirements were secured from a wide variety of sources (e.g., U.S.

FEMA, the United Nations, and Civil Defense or emergency management agencies). The

literature review included the use of web based information, journal and newspaper articles,

books, and legislation.

The survey questions for this research paper were prepared based on the information

gained from several resources, including the literature review, the researcher's knowledge of the

subject matter, input from the PEP SAR Specialist and other members of BC's SAR community.

Various SAR practitioners assisted with the refinement of the survey questions. The two surveys

are similar in term of the questions posed, but different in the wording of the questions to reflect

the different perspectives between the two respondent groups.

The surveys were designed and delivered using web-based survey software and related

services provided by SurveyMonkey - an on-line survey software tool available since 1999

(SurveyMonkey, 2008). The use of this service enabled the surveys to be created and delivered

on-line and provided a number of automated analysis tools, which facilitated the data analysis.

With participants able to enter their survey responses directly, the on-line survey software

eliminated the possibility of data entry errors on the part of the researcher.

In an attempt to maximize the number of responses, delivery of the survey for SAR

groups and Regional Directors of BCSARA was accomplished using several methods. The web

link to the survey was distributed to each of BCSARA's Regional Directors via email and each

Director was asked to forward the email to a senior representative of each of the SAR groups

they represent. The researcher followed up with a second email asking BCSARA Regional

Directors (including some previous Regional Directors) to pass it along to the SAR groups they

represent. The web link to the survey was also forwarded directly by email to some of the SAR groups in the province by a select number of PEP Regional Managers, who were also provided the survey information by email. Further attempts were made to reach those SAR groups that did not appear in the list of survey respondents as the time period when the survey was available drew to a close.

The tasking agency version of the survey was also circulated through different means. The researcher sent an email (with the web link to the survey) to the BC Emergency Managers Association's distribution list, which contained approximately 100 members who represented emergency management professionals in BC. They included local emergency program and other emergency managers, as well as a few fire, SAR and police members (D. Stevens, personal communication, December 17, 2008). The email with the survey web link was also sent to PEP (the project sponsor) and forwarded by its Regional Managers to its regional emergency management email distribution lists, which included: local emergency program coordinators, government emergency management professionals, police, fire and other emergency contacts. The link to the survey was also sent directly via email to existing tasking agency representatives that serve on BCSARA Board of Directors including the RCMP, a Municipal Police representative, the BC Ambulance Service, the BC Fire Chief's Association representative, and the Provincial Emergency Program's SAR Specialist. The RCMP representative on BCSARA Board of Directors provided an electronic copy of the survey to RCMP District Commanders in the province requesting them to distribute the survey to each of the provincial RCMP detachments for completion. This approach was necessary because RCMP members were not able to access the survey on-line due to RCMP internet security restrictions.

Chapter 3 - Literature Review

Response Needs in Emergencies and Disasters

Professional emergency responders are typically capable of handling routine emergencies. As Kapucu and Van Wart (2006) point out, emergencies come in a variety of sizes with the smallest often referred to as hazards, incidents, or simply emergencies, and the expectation is that the response can be handled at the local level. As emergencies become larger or occur over a sustained period, they can reach a point where they begin to tax the existing first responders, and may overload the often-significant first response organizations' internal surge capacities. Donahue and Joyce (2001, p. 728) wrote that the nature of disasters is to both "exceed the capability of government" and "overwhelm the administrative and resources capabilities" available. Although a variety of different definitions exist for "disaster" in the emergency and disaster management literature, a common element is that the needs of the situation or problem at hand exceed the resources available to meet them. Quarantelli and Dynes (1977) described disaster as the disruption to society after the event, as opposed to the trigger event such as a terrorist attack or earthquake. For simplicity the term emergency will be used throughout the remainder of this paper and should be interpreted as being consistent with the definitions provided above for emergencies where local responders are taxed as well as disasters.

Though disasters often require more resources than are available locally, Auf der Heide (1989) observed that in some disasters the inverse is true, and over-response could become a problem. In situations where human and material resources are not in short supply, a number of other organizational issues may arise such as overlapping responsibilities, poor distribution of resources, inadequate communications, and conflict between local and external organizations

(Kreps, 1991). In such situations, extra human resource capacity may not be needed for direct response activities, but instead be required to address organizational issues.

It is commonly accepted that all jurisdictions are likely to confront emergencies and disasters, although the specific nature and frequency of these events may vary greatly. Knowing that emergencies and disasters will affect all jurisdictions necessitates a need for preparedness, and in BC, legislation requires local and regional governments as well as provincial ministries to undertake planning and preparedness activities (Emergency Program Act, 2008). Godschalk (1991, p. 136) defines preparedness as "actions taken in advance of an emergency to develop operational capabilities and to facilitate effective response in the event an emergency occurs".

Emergencies and disasters typically require additional resources beyond what is available from local first responders. Russell Dynes (1994, p. 151) observed that "planning which assumes that emergency problems can be handled solely by established organizations, is working with a myopic view of the emergency period." This underscores the need for emergency planners to identify and plan for the potential needs that may emerge.   In order to address these needs, emergency planners are increasingly focused on community level. The "community as resource" model of community emergency preparedness, coined by Lichterman (2000, p. 265) in 1978, has become the accepted standard for preparing citizens for disasters and offers a solution to addressing disaster response needs.

Use of Volunteers in Emergencies and Disasters

When examining the potential for ground SAR groups in BC to undertake additional disaster response roles, it is useful to examine how other jurisdictions addressed this issue. This section provides a review of other mechanisms that were developed to improve capacity for emergency response through the use of volunteers.

Volunteer SAR groups, in both Canada and the United States, have responded to numerous emergency incidents. Notable examples include the Swiss Air flight 111 crash in Nova Scotia in 1998, the 2003 wildfires in BC, Alberta's Pine Lake Tornado in 2000, Hurricane Katrina, and the September 11th attack on the World Trade Center. In most cases, however, it appears that the activation of SAR groups has not been the result of these emergency roles being formally established prior to the event, but more of an opportunistic use of existing SAR groups.

At the national level in Canada, it appears that little planning has been done to explore the potential use of volunteer SAR groups in emergency response. Monica Ahlstrom, former President of the Search and Rescue Volunteer Association of Canada, lamented the lack of national planning in Canada to effectively utilize the approximately 20,000 SAR volunteers across the country, and observed that even after speaking with three ministers of National Defence, that no one in charge of the plans seems to realize the value of these volunteers in emergencies (Monchuk, 2005). However, some provinces appear to have recognized the value of volunteers in emergencies and disasters. Ontario, for example, announced funding of $1 million per year to fund "community volunteer teams to respond to emergencies, ranging from ice storms to possible terrorist attacks," which will be made up of teams of 20 persons who will receive 20 hours of training in basic first aid, emergency and disaster response, search and rescue, and disaster psychology (Boyle, 2002, p. A04).

In BC, SAR groups have been deployed on numerous occasions to assist with floods, wildfires and other non-traditional ground SAR incidents, although the groups did not receive any formal training in these activities. Despite the fact that SAR groups are not provided direct training to undertake their emergency roles, one can increasingly find them listed in local governments' emergency plan, fulfilling roles outside of their routine wilderness SAR duties. Sometimes SAR groups are listed in these plans with little or no communication with the affected SAR groups to ensure that they are aware of the roles designated to them, and how they will be operationalized. PEP recognizes a role for SAR groups in emergencies and disasters, and local governments are currently able to call upon SAR groups for assistance. However, to-date these groups lack formally-developed training requirements, policies or procedures that are specific to their emergency roles.

In the United States, there has been an effort to increase the use of volunteers in emergencies. In his 2002 State of the Union address, President G.W. Bush called for volunteers for a USA Freedom Corp, part of which would be a Citizen Corp that would be coordinated by FEMA (Waugh 2003). The use of Community Emergency Response Teams (CERT) is part of this push to build up a volunteer base to increase emergency response capacity. CERT programs began in Los Angeles in 1993 and FEMA set a goal of having 400,000 CERT members nationally (Waugh 2003). CERT teams were established with the support and guidance of FEMA to provide communities with additional local resources to respond to emergencies and disasters. CERT teams received funding and support to enable them to provide a variety of response services including first aid, emergency notifications, search and rescue and others. However, because of the lengthy interval between disasters one of the main challenges for the CERT teams was the maintenance of volunteer interest over time (Flint & Brennan, 2006).

In terms of volunteer search and rescue groups in the United States, a 2007 study by Denver, Perez and Aguirre (2007) found 1,150 SAR groups across the country, ranging from one team per state to seventy-nine teams in California. Research has found that volunteer SAR groups in the United States have a quicker response time than federal USAR teams, and possess better equipment and training than emergent volunteers (Trainor, 2004). Similar to the situation in BC, the majority of the US SAR groups emerged in response to local missing person incidents and tended to be focused on wilderness search and rescue activities. Twelve percent (135 groups) of the respondents to the 2007 study indicated they possessed disaster response capabilities, with a significant increase in USAR capability between 1990 and 2005 (Denver et al., 2007). The research (Poteyeva et. al., 2007; Wenger, 1990; Denver et. al., 2007) points out that SAR groups have been generally overlooked by government and receive little funding or support for their activities. In fact, Poteyeva et. al. (2007) suggested that the United States government needed to rethink how it spent money on SAR, and look at shifting it away from costly urban SAR task forces (that often arrive too late to provide any meaningful assistance to trapped or injured subjects) to the volunteers and emergent groups that currently receive little or no assistance (Poteyeva et. al., 2007).

Australia makes wide use of volunteers for wilderness SAR activities as well as other types of emergencies. For example, Northern Territory Emergency Service volunteers are provided training in all aspects of disaster response and then focus on either a rescue or an operations stream to assist in incidents including severe storms, floods, boat rescues, road rescue and the provision of welfare (Buckley, 2005). Victoria State Emergency Services has a base of 5,500 volunteers that are trained in a variety of roles including planning and responding to severe storms, earthquakes, floods, tsunamis, road rescue, plus search and rescue, in the belief that the

use of volunteers helps prepare communities and build resilience (Herald Sun, 2008). Across Australia it is estimated that there are 400,000 emergency service volunteers versus 60,400 paid career officers (police, ambulance and fire services), which results in millions of dollars of savings to governments and makes volunteers "the backbone of the counter disaster effort in Australia" (Britton, 1991, p. 409).

The United States' CERT concept has been exported to a variety of other regions of the globe including Africa, the Caribbean and Europe. For example in Turkey, the CERT program has been adopted and modified to fit local needs and conditions. Bogazici University as well as the Kandilli Observatory and Earthquake Research Center have developed a 12 hour course for community disaster volunteers that includes training in light urban search and rescue and structural damage assessment (Petal et. al., 2004). As of June 2004, six thousand citizens in the Marmara region of Turkey have participated in the Community Disaster Volunteer training (Ibid).

This overview of the use of SAR or similar volunteer groups in other jurisdictions illustrates existing and increasing use of volunteers to enhance community resilience in the face of emergencies and disasters. It highlights the cost savings that the use of volunteers represents, and the ability to harness resources in excess of what could be provided by sole reliance on professional responders.

Organization of SAR in BC

Search and rescue in BC may be divided into three categories, with different agencies being responsible for each. *Air search and rescue* falls under the responsibility of the Canadian Forces and involves SAR activities related to missing or downed aircraft. *Marine search and rescue* is the responsibility of the Canadian Coast Guard and involves SAR activities related to vessels missing or in distress in the marine environment. The third and final category is *ground and inland waters search and rescue* (commonly referred to as ground search and rescue or GSAR), which is the responsibility of the police force in each local jurisdiction (RCMP or municipal police force). In BC, the Provincial Emergency Program facilitates and coordinates the provincial ground SAR capability to support the police forces operating in the province (Provincial Emergency Program, 2009).

Conducting ground SAR operations often requires a significant number of personnel to mount an effective and efficient search or rescue. Police forces in BC certainly have a wide array of roles and responsibilities beyond the provision of ground SAR services, which places heavy demands on their finite resources. To meet the human resource demands of ground SAR activities in BC, police forces have welcomed the involvement of unpaid professional SAR groups. Although the police retain the authority and overall responsibility for GSAR operations in the province, most GSAR related activities are delegated to the SAR groups under the direction and leadership of one of their trained and certified SAR Managers. The police work closely with the SAR Manager to ensure the operations are being appropriately managed, and to make key decisions related to the suspension or termination of a search (Justice Institute of BC, 1999).

The Provincial Emergency Program (PEP) as the coordinating agency for ground and inland waters SAR in BC, the Provincial Emergency Program (PEP) works with the police, SAR groups and other stakeholders to ensure that a professional ground and inland waters SAR service is available in the province. PEP has established policies and procedures for the recognition and operation of SAR groups in the province (Provincial Emergency Program, 2008d). PEP authorizes the activation of recognized SAR groups in the province and provides them with operational funding, logistical support, workers compensation coverage, and liability insurance. PEP has developed a significant policy framework to guide SAR operations in the province, which ensures costs are controlled and operations are conducted safely and effectively.

Tasking Agencies

In addition to the police, SAR groups in BC may be activated or called upon by a number of organizations, generally referred to as 'tasking agencies'. Tasking agencies have been authorized through agreements with PEP to access SAR groups under specific circumstances. Recognized tasking agencies in BC include: BC Coroners Service, Parks Canada, BC Ambulance Service, and most recently local fire departments. In major emergencies, PEP may receive requests for SAR resources or services from local governments, provincial agencies and federal departments. The agreements established between PEP and these tasking agencies outline the circumstances in which SAR groups could be accessed. Examples of the wide range of situations where tasking agencies could request assistance from SAR groups includes the following: the Coroners Service may request SAR groups to assist in the recovery of deceased subjects; Parks Canada may request SAR groups to assist with SAR operations within national

parks; BC Ambulance Service may request SAR groups to assist with the packaging and transfer

of subjects into their care; Local governments may access SAR groups to assist in the event of

local emergencies or disasters, and fire departments may request SAR group assistance to help

with some rescue related activities. The PEP policy titled the *Utilization of SAR Volunteers for*

SAR Activities Policy provides detailed information on the use and activation of GSAR groups in

province (PEP, 2008h). Appendix A provides further information on the activities that SAR

groups are eligible to participate in at the present time.

PEP-recognized SAR groups in BC are also members of BCSARA, which is a non-profit

organization founded to enhance the provision of SAR services in the province. BCSARA is

comprised of Regional Directors who represent SAR groups from their respective regions of the

province, tasking agencies representatives, PEP's SAR Specialist, and an elected executive (e.g.,

Treasurer, Vice-President, President). BCSARA's role is to "enhance the provision of search

and rescue services in the province by accessing funding for training, providing occupational

health and safety support, educating the general public on outdoor safety and acting as a common

link to information and resources for Search and Rescue volunteers across BC" (BC Search and

Rescue Association, 2008d).

As discussed in chapter one, there are approximately eighty-two PEP-recognized SAR

groups in BC, which are located around the province in small communities up to the large urban

centres (see appendix B for a list of provincial SAR groups). A number of SAR groups in the

province pre-date the formal establishment of PEP in 1977. In some cases, groups evolved out

of the post World War II Civil Defence establishment (SAR Strategic Plan Working Group,

1996) with many emerging locally in response to lost or missing person incidents in their

community, and as a result of the efforts of a single person or a small group of concerned

citizens that recognized the need to establish and maintain this type of resource for their community. More recently some groups have been organized or encouraged to organize by local governments that recognized a need for this type of resource as part of local emergency planning activities.

PEP supports the development of new groups in areas of identified need, but has largely avoided identifying where and when a SAR group may be established, or getting involved in dissolving an existing group. However, a centralized PEP approval process for group creation and dissolution was recommended by the SAR Strategic Plan Working Group in its 1996 report (SAR Strategic Plan Working Group, 1996). PEP has indicated to BCSARA that it is developing a policy to cover the formation, maintenance and dissolution of SAR groups, and PEP's role in these matters (BCSARA, 2008b, p. 50). The majority of SAR groups are operated by elected boards, as societies under provincial legislation.

Activation and Callout

The activation of SAR groups in BC may be accomplished in a number of ways. These include: a request made by a tasking agency to PEP, which would activate the required SAR group(s); a request made directly to a SAR group by the local police; or, a request made directly to the SAR group from a local emergency program coordinator. In all cases, the SAR group must contact PEP prior to activating its members for a response, to ensure it is provided with a provincial task number that authorizes operational expenditures and activates the liability and workers compensation coverage for its members. Groups then utilize their own internal procedures to notify and muster their members. Many groups issue pagers to their members to

speed the activation process. Some groups, which have high call volumes in their geographic area, have developed an "on call" rotation amongst their members.

The number of callouts per individual SAR group varies tremendously depending on each group's geographic location in the province, the amount of area it is responsible for, and the specialty skills of its members. According to the BCSARA website, 989 ground and inland waters SAR incidents were responded to in BC during fiscal year 2006/2007, involving 1,360 lost or missing individuals BC (BCSARA, 2008e).
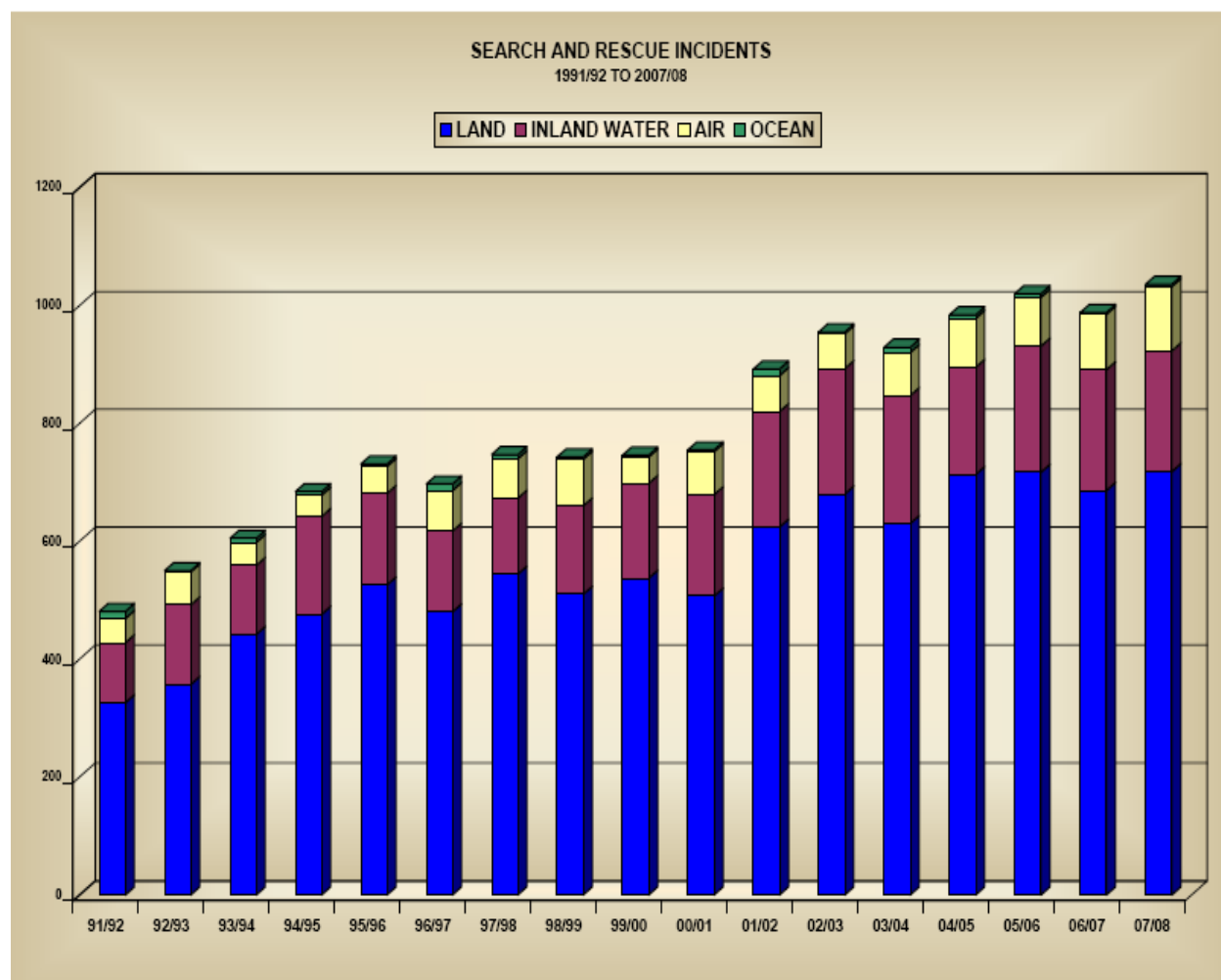
Figure 1 – Increases in the Number of SAR Incident in BC from 1991 to 2008

Note. Land search incidents are shown in the bottom segment of each column, followed by inland water incidents in the middle, and then air and ocean searches on top.

Funding

The SAR program in BC requires significant funding to cover the operational costs of responses and to house, equip and train SAR groups and their members. The operational funding

for SAR activities in the province is provided almost exclusively through PEP. PEP reported

that in fiscal year 2004/2005 SAR operational spending totaled $1,535,240, which averaged out

to $1,560 per search (PEP, 2008b, pg. 4). Operational funding is fully covered and is not usually

a concern for SAR groups with the exception of specific policy items that may at times become a

concern if the established reimbursement rates fail to meet the actual costs incurred by SAR

groups or their members. Figure 2 illustrates the increases in operational costs for ground and

inland water SAR activities. The drop in fiscal year 2003/04 is attributed to the widespread

closure of backcountry locations due to high wildfire risk that year (PEP, 2008b, appendix B).

BCSARA reported that through the use of volunteer SAR members, as opposed to the use of

paid searchers, direct salary savings alone is estimated to be in excess of $5,000,000 per year.

This excludes infrastructure and capital costs, which are estimated at over $50 million dollars

(BCSARA, 2008e).
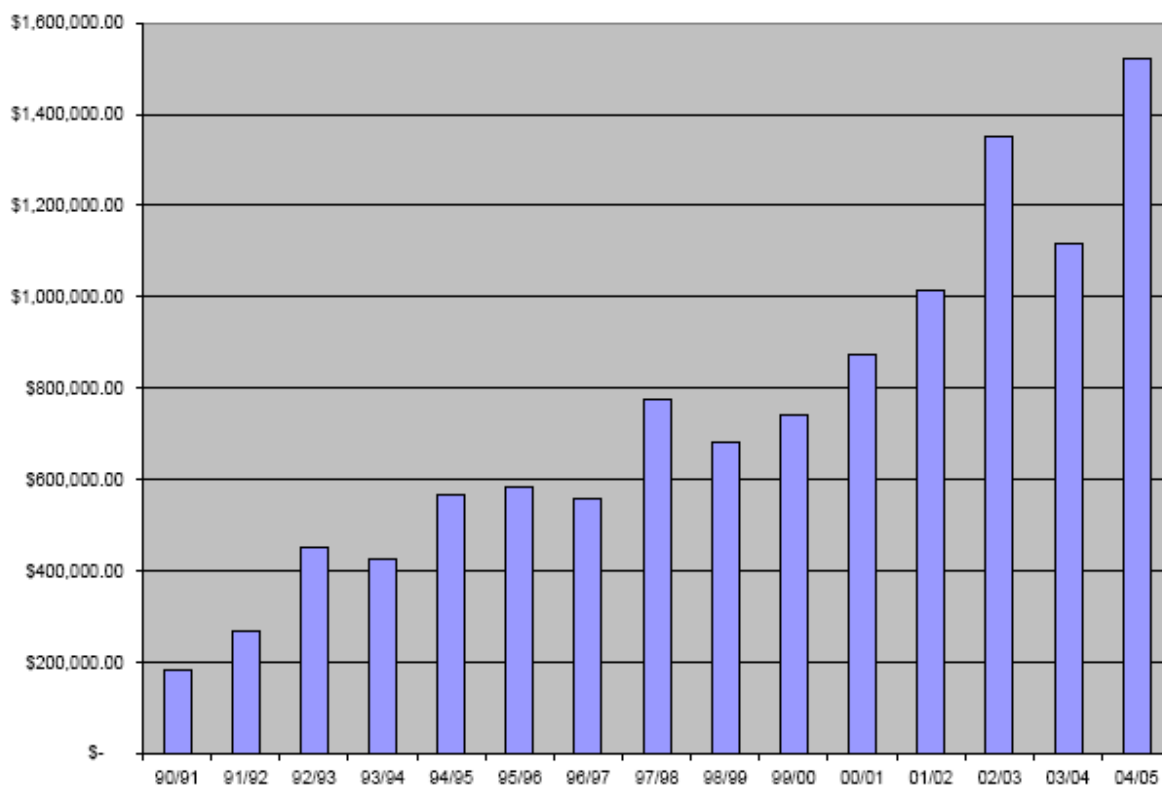
Figure 2 – Increases in Search and Rescue Operational Costs from 1990 to 2005

Province-wide funding for core SAR training is provided by PEP, RCMP, and BCSARA. Funding currently available at the provincial level for training comes from the Royal Canadian Mounted Police ($95,000), PEP ($250,000 although this also covers other emergency management services provided by the PEP Academy at the Justice Institute), and BCSARA ($250,000 through BC Gaming grants) and totals approximately $595,000 annually (Gutwald, personal communication, December 30, 2008). The current province-wide funding is not sufficient to meet all the needs of SAR groups in the province. For example, only sixty-five percent reimbursement is provided for travel expenses for SAR members attending regional training events. SAR groups access additional funding for training activities in a variety of ways including their own fundraising effort, funding support (from local government, business or the

public), or grants through provincial or federal programs. It should also be noted that training costs are significantly offset through the use of SAR members who deliver in-house training for their group, and serve as unpaid instructors for the Justice Institute of BC for regional or provincial courses. Due to funding shortfalls, SAR volunteers often cover some of their own training costs.

Current funding for command and other vehicles, group equipment, insurance, radio licensing fees, and group facilities is not provided on a provincial basis. Regional and local governments sometimes provide funding for these types of items, but this is highly variable across the province. The acquisition of funding to meet these needs must be undertaken largely through the lobbying or fundraising effort of the SAR groups.   Sources of funding for equipment and facilities may also include group fundraising activities, support from businesses and the public, and through provincial and federal grant programs. Some of these grants are available to assist SAR groups with equipment needs, though all have specific eligibility requirements or restrictions on their use. These include provincial Direct Access Gaming grants provided through the Ministry of Public Safety and Solicitor General, the federal SAR New Initiatives Fund grants provided through the National Search and Rescue Secretariat, and federal Joint Emergency Preparedness Program grants administered by Public Safety Canada (BCSARA, 2008c).

The need for SAR groups to generate funds for training, facilities, equipment and other group expenses places an additional burden on these volunteers who are already devoting significant voluntary time to operate their group, train, and respond to actual incidents. In 1996, the SAR Strategic Plan Working Group recommended that PEP address the funding issues of the ground and inland waters SAR program in the province. However, to date, this recommendation

has not been implemented (SAR Strategic Plan, 1996). Efforts are also being made nationally to secure tax breaks for SAR and other emergency service volunteers to offset personal equipment costs and use, and to recognize the contributions that emergency service volunteers make to assist their fellow Canadians. For over six years, attempts have been made in parliament to pass a bill that would provide tax credits to emergency service workers including volunteer SAR members in BC (Atamanenko, A, 2008; Simms, S, 2008). However, these efforts are yet to succeed.

Training of SAR Groups in BC

Adequate training is critical for SAR groups to perform their roles safely and ensure a professional response. When examining the current and desired roles of SAR groups in BC, it is important to understand how training is organized and provided, and to know the cost or time involved. This section describes the standards that have been developed with respect to training, identifies the current source of training providers, outlines how the SAR curriculum is developed, and describes how its training is delivered.

PEP, which manages the ground and inland waters SAR program in the province, also sets the provincial training standards. Basic SAR operations require a wide range of skills and training. Additionally, advanced training is required for certain roles and specialized rescue operations. To ensure the safety of SAR members and consistency across the province, a number of core SAR courses have been established in the province. These core courses include Ground SAR, Rope Rescue, GSAR Team Leader, SAR Management and GSAR Instructor.

The core SAR courses have been developed through the PEP Academy at the Justice Institute of BC. The PEP Academy is funded by PEP to develop, deliver and evaluate emergency management training for emergency responders, including provincial SAR volunteers (Justice Institute of BC, 2008c). Non-core SAR courses such as tracking, swiftwater rescue, ice rescue, and urban SAR are provided by a variety of other organizations. Standards for the non-core courses have historically been determined through collaboration between the Justice Institute and PEP, with input from BCSARA and other stakeholders, with technical advice from professional bodies where available (BCSARA, 2008, p. 10). Adoption of standards usually involves either an assessment of the training providers to ensure that courses meet existing standards such as the National Fire Protection Association (NFPA) standards.

The PEP Academy BC obviously plays a critical role in the provision of SAR training in the province. In addition to being responsible for the organization and delivery of core SAR courses, the PEP Academy is also responsible for other specialized courses such as the Mountain Rescue program, Incident Command System training and other general emergency management training (Justice Institute of BC, 2008c). The Academy, which provides a coordination role for some of the non-core GSAR courses (e.g., tracking, swiftwater rescue, and avalanche rescue), has recently indicated that it soon cease providing this service (BC Search and Rescue Association, 2009).

Other organizations offer non-core SAR related training. A variety of for-profit businesses provide swiftwater rescue, tracking, avalanche rescue, ice rescue, first aid, urban rescue and other SAR related training. Additionally, certain non-profit organizations provide SAR related training. For example, the Canadian Avalanche Association offers avalanche rescue

courses, and Vancouver Urban SAR team offers urban SAR (Canadian Avalanche Association, 2008; Vancouver Urban Search and Rescue, 2008).

The development of the curriculum for SAR training in B.C. differs depending on whether it is delivered through the PEP Academy or another organization. Development of curriculum for core SAR courses is lead by the Justice Institute with extensive involvement of PEP's SAR Specialist, subject matter experts, and instructors from SAR groups in the province. The non-core SAR course curriculum is developed directly by the business or organization that is providing the training.

Standard Equipment Maintained by SAR groups

A wide array of equipment is required to carry out the current roles of SAR groups in BC. Standard or specialized safety equipment is required for general SAR activities and for various technical rescues. Groups must acquire basic personal equipment plus technical rescue equipment needed for SAR operations, such as communications equipment, geographic positioning systems, ropes, throw bags, and avalanche probes. First aid equipment is required for treating subjects and safely transporting them, and includes items such as first aid kits, hypothermia kits, and specialized stretchers. Groups also require vehicles to transport their members to and from incident locations. Transportation requirements could include four-wheel drive vehicles, mobile command posts, and other specialized modes of transportation such as jet boats, all terrain vehicles, mountain bikes and snowmobiles.

The equipment outlined above largely reflects the equipment needs of a particular SAR group. Each individual SAR group member also has his/her own personal equipment needs,

including appropriate footwear and clothing to operate safely in a wilderness environment in all types of weather. In order to meet SAR requirements and be eligible to go into the field, each SAR member must also possess a "24 hour pack". The 24 hour pack composition varies based on the location of the incident, season, weather conditions, and other incident-specific factors, but is primarily intended to ensure that the SAR member could remain fully self-sufficient in a wilderness setting for at least 24 hours. Key components of the 24 hour pack include extra clothing, food, water, personal first aid, signaling devices, compass, flashlight, knife, and fire starter.

Given the range and specialized nature of equipment needs, there are obviously considerable costs involved in outfitting a SAR group and its members. As noted above, BCSARA assessed the value of infrastructure and capital costs for SAR in BC at greater than $50 million (BCSARA, 2008e). Individual SAR members currently receive no funding for their personal equipment requirements, which similar to the group gear could be very expensive. However, some SAR groups are able to assist their members with certain personal gear such as group jackets or other pieces of individual equipment.

SAR Group Facilities

SAR groups in BC require facilities in which to plan and prepare for the provision of the services they provide. Groups require meeting and office space where their members could get together to address the management of their group and their activities. Meeting space requirements also include the need for indoor space for certain training activities. Facilities and space are also needed for the storage of group equipment including group vehicles, equipment

trailers, etc. It is important that the facilities and storage areas used for group equipment are secure to protect these resources from theft or vandalism.

No dedicated source of funding exists in BC to provide SAR groups with safe and secure facilities. Groups often work with their local community or regional district to gain access to existing community facilities to meet their needs. In some parts of the province, land or financial assistance has been provided by local governments to meet the group's needs. Many groups have also acquired free services or materials through businesses to help meet their facility needs. In some cases the SAR group's membership plays a significant role in the building of facilities by donating their labour and professional expertise. It should be noted that securing facility funding is not a onetime event for the SAR groups in the province, as they must also ensure they have the funds to operate, maintain, and insure their facilities and the equipment stored there.

Existing Roles of SAR Groups in BC

Ground Search and Rescue

Ground and inland water search and rescue in BC involves the search for lost, injured, and missing persons and is typically referred to simply as ground search and rescue. Figure 3 provides examples of typical ground and inland waters SAR activities.

Examples of GSAR Activities
• A child who has gone missing while on a hike in a provincial park
• A hiker who has injured his knee and requires assistance to get out of the wilderness
• An elderly Alzheimer's patient who has wandered away from their rest home
• A young man who has left a suicide note in his vehicle parked at the end of a logging road
• A family reported overdue after heading out on a camping trip

Figure 3 - Typical Ground SAR Activities

From the above examples, one can see that ground SAR activities encompass searches for lost or missing persons and their rescue in both wilderness and urban environments. SAR activities, which take place in structural collapse settings are referred to as urban search and rescue (USAR) and are discussed in greater detail in the section below, which outlines potential roles of SAR groups during emergency response. The critical consideration is that in USAR, the persons being sought are typically trapped within a structure either by damage to the building or external conditions that prevent them from leaving the structure. By contrast, ground search in an urban environment is focused on outdoor areas, although a lost person may seek refuge in a structure and thus ground searchers are likely to search any unsecured structure they come across. Ground searches in an urban environment are typically the result of runaways, lost or missing children, or persons who may be despondent, suicidal, or have some pre-existing condition that reduces their mental capacity (e.g., Alzheimer's, dementia) and results in them wandering away from their place of residence.

Various skills are required to ensure that GSAR operations are carried out safely, effectively, and efficiently. Therefore, SAR groups must be trained in a variety of different skills

including search techniques, search management, lost person behavior, first aid,

communications, navigation, patient handling, and wilderness survival.

There are a number of settings that require additional specialized skills and equipment

above the basic GSAR certification level to allow those involved to locate, assist, stabilize and

treat the subjects they encounter. An overview of specialized rescue roles is discussed separately

below. Not all SAR groups in the province maintain specialized rescue skills or "teams" within

their group. Developing these specialized rescue functions within SAR groups is typically based

on the interest and capacity of each group's members, a need for those skills within the group's

area of geographic coverage, proximity of neighboring SAR groups with that capability, and

support of PEP.

Rope Rescue

Rope rescue is a specialized role within the overall category of GSAR. Rope rescue in

BC involves the use of top-down (as opposed to climbing up to the subject from below)

techniques to rescue subjects caught in high angle environments. Rescue team members

maintain advance rope skills including use and selection of anchor points, rappelling, lowering

systems, raising systems and advanced patient packaging. All GSAR trained members, however,

possess basic rope skills for use in non-high angle environments.

Swiftwater Rescue

Swiftwater rescue involves the use of specialized rescue techniques to access and assist subjects safely in moving water environments. Swiftwater rescue requires the use of a variety of specialized equipment including protective clothing for cold water immersion, rope gear, and throw bags. It also requires that practitioners have a good knowledge of swiftwater dynamics, water related physiology, and risk assessment.

Avalanche Rescue

Due to prevalence of avalanche terrain throughout BC, avalanche rescue is another form of specialized rescue that most SAR groups in the province possess. This type of rescue involves the use of specialized equipment such as avalanche probes and avalanche rescue beacons. Specialized training includes evaluating avalanche terrain, avalanche avoidance, as well as search and extrication techniques. SAR groups whose area of coverage includes avalanche terrain would typically train their members to various levels of avalanche rescue certification. This provides the SAR group with the ability to respond to subjects in avalanche situations and ensures their members have the appropriate training to operate safely in areas of avalanche risk.

Mountain Rescue

Mountain rescue involves the specialized skills and techniques required for accessing subjects in high alpine conditions such as glaciers or locations where top-down rope rescue techniques cannot be applied. For the most part, the mountain rescue program follows a regional capability approach where members are drawn from multiple SAR groups. Mountain rescue members are typically selected based on each volunteer's pre-existing training and experience with these techniques, often acquired recreationally or through professional training. This program is relatively new and is still developing within the province.

Ice Rescue

Ice rescue involves the specialized skills and techniques required for persons working around surface ice or responding to subjects who have fallen through ice. Ice rescue utilizes some of the same equipment used in rope or swiftwater rescue. However, the training and techniques are modified due to the particular circumstances of working in a surface ice environment. Ice rescue training includes teaching practitioners about surface ice formation, structure and deterioration, self extrication techniques, working safely on surface ice and the application of rope techniques to this environment. Although surface ice could be found throughout much of BC during the winter months, few SAR groups have made the effort to develop their ice rescue capability. At present, it is mainly those groups that have had a surface ice incident who have sought out this specialized training.   This ensures the group is prepared

for future incidents of this nature, and addresses the safety of their group members who may need to operate on, or near surface ice.

Road Rescue

Road rescue involves the use of advanced equipment and techniques for the extrication of subjects from vehicles involved in an accident. Equipment used includes various hydraulic and mechanical tools for cutting through metal, or raising and securing heavy objects. Fire departments traditionally provide this type of rescue service. However, based on need in their region, a small number of SAR groups in the province have also developed this capability.

Potential Roles for SAR Groups in Emergencies and Disasters

Urban Search and Rescue

Urban search and rescue (USAR) is the search for and rescue of missing or trapped persons inside of a structure. USAR activities may be required in incidents that result in structural damage to a building or other conditions that result in persons being trapped inside a building. Such conditions may be caused by earthquake, collapse due to poor construction techniques, flood, accident, or explosion. USAR is generally divided into three levels, with each level building and expanding upon the level below it. These levels are referred to as Light Urban SAR (LUSAR), Medium Urban SAR (MUSAR) and Heavy Urban SAR (HUSAR). The United Nation's International Search and Rescue Advisory Group (INSARAG), Public Safety Canada (PSC) and US FEMA have all developed detailed definitions of the 3 levels of USAR and provide information on required training or resources needed at each level (Federal Emergency Management Agency, 2008; Public Safety Canada, 2008a; United Nations, 2007). Some of this information is provided in Appendix C.

A number of volunteer SAR groups in BC are already training for USAR operations. One such group is the Victoria SAR, which was founded by the City of Victoria in the 1980s (L. Hillard, personal communication, 1996). Similarly, the City of Vancouver developed its HUSAR team, which is comprised of paid professional responders supported by the province and Public Safety Canada (PSC). To accommodate training needs, the Justice Institute of BC developed a LUSAR training course, and the BC government is currently providing LUSAR training to its employees (Justice Institute of BC, 2008a; Province of BC, 2008b). However, a

review of course descriptions for these courses suggests that they do not meet the LUSAR criteria as outlined by INSARAG, FEMA, or PSC.

Any escalation through the USAR capability continuum (from LUSAR to HUSAR) brings a corresponding increase in the need for specialized skills and equipment. Similarly, the operational level of risk also increases for those USAR teams that move up this continuum. The increasing level of risk translates into the need to physically move slower and more deliberately when undertaking the more complex USAR activities. These activities also require additional commitment from team members in terms of training requirements and regularity of practice to maintain their specialized skills and operate safely. Since each level of USAR training builds upon its predecessor, it is possible to utilize USAR personnel trained at a lower level within higher level USAR teams.

Large-scale incidents such as earthquake, hurricanes, or floods that could create widespread structural damage would likely require a significant number of USAR teams. In their review of SAR activities in disaster, Poteyeva et al., (2007) concluded that "volunteer and emergent group response is critical" (pp. 201-202) and that most of the time the high profile HUSAR teams arrive too late to rescue anyone. When dealing with subjects trapped as a result of structural collapse the research indicates that the greatest chance of survival involves subjects that are reached within the first 48 hours of the incident. Kunkle (1989) observed that 80% to 90% of trapped subjects that survive in structural collapse incidents are recovered in the first 48 hours. This information argues in favour of local and regional LUSAR teams to provide the most efficient and effective level of response in terms of live rescues during widespread incidents. It also underscores the value that existing SAR groups in the province could provide if they were to accept this role.

When one examines the specialized skills, equipment and training requirements outlined by INSARAG and PSC for the various USAR levels, it would seem that the LUSAR or potentially MUSAR level would be the highest level attainable by volunteer SAR groups. SAR groups could potentially supplement the MUSAR and HUSAR level USAR teams during an incident, or could even be incorporated into these teams in locations with both a USAR team and a volunteer SAR group. The basic USAR training currently being provided by the Justice Institute of BC and the provincial government would require the least amount of additional training and equipment if SAR groups in BC decide to become involved in USAR. However, a better alternative might be for the SAR community in the province to develop its own LUSAR program by adopting elements from existing USAR framework to meet the specific needs of the province's volunteer SAR groups.

Emergency Notifications and Evacuations

Emergency public notification may be required in many types of emergencies or disasters, and involve informing the public about a hazard or an incident, and the action they need to take (e.g., *shelter in place,* or evacuation). The types of emergencies where notifications or evacuations may be required include urban interface fires, hazardous materials incidents, floods, tsunamis and others. Emergency notifications may be conducted in a number of ways using radio, television, by phone or in-person. In-person notifications could also be done by physically sending someone to each building, or through the use of a mobile loudspeaker of some sort (e.g., a police car driving down a street and advising citizens through the use of a siren and loudspeaker). Evacuations often include a notification component, but also include the

actions of responders in facilitating a safe and effective evacuation (e.g., directing traffic and staffing road blocks to ensure an orderly evacuation, or preventing others from entering a potentially dangerous area).

In the context of this research, the focus is only on the in-person forms of notification and the role of responders in facilitating a safe and effective evacuation. In BC these roles are typically conducted by professional emergency responders such as the members of the police or fire department. To be effective in these roles, one needs training and (in some cases) a limited amount of specialized equipment. The Royal Canadian Mounted Police (RCMP) provides its members with related training and equipment that facilitates in-person notifications for evacuation (D. Erickson, personal communication, January 6, 2009). This equipment includes items such as loudspeakers, coloured ribbon-tape for demarcating areas, and other items such as barricades or traffic cones.

However, during emergency situations, members of the local police, fire, and public works staff may have a variety of other duties to attend to, in addition to any requirement for in-person notification or evacuation. Therefore, in widespread incidents or when these professionals are directly impacted and rendered incapable of responding, there may be a shortage of personnel to carry out the required in-person notification or evacuation. This indicates a potential gap that SAR groups could potentially help address.

On many occasions, SAR groups in BC have been activated to assist with emergency notification and evacuation tasks. Previous involvement with these types of operations has allowed some SAR groups in the province to develop experience in this area, which would be of value if SAR groups were to formally adopt this role. The RCMP has advised BCSARA that they could provide basic equipment and training for notification and evacuation work

(BCSARA, 2008a,). Additionally, the Justice Institute of BC is currently offering a course in emergency evacuation that could be relevant to SAR groups undertaking emergency notification and evacuation on behalf of tasking agencies (Justice Institute of BC, 2008b).

Leading Convergent Volunteers

Emergencies and disasters often result in those persons within the impact zone, or those accessible to it, self-mobilizing to carry out self rescue or assist their neighbours, co-workers, and others in their community who are in need of aid. In the emergency and disaster management literature (Fritz & Mathewson, 1957; Dynes, 1970; Drabek & McEntire, 2002), these persons are often referred to as emergent or convergent volunteers. Many emergency managers recognize the important contributions and positive effect that emergent and convergent volunteers have. FEMA supports the use of volunteers and noted that in disasters, volunteers are the first to arrive and the last to leave, are involved in all phases of the disaster, are trusted by the public, are flexible, innovative, resourceful and complement government services (FEMA, 1999).

Significant research has been done on the role and impact of convergent volunteers in emergencies and disasters. Fernandez, Barbera & Van Dorp (2006) summarized some of the issues identified in the literature as follows: convergent volunteers will show up; it is challenging to match volunteers to needs; and convergent volunteer health and safety is a concern. However, many communities lack a plan to address these issues and harness the tremendous convergence of resources, such as volunteers. The task of managing convergent volunteers

should be left to the local government or agency of jurisdiction. It would require planning to ensure convergent volunteers contribute, rather than detract, from the response effort.

SAR operations involving the search for lost or missing persons could often result in friends and family of the missing person showing up at the incident command post seeking to assist in the search. High profile searches that are reported in the media could also result in many members of the public arriving at the scene to assist in the search. Because of this, SAR groups in the province have gained significant experience in managing convergent volunteers in SAR operations. As with convergent volunteers in disaster settings, SAR groups also face the issue of matching convergent volunteers to the search needs, and addressing the health and safety of these convergent volunteers.

Emergency Incident Management

In 1992, the provincial government of BC endorsed the use of the Incident Command System (ICS) and mandated its use by all provincial ministries and agencies (PEP, 2008a). ICS provides a mechanism for the management of incidents that allows the organization to shrink or expand as required to meet current operational needs. ICS also provides for an appropriate span of control over staff, improves incident coordination, clearly establishes lines of authority and reporting relationships, and provides common terminology (Auf der Heide, 1989). In BC, the Incident Command System has been adapted to address response at site level, as well as various levels of support to those at the site. The system is referred to as the BC Emergency Response Management System (BCERMS). Although local governments are not legally mandated to utilize ICS and BCERMS, they have been strongly encouraged to use it and appear at this time to

have almost universally adopted it in the province according to information provided by PEP

staff (C. Filmer, personal communication, April 2008).

Based on the extent and length of an emergency or a disaster incident, there could be

significant human resource requirement to fully staff all required positions at the incident

command post (site level), at emergency operations centres (site support), and at the provincial

regional emergency operations centres (site support, in support of local governments). Providing

both initial and relief staffing of the required positions at both site and site support levels could

exhaust the capacity of available trained personnel. As a result, there have been a number of

incidents in BC where local governments found themselves short-staffed and request additional

support from PEP (C. Filmer, personal communication, April 2008).

SAR groups in BC began using ICS to manage search and rescue operations in 1996, and

the Justice Institute of BC refined ICS and added the use of Unified Command in SAR

operations in 2005 (PEP, 2005). SAR group participation in the 2003 wildfire response, and the

resulting Firestorm 2003 Provincial Review (Filmon, 2004), highlighted the need for all

responders to be trained in ICS to improve multi-organizational responses and was a trigger (in

2005) for changes to ICS use by SAR groups (Filmon, 2004; PEP, 2005). The applicability of

ICS in large, multi-day searches has clearly demonstrated its value in managing SAR incidents

and provided many provincial SAR members with experience in its use. Members of SAR

groups are provided an introduction to ICS as part of their initial 70-hour GSAR training. SAR

groups are provided with specific training in ICS through the Justice Institute of BC or through

locally available instructors, with the goal to have all members certified in the use of ICS (PEP,

2005).

Other Possible SAR Roles

In addition to the potential roles for SAR groups in emergencies identified above, there are a variety of other activities that provincial SAR groups could potentially assist with regardless of the nature of the incident. Examples include assisting with communications, assisting with operations in the field, and the provision of first aid.

In terms of communications, SAR groups could assist agencies or organizations with emergency communications. Mobile SAR communication and command posts could be setup in areas where communications assistance is required. SAR members could assist field communications through the use of hand-held VHF radios, portable repeaters and satellite phones the groups possess. In regards to field level supervision, SAR groups could assist agencies and organizations with field operation activities to provide supervision and accountability through the use of certified SAR Team Leaders.   In relation to first aid, SAR groups could assist agencies and organizations with the provision of first aid services as all SAR group members must possess basic first aid and many are trained to higher levels.

If an incident were to occur today requiring the services of SAR groups in the province, PEP would assess the request and decide whether to activate SAR. This decision would be based on risk to the SAR group members and their suitability to carry out the requested task under existing conditions.

Chapter 4 - Research Study Results

GSAR Survey Introduction

The GSAR version of the survey is divided into six sections. The first section provides some background information on the survey and asks the respondent to identify their respondent category and the SAR group they belong to. The second section poses a series of questions on the current roles of the respondent's SAR group. The third section is comprised of questions around financial and liability concerns. The fourth section includes a series of questions relating to potential emergency response roles for GSAR groups. The fifth section contains questions on the overall support for assuming emergency response roles. The sixth section is simply a conclusion thanking the respondent for their time and input. The entire GSAR survey is contained in Appendix E.

GSAR Survey Results

Overview

The survey, which was sent to provincially recognized SAR groups, BCSARA Regional Directors and the Executive of BCSARA, resulted in a total of 62 survey responses. Of these responders 42 (67.7%) completed the survey in its entirety. Out of the total responses received, four were from BCSARA Directors or Executive Members, and the remaining 58 were from SAR group representatives. Fifty four respondents provided their SAR group affiliation in their

response, which indicates that a minimum of 43 (52%) out of the maximum 82 SAR groups in the province participated in the survey.

Current Roles

When asked about the current roles their SAR groups trained or participated in, more than 68% of the respondents indicated their groups participated in the traditional roles of GSAR, swiftwater rescue, rope rescue, and avalanche rescue. In terms of emergency response roles, the activities listed in the Table 1 show the percentage of respondents whose group had either trained for, or participated in them.

Emergency Notifications	78% (39 out of 50)
Leading Convergent Volunteers	48% (24 out of 50)
Emergency Incident Management	60% (30 out of 50)
Light Urban SAR	8% (4 out of 50)

Table 1 – Percentage of Respondents whose SAR Group either Participated in, or Trained for, the Listed Emergency Response Roles

The above figures demonstrate that SAR groups in the province are already either training for or actively participating in a number of emergency response roles. In terms of leading convergent volunteers, respondents may be referring to the fact that they often lead convergent volunteers during SAR operations. The high percentage (60%) for emergency incident management is a bit striking and may represent a misinterpretation on the part of survey respondents as to what was

actually being asked. Respondents may have perceived managing a search or rescue operation as emergency incident management, as opposed to serving in an ICS role in a non-SAR emergency incident.

In terms of the types of incidents that SAR groups have been activated for (see Figure 4 below) other than traditional GSAR roles, floods was the highest with 68% of the respondents (34 out of 50) indicating activation. This was followed by urban interface fires at 50%, snow or ice storms at 40%, and wind storms at 24%. Between two and six percent of the respondents indicated activation of their SAR group for earthquake, tsunami (including warnings), structural collapse, hazardous material incidents, health emergencies, and oil spills. No respondents indicated being activated for structural fires, while 19% of the respondents indicated that they had been activated for none of the incident types listed. Other incidents not listed for which respondents were activated included mud slides, an airport emergency, and river ice jams.
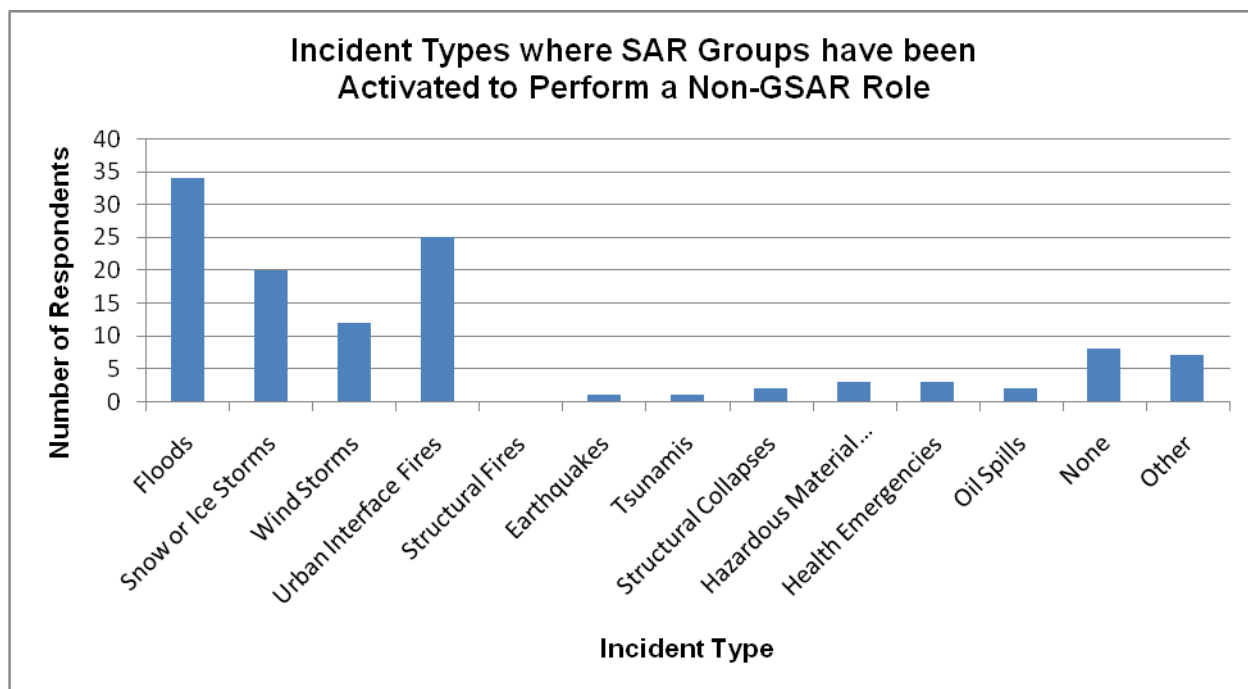

Figure 4 - Incident Types where SAR Groups have been Activated to Perform a Non-GSAR Role

When groups were asked about the current number of activations per year for various types of activities, GSAR operations was the most common with 58% (29 out of 50) of groups being activated for seven or more days per year, and no respondent indicating less than one activation per year. Rope rescue and swiftwater rescue were the next most common activities resulting in the activation of SAR groups, with 28% and 24% of the respondents (respectively) indicating their SAR group was activated four or more times per year for these activities. In terms of emergency response activities, respondents indicated that their SAR groups were activated between one and three times per year for emergency notifications by 44% (22 out of 50) of respondents, emergency evacuations 42% (21 out of 50) of respondents, and emergency incident management 26% (13 out of 50) of respondents. This shows that SAR groups are already engaged and being used in roles outside of the more traditional GSAR roles. Overall, the responses to this particular question appear to indicate that many SAR groups in the province are annually contributing a significant number of days to these non-traditional roles and activities.

The final question in this section asked for the amount of training SAR groups are doing for a variety of activity types. According to the responses, traditional GSAR roles were again dominant in terms of the number of days of training that SAR groups undertook. Seventy-two percent of the respondents (36 out of 50) indicated that their SAR group spends 10 or more days annually on GSAR training. Forty percent of the respondents (20 out of 50) indicated that their SAR group spends 10 or more days a year in rope rescue training. The responses regarding emergency response role training indicate that very few SAR groups are undertaking any training in these topic areas. Respondents indicated no training on medium or heavy USAR levels, but 18% of respondents indicated their SAR group was doing between one and three days of training

per year on light USAR. Most surprising, however, was the percentage of respondents who indicated that they do no training for emergency notification and evacuation - 70% and 72% of respondents respectively. When viewed in relation to the number of respondents who indicated they have been activated for these two activities (46% of respondents indicated their group was activated for emergency notifications, and 42% for emergency evacuations, while only 30% of respondents trained for emergency notifications, and 28% trained for emergency evacuations), it is apparent that some SAR groups are not training for these activities even though they are being called upon to perform them on an annual basis.

Financial and Liability Information

The first questions in this section focused on how SAR group members access funding to train their members for the current GSAR roles their group performs. Eighty-four percent (41 out of 49) of the respondents receive funding for training activities from PEP, RCMP and BCSARA. A total of 71% of the respondents indicated that they acquire funding for training through their group fundraising effort, and 55% indicated that they receive training funding through grant programs. Respondents indicated that local and regional governments provided their SAR group with training funding (39% and 45% respectively). Only 10% (5 out of 49) of the respondents indicated that the training funding received fully covered their training needs, while 55% indicated that the funding "mostly" met their needs, and 33% indicated that it met "less than half" of their training funding needs.

When it comes to funding SAR group equipment needs, 76% (37 out of 49) of the respondents indicated that their group fundraising activities and grants were the most common

source of funds. According to the respondents, regional and local governments provided funding for their group's equipment needs (47% and 37% respectively). The combination of BCSARA, PEP and RCMP provided equipment-related funding for 41% of the respondents SAR groups. In terms of meeting equipment funding needs, 12% (6 out of 49) of the respondents indicated that it "fully" met their needs, 55% indicated that it "mostly" met their needs, and 27% indicated that it met "less than half" of their needs.

The above information on funding indicates that current funding levels for both equipment and training do not meet the needs of the majority of respondents and their SAR groups. Significant numbers of respondents (86%) indicate that fundraising efforts are undertaken to help fund both equipment and training needs. In terms of the amount of time spent on fundraising activities, 18% (9 out of 49) of the respondents spent more than 20 days per year on fundraising activities, while only 14% of the respondents indicated that they spent no time conducting fundraising activities. The greatest number of respondents (35%) indicated that they spend between one and five days per year on fundraising activities. These responses suggest that many provincial SAR groups spend significant time raising funds to be able to provide the services that they do voluntarily.
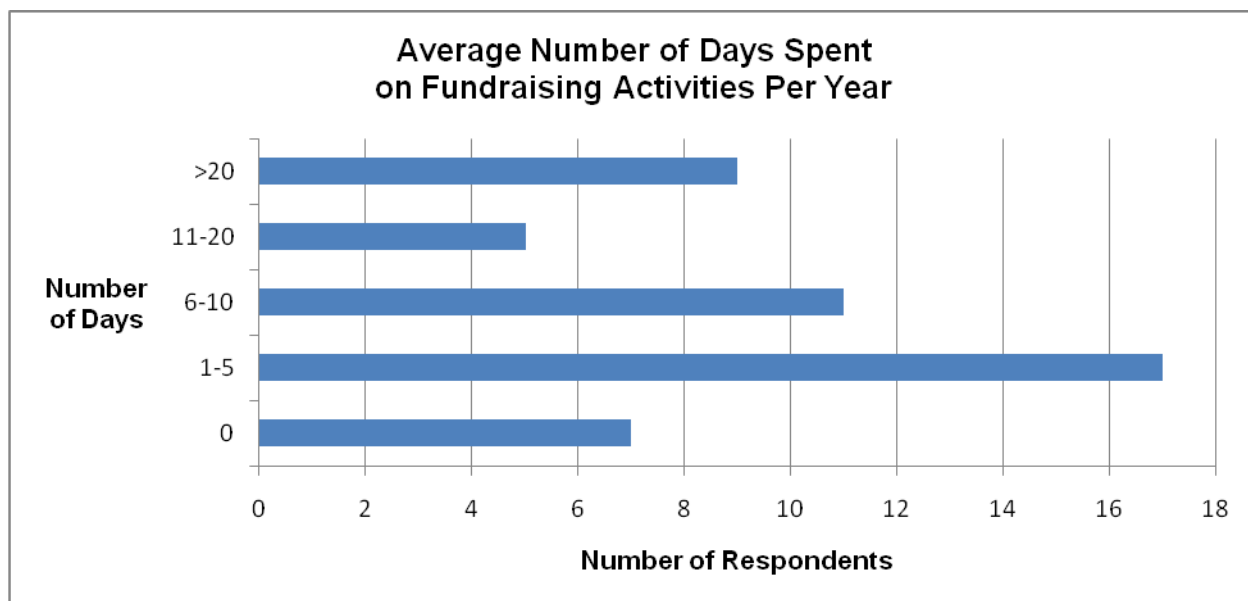
Average Number of Days Spent on Fundraising Activities Per Year

Figure 5 - Average Number of Days Spent on Fundraising Activities Per Year

Many SAR volunteers who miss work to take part in SAR operations are not financially compensated for their loss of earnings. Taking on additional roles in emergencies or disasters could increase the number of days of missed work. Respondents were asked how significant a concern they believed the issue of lost pay was for their SAR group members. Twenty-five percent (12 out of 49) of the respondents felt this is a "critical" concern while 49% indicated that it was an "important" concern. Only 6% of the respondents indicated that this issue was an "insignificant" concern for their group members.

As SAR volunteers must also purchase their own personal SAR gear, the survey sought to discern how significant an issue this was for respondents and their SAR group members. Sixteen percent (8 out of 49) of the respondents felt that this is a "critical" concern for their SAR group members, while 59% indicated that it is an "important" concern. Eighteen percent of the respondents were "neutral" on this issue and only 4% felt that it was an "insignificant" concern.

A final question concerning financial impact to SAR volunteers focused on the current travel reimbursement policy for attending regional training events. Twenty-nine percent (14 out of 49) of the respondents felt that the current 65% reimbursement policy for travel costs was a "critical" concern for their SAR group members, while 65% of the respondents indicated that it is an "important" concern. Only 6% of the respondents indicated that their level of concern was either "neutral" or "insignificant". This indicates that 94% of respondents consider this an issue of concern.

The responses to these three survey questions regarding missed work, personal equipment costs, and training travel reimbursement limits indicate that SAR volunteers have substantial concerns with the financial costs of volunteering for their current GSAR role. The responses also indicate that SAR volunteers are likely to be very concerned with any additional financial costs that they would incur if they were to take on additional roles in emergencies and disasters.

The last question in this section looked at the significance of the provision of Work Safe BC and liability coverage. Sixty-nine percent (34 out of 49) of the respondents felt that the provision of these protections for SAR volunteers was "critical", while 22% indicated it as "important". Eight percent of the respondents were "neutral" on this issue. No respondents indicated that it was an "insignificant" concern or "not sure". Overall, 92% of respondents were concerned with this issue. The responses indicate that if SAR groups are to take on any potential emergency response roles, Work Safe BC and liability coverage must be extended to these activities.

Potential Emergency Roles

This section of the survey was designed to elicit information on the degree of interest by SAR groups to potentially taking on new roles in emergency response. With regards to the four potential emergency response roles outlined, the respondents indicated that they were either "interested" or "very interested" as outlined in Table 2.

Urban SAR	56% (25 out of 45)
Emergency Notification / Evacuation	84% (38 out of 45)
Leading Convergent Volunteers	76% (34 out of 45)
Emergency Incident Management	84% (38 out of 45)

Table 2 – Number of Respondents Either "Interested" or "Very Interested" in their SAR Group in Taking on Potential New Roles in Emergency Response

The urban SAR role received the highest number of responses indicating they were "uninterested" in taking on this role with 13% of respondents indicating this, while the other three potential roles received "uninterested" responses from less than 5% of the respondents. No respondents indicated that they were "very uninterested" in taking on any of the four roles. The highest number of "neutral" responses was for the urban SAR role at 31%, and the other three all received "neutral" responses by 20% or less of the respondents.

	Very Interested	Interested	Neutral	Uninterested	Very uninterested
Urban SAR	24.4% (11)	31.1% (14)	31.1% (14)	13.3% (6)	0.0% (0)
Emergency Notifications & Evacuations	22.2% (10)	62.2% (28)	13.3% (6)	2.2% (1)	0.0% (0)
Leading Convergent Volunteers	15.6% (7)	60.0% (27)	20.0% (9)	4.4% (2)	0.0% (0)
Emergency Incident Management	28.9% (13)	55.6% (25)	13.3% (6)	2.2% (1)	0.0% (0)

Table 3 - Level of Interest of Respondents in Taking on Additional Emergency & Disaster Response Roles

Note. Number in brackets indicates the number of respondents who selected that response.

The survey respondents were also asked about their level of concern related to taking on potentially new roles in emergency management. For each one of the potential areas of concern outlined in the question, respondents indicated a high level of concern ("significant" or "very significant"). In terms of *increased training demands*, 84% (38 out of 45) of respondents indicated a high level of concern. For *additional equipment required*, 87% (39 out of 45) of respondents indicated a high level of concern. In regards *suitability based on experience working in GSAR operations*, 80% (36 out of 45) of respondents indicated a high level of concern. For *lost work / wages of SAR volunteers*, 80% (36 out of 45) of respondents indicated a high level of concern. These responses indicate that any movement by SAR groups to assume new emergency response roles must consider and mitigate these concerns.

The next survey question looked at eleven common GSAR skills that SAR groups possess, and asked respondents if these skills were transferable or applicable to the four potential emergency response roles. In the context of the urban SAR role, 6 of the 11 common GSAR skills were assessed by more than 90% of respondents to be transferable to this new role. Of the remaining five common GSAR skills listed in the question, the lowest percentage of respondents who indicated these skills as transferable to urban SAR was 68%. For the role of emergency notifications and evacuations, seven of the 11 common GSAR skills were viewed by 50% or more of the respondents as transferable. The role of leading convergent volunteers also had seven of the 11 common GSAR skills viewed by 50% or more of the respondents as transferable. The emergency incident management role had only four of the seven common GSAR skills being seen by 50% or more of the respondents as transferable. Overall, the results to this question indicated a strong link between existing GSAR skills and their utility in each of the four potential emergency response roles, with urban SAR being identified as having the highest levels of transferability.

The survey respondents were next asked to indicate how common GSAR equipment would be of use to SAR groups in carrying out the four potential emergency response roles. The urban SAR role demonstrated a strong link, with over 90% of respondents indicating the utility of 4 of the 6 types of equipment. The use of existing SAR equipment when acting in the role of emergency notification and evacuation was seen by 75% or more of respondents as useful for 5 of the 6 types of equipment. When acting in the role of leading convergent volunteers, 3 of the 6 equipment types were viewed by 75% or more of the respondents as being useful. As for the emergency incident management role (which is less reliant on equipment), only 2 of the 6 common equipment types were viewed by 75% or more of the respondents as useful.

The final survey question in this section asked how transferable the experience gained by SAR volunteers in their traditional GSAR roles would be to perform four identified emergency response roles. The majority of respondents believed the experience of SAR volunteers was transferable to all four roles. For urban SAR, 60% of respondents felt GSAR experience would be valuable. For emergency notification and evacuation 73% of respondents felt GSAR experience would be valuable. For leading convergent volunteers 78% of respondents felt GSAR experience would be valuable. In regards to emergency incident management 80% of respondents felt that GSAR experience would be valuable. Only 2% of respondents indicated that they were "unsure" as to whether GSAR experience would be useful for the urban SAR role. No respondents selected "unsure" for any of the other potential emergency response roles. The highest percentage of "no" responses (indicating that the GSAR experience is not transferable) attributed to any of the four potential emergency response roles was for urban SAR, where 4% of the respondents selected this response. The remainder of the respondents indicated that GSAR experience would be "somewhat" transferable to each of the four potential emergency response roles.

Overall Support

The final section of the survey was designed to gauge the overall desire or interest SAR group respondents' to assume new roles in emergency response. The first question asked respondents to rank each of the potential emergency response roles in terms of fit with the existing equipment, skills and experience of their SAR group and the desirability for their group to take on the potential new emergency response role. Respondents were asked to indicate whether fit and desirability were "high", "low", or "medium". Each of the four potential roles was ranked as "high" for both fit and desirability, by the majority of respondents. Of the four roles "Urban SAR" was deemed by the greatest percentage of respondents as a "low" fit and desirability with 13% of the respondents selecting "low".

A resounding majority (96% or 43 out of 45) of respondents identified the provincial government as the organization or level of government that should provide the additional funding necessary for equipment and training to facilitate SAR groups' role expansion. A total of 89% of respondents suggested funding should come from the federal government, while 82% of respondents identified the regional government, and 73% of respondents indentified the local government as the appropriate source for additional funding. This was followed by 49% of respondents who indicated BCSARA, and 11% of respondents who suggested that the extra funding should come from the SAR groups themselves.

Question three in this section asked respondents if they agreed that SAR volunteers should be paid for fulfilling emergency response roles outside their traditional GSAR roles. Fifty-one percent (23 out of 45) of respondents indicated that they either "agree" or "strongly agree". However, 29% of respondents indicated that they "disagree" or "strongly disagree" with

the idea. The remaining respondents (20%) indicated that they were "neutral" on this issue. This question generated many comments from respondents. The majority of comments indicated support for the idea though one respondent indicated that this should not apply to traditional GSAR activities. Generally, respondents indicated that if they are working alongside paid professionals and paid volunteer fire fighters in emergency settings, then they too should be paid.

The final question in this section asked respondents to identify their overall support for SAR groups taking on additional emergency response roles. Forty-two percent (19 out of 45) stated that they "strongly agree" with this idea. A further 44% of the respondents indicated that they "agree" with SAR groups taking on these potential roles. Nine percent of the respondents indicated they were "neutral" on this issue (see Figure 6 below). Four percent of the respondents selected either "disagree" or "strongly disagree" with the idea of SAR groups taking on the potential emergency response roles. From the perspective of SAR group representatives these responses clearly demonstrate an interest in taking on additional roles in emergency response.
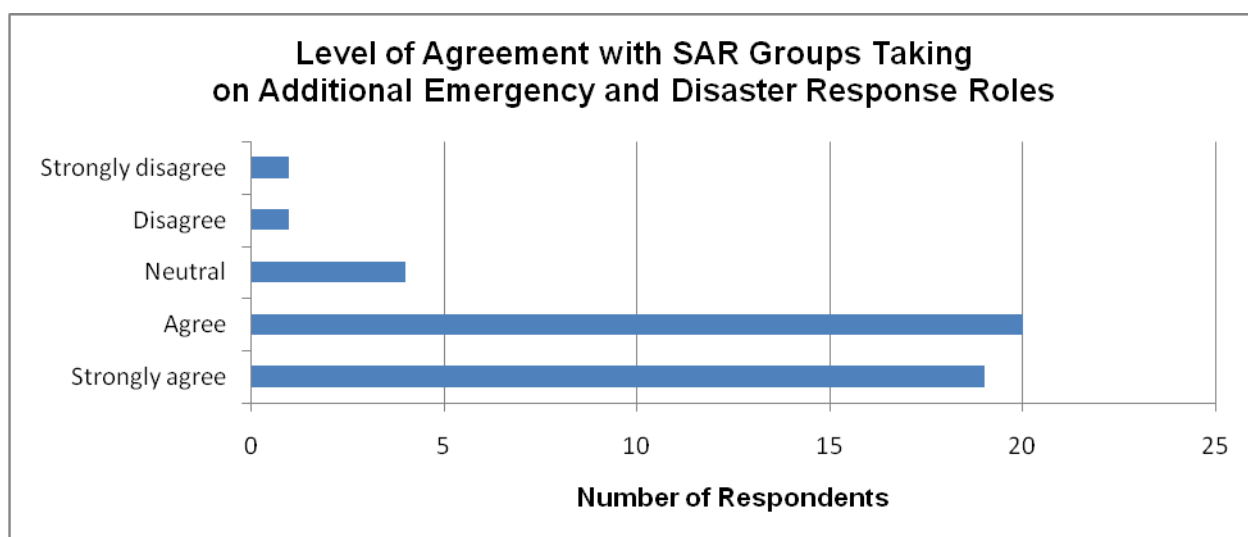

Figure 6 - Level of Agreement with SAR Groups Taking on Additional Emergency & Disaster Response Roles

Additionally, some of the respondents focused on the need for additional funding for both equipment and training to perform these new roles. Some respondents pointed out that they are already being called upon for assistance in emergencies and disasters, yet are not being trained to do these tasks. They also observed that they are not included in emergency planning, drills, or exercises, which they felt was required by them to build relationships and trust with other responders and emergency managers. A number of comments related to the increased time commitment that accepting potential new emergency response roles would entail and how SAR volunteers could manage these additional demands.

Tasking Agency Survey Introduction

The tasking agency version of the survey is divided into six sections. The first section provides some background information on the survey and asks the respondent to identify their respondent category and the community, region, detachment, provincial agency, or organization they represent. The second section poses a series of questions around the current use of GSAR groups. The third section is comprised of questions on financial support and liability coverage that organizations provide for GSAR groups. The fourth section contains a series of questions on the potential emergency response roles of GSAR groups. The fifth section focuses on questions related to the overall support for GSAR groups assuming emergency response roles. The sixth section is simply a conclusion thanking the respondent for their time and input. The entire tasking agency survey is contained in Appendix F.

Tasking Agency Survey Results

Overview

The tasking agency version of the survey received a total of 81 responses, with 52 of the respondents completing the survey in its entirety. Fifty-four percent (44 out of 81) of the respondents identified themselves as local or regional government emergency program coordinators. According to the Union of BC Municipalities (UBCM) website, there are 189 local and regional governments in the province (Union of BC Municipalities, 2008). This indicates that 23% of the local and regional governments in BC provided a response to the survey, though it is unknown as to what percentage of these governments ultimately received the survey. Nine percent (8 out of 81) of the respondents identified themselves as representing one of the 139 RCMP detachments in the province. No responses were received from any of the province's 11 municipal police forces. Twenty-five percent (20 out of 81) of the respondents identified themselves as representing a provincial government agency or ministry. The remaining 12% (10 out of 81) of the survey respondents identified themselves as "other" and included organizations such as fire departments, Canadian Coast Guard Auxiliary, and Parks Canada. The list of all respondents indicated a well distributed geographic response from across the province, and included both very small communities as well as medium and large urban centres.

Current Use of SAR

In terms of the current use of SAR groups in the province, the activities where groups

were most often utilized included GSAR with 63% (40 out of 64), emergency notification and

evacuation with 58% (37 out of 64), as well as rope and swiftwater rescue at 44% (28 out of 64)

of respondents respectively. Twenty-two percent (14 out of 64) of the respondents indicated that

their organization does not currently utilize SAR groups. One would clearly expect the high

usage of SAR groups for traditional GSAR activities, but the response for emergency notification

and evacuation demonstrates the importance of this non-traditional role for the respondents.
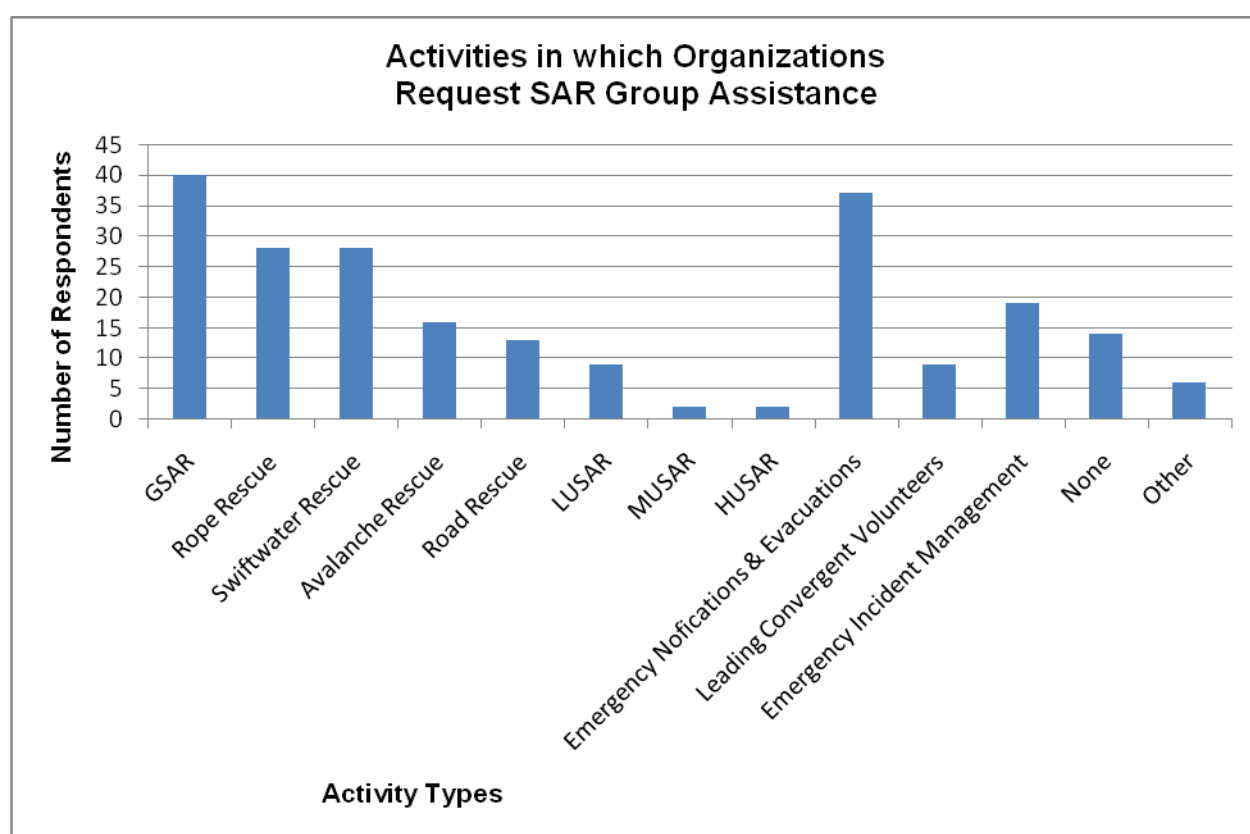
Figure 7 - Activities in which Organizations Request SAR Group Assistance

The most common types of incidents where respondents requested the assistance of SAR

groups included floods (34%), urban interface fires (27%), plus snow and ice storms (23%). It

was interesting to note that each of the incident types listed in this question received at least one

positive response. Other types of incidents that respondents have used SAR groups for (that were not listed in the question itself) included traffic control, bomb threat, and a structural fire in an unincorporated community.

The most frequent use of SAR groups in terms of number of requests for assistance, was for traditional GSAR activities, with 11% (7 out of 64) of respondents indicating that they called upon a SAR group more than 10 times per year for a GSAR response. Respondents indicated that they activated SAR groups between one and three times per year for the following non-traditional SAR roles: emergency evacuations (23%); emergency notification (30%), and emergency incident management (20%). As one might expect, SAR groups in the province are predominantly being used in traditional GSAR roles. However, it is interesting to see the number of respondents that are using SAR groups for non-traditional roles in a wide array of incidents.

Financial and Liability Information

In regards to providing funding for SAR group training, 53% (31 out of 59) of respondents indicated that they provide no funding at all, with another 12% (7 out of 59) being unsure whether their organization provides any training funds to SAR groups. Nineteen percent (11 out of 59) of the respondents indicated that their organization contributes between $1 and $5,000 per year to SAR groups for training. Fifty-six percent (33 out of 59) of respondents indicated that they provide non-monetary support to SAR groups for training, with over 50% providing things such as meeting space, training space, and office equipment/services.

Funding support for the equipment needs of SAR groups was provided by 41% (24 out of 59) of the respondents. Fourteen percent (8 out of 59) provided between $1 and $5,000 per year, and 7% (4 out of 59) provided between $10,001 and $25,000 per year. Twenty-four percent (14 out of 59) of respondents indicated that they provided non-monetary support to SAR groups annually for their equipment needs. The non-monetary support provided to SAR groups was typically in the form of an equipment donation, a service (e.g., vehicle maintenance), or usage of equipment. Vehicle insurance and vehicle or equipment storage space were provided by 27% and 39% of respondents, respectively.

Potential Emergency Roles

Respondents were asked if each of 11 common GSAR skills would be transferable to the four potential emergency response roles. In terms of urban SAR, 6 of the 11 common GSAR skills received 80% (40 out of 53) or greater response rate, indicating a good match between the skill and the role. Only one of the 11 common GSAR skills received a rating of less than 50%. In terms of the emergency notification and evacuation role 7 out of 11 common GSAR skills were seen by greater than 50% of respondents as transferable. For the role of leading convergent volunteers, 6 out of the 11 common GSAR skills were seen as transferable by at least 50% of respondents. For the role of emergency incident management 5 out of 11 common GSAR skills were seen by greater than 50% of respondents as transferable.

In terms of common SAR group equipment and its applicability in potentially new emergency response roles, the responses indicated that the role of urban SAR was the best fit. Of the 6 types of common SAR equipment listed in the survey question, over 80% of

respondents indicated that 4 of the equipment types were a good fit for the urban SAR role. In terms of the role of emergency notification and evacuation 5 of 6 common types of SAR equipment were viewed by greater than 50% of respondents as transferable. For the role of leading convergent volunteers 3 of 6 common types of SAR equipment were viewed by greater than 50% of the respondents as transferable. For the role of emergency incident management 2 of 6 common types of SAR equipment was viewed by greater than 50% of the respondents as transferable.

The next survey question looked at the experience developed by SAR groups in their traditional GSAR roles, and whether or not it was relevant to the four potential emergency response roles. A majority of the respondents indicated that the SAR groups' experience developed in the course of their traditional GSAR role was indeed relevant. In terms of carrying out the urban SAR role 74% of respondents felt GSAR experience would be valuable. For the emergency notification and evacuation role 78% of respondents indicated GSAR experience would be valuable. For the role of leading convergent volunteers 63% of respondents indicated that GSAR experience would be valuable. In regards to the role of emergency incident management 56% of respondents felt GSAR experience would be valuable. There were also significant percentages of respondents who felt that the experience developed by SAR groups was "somewhat" relevant and very few that indicated that there was "no" relevance.

Respondents were next asked about their level of interest in seeing SAR groups take on each of the four potential emergency response roles. Fifty-six percent (30 out of 54) of the respondents indicated that they were "very interested" in SAR groups taking a role in emergency notifications and evacuations, with an additional 39% being "interested" in SAR groups taking on this role. Forty-three percent of respondents were "very interested" in SAR groups taking a

role in urban SAR, with an additional 30% "interested". The potential roles of SAR groups in leading convergent volunteers and emergency incident management were also strongly supported, with an aggregate percentage of respondents in the "very interested" and "interested" category, at 82% and 72% respectively. Generally speaking, those respondents who indicated they were either "uninterested" or "very uninterested" in seeing SAR groups take on each of the potential emergency response roles was less than 10% on aggregate, and in every case, less than half the number of respondents indicated they were "neutral" on this issue.

	Very Interested	Interested	Neutral	Uninterested	Very uninterested
Urban SAR	42.6% (23)	29.6% (16)	20.4% (11)	5.6% (3)	1.9% (1)
Emergency Notifications / Evacuations	55.6% (30)	38.9% (21)	5.6% (3)	0.0% (0)	0.0% (0)
Leading Convergent Volunteers	29.6% (16)	51.9% (28)	18.5% (10)	0.0% (0)	0.0% (0)
Emergency Incident Management	25.9% (14)	46.3% (25)	18.5% (10)	7.4% (4)	1.9% (1)

Table 4 - Level of Interest of Organizations in Seeing SAR Groups Take on Additional Emergency & Disaster Response Roles

The final question in this section asked the respondents whether there were other potential emergency roles for which SAR groups might be a good fit. Several respondents indicated traffic management, which does have some overlap with emergency evacuations. Several other respondents identified the potential for SAR groups to assist with medical emergencies, mass casualties, and triage, due to SAR groups existing first aid skills. The other

responses would be captured under traditional GSAR roles or the four potential roles outlined in the survey questions.

Overall Support

The final section of the survey was intended to capture the overall level of support from respondents for SAR groups to take on potential emergency response roles. Forty-three percent (23 out of 54) of the respondents indicated that they would be willing to provide support to SAR groups to facilitate their expansion into additional emergency response roles. Eleven percent of the respondents indicated that they would not provide support, while 46% stated that they were "unsure" if they would be able to provide support. In terms of the type of support that the respondents would be willing to provide to SAR groups to facilitate their expansion into new roles, 76% (25 out of 33) indicated they would be willing to provide facilities for SAR group training and meetings. Forty-nine percent indicated they would be willing to provide facilities for SAR group equipment and vehicle storage, and 39% indicated they would be willing to provide training directly to SAR groups. Thirty-three percent indicated a willingness to provide funds for SAR group-specific training, and 30% indicated a willingness to provide funds for equipment.

Respondents were asked to rank the four potential emergency response roles from their organization's perspective, in terms of fit and desirability. Urban SAR and emergency notification and evacuation notification and evacuation were ranked as "high" by a majority of the respondents with 61% and 72% (33 and 39 out of 54) respectively. The potential roles of leading convergent volunteers and emergency incident management were ranked by the majority

of respondents as "medium" by 50% and 48% of respondents respectively. In terms of "low" rankings, the greatest number of respondents indicating a potential role as "low" in terms of fit and desirability was urban SAR, where 22% (12 out of 54) indicated "low" rank. With over 80% of respondents indicating a rank of "medium" or "high" for all four potential roles, there is clearly substantial support for having SAR groups provide these services.

When looking at the question of fit and desirability between the four types of agency respondents (local government emergency program coordinators, police, provincial agency and other), it was interesting to see how the results varied between these groups. The following table shows the percentage of respondents who selected "high" in regards to the fit and desirability for SAR groups to take on each of the potential emergency response roles. The most striking difference emerges with provincial agency respondents' ranking of USAR, where only 30% selected "high". It is also interesting to see that only 23% of local government respondents ranked emergency incident management as "high". Table 5 shows the responses to this question when sorted by the organization type.

	Local Government	Police	Provincial Agency	Other
USAR	63%	86%	30%	71%
Notifications & Evacuations	80%	71%	60%	57%
Leading Convergent Volunteers	27%	57%	40%	43%
Emergency Incident Management	23%	43%	50%	29%

Table 5 – Perceived Fit & Desirability of SAR Groups for Additional Emergency & Disaster Response Roles, by Organization Type

Survey respondents were also asked where funding should come from to support the expansion of SAR groups into potential new emergency response roles. Seventy-four percent (40 out of 54) of the respondents felt that primary funding should come from the provincial government, with the next highest ranked primary funding source being the federal government (30% of respondents). Respondents ranked regional government (54%), federal government (43%), and local government (38%) as the appropriate levels for secondary funding. In terms of possible funding, 49% of the respondents indicated that individual SAR groups themselves come up with funding, followed closely by 46% of respondents who indicated BCSARA as a possible funder. Twenty-five percent of the respondents indicated that local SAR groups should not have to provide any of the funding, while 19% of the respondents indicated that BCSARA should not have to provide any funding.

Survey participants were asked whether SAR group members should be compensated for time spent responding to emergencies. Sixty-three percent (34 out of 54) of respondents indicated that they either "strongly agree" or "agree" that SAR volunteers should be paid for emergency response work, with an equal number of respondents in each category. Fifteen percent (8 out of 54) of respondents indicated they either "strongly disagree" or "disagree" with SAR volunteers receiving compensation for emergency response work. Twenty-two percent of the respondents indicated that they were "neutral" on this issue. Figure 8 below shows the full range of responses to this question.
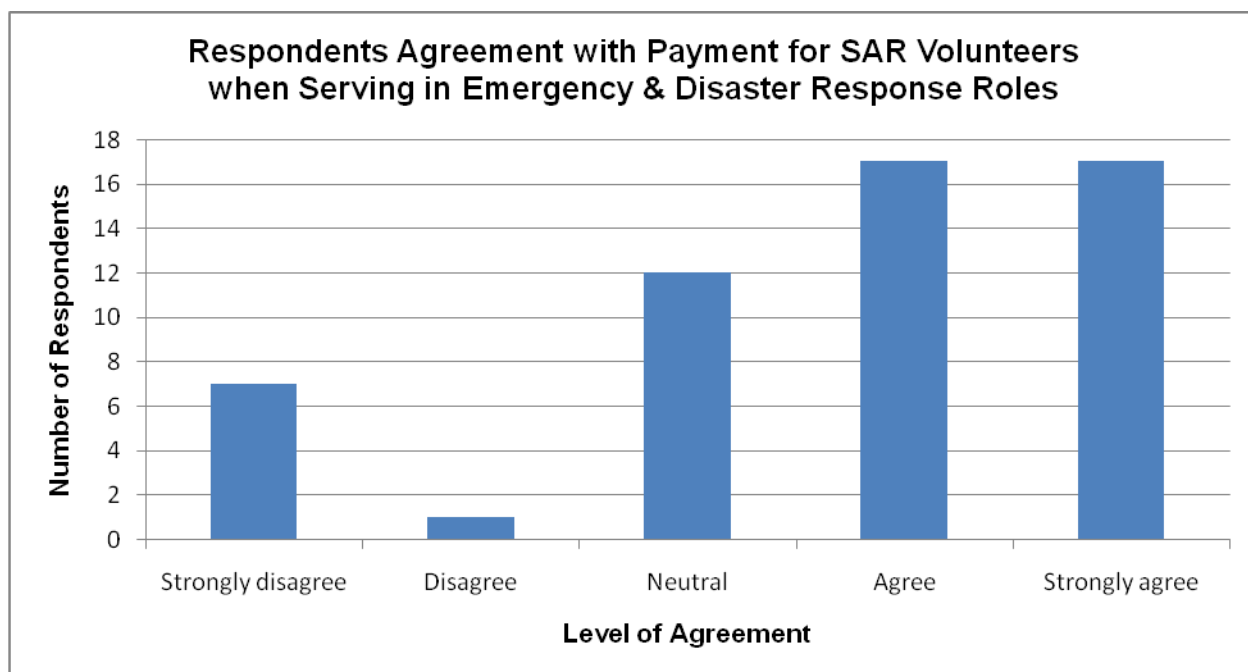
Figure 8- Respondents Level of Agreement with Payment for SAR Volunteers when Serving in Emergency & Disaster Response Roles

The final question on the survey asked survey respondents for their overall level of support for the concept of SAR groups taking on additional emergency response roles. Fifty-four percent (29 out of 54) of the respondents answered that they "agree" with the concept of SAR groups taking on additional emergency response roles. A further 15% of the respondents reported "strongly agree" with the concept. Eighteen percent of the respondents were "neutral", with 15% indicating they either "disagree" or "strongly disagree". When this question was cross-tabbed by respondent type, it was interesting to note the differences amongst the different respondent groups, shown in Table 6.

	Local Government	Police	Provincial Agency	Other
"Agree" or "Strongly Agree"	67%	100%	60%	57%

Table 6 - Percentage of Respondents who "Agree" or "Strongly Agree" with the Concept of Using SAR Groups in Emergency & Disaster Response, by Organization Type

Eighteen respondents provided additional comments or feedback on the survey. Numerous comments related to the need to ensure appropriate training prior to SAR groups taking on new roles in emergencies, and that proper consideration must be given to the time required for training. Other comments were related to training being consistent with BCERMS and the need to engage SAR groups in community emergency training, drills, and exercises. A couple comments expressed the need for funding to support the expansion into new emergency response roles. One comment recognized that SAR groups are already being called upon to provide some of these roles, but that proper training needs to be provided. A single respondent did express concern that the survey itself was "strongly worded to try and get specific answers", and therefore felt that the survey was valueless.

Conclusions and Recommendations

Conclusions

The research undertaken on this project indicates that BC's volunteer SAR groups see their primary role as the provision of ground and inland water search and rescue services in the province. However, many also believe that they have a role in emergency response as evidenced

by their training and previous participation in these roles. There also appears to be an underlying sentiment that these groups are willing to do whatever is asked of them during an emergency incident, and a belief that tasking agencies should not overlook given the significant resource that SAR groups represent. Existing and potential tasking agency respondents showed a very similar view to that held by the SAR group respondents in that they see the SAR groups' primary role as the provision of GSAR related services, but that they also can and do play a role in emergencies and disasters.

The survey results from both the SAR group version and the tasking agency version indicate a strong desire to see SAR groups involved in all outlined areas of emergency response, as well as others as required. The survey results also indicate that both groups of respondents see a strong fit in terms of the existing skills, equipment and experience of SAR groups with the four emergency response roles outlined.

A number of impediments were identified by both groups of respondents that could preclude the formal adoption or addition of new emergency response roles. The most significant impediment appears to be the amount of additional time required for the SAR groups to properly train for these roles. Funding appeared to be the next most significant impediment, and also relates to the time issue. If sufficient additional funding can be secured to reduce the significant time investment of SAR groups in fundraising activities, the concern over additional training may not only be eliminated, but could potentially lead to a reduction in the overall time commitment of SAR volunteers. Other impediments that were identified included lost wages during emergency responses and the provision of appropriate volunteer health and legal protection.

The implications for both community and provincial emergency response capacity are quite profound. The literature review and the survey results indicate that response capacity can be and has been an issue in BC. The number of SAR volunteers available in the province represents a significant existing resource of skilled, experienced, equipped and organized personnel. The geographic spread of the groups around the province as well as the existing procedures for the movement of SAR volunteers around the province means this resource can be accessed quickly, which will improve response and life-saving efforts. The cost effectiveness of using existing SAR groups seems very apparent based on the literature review findings, which demonstrate the value of using volunteers, especially where the groups already possess skills, experience, and equipment that can be immediately applied to emergency response roles. Additional benefits of using SAR groups in emergency response roles includes their inter-operability with other SAR groups, the existing level of trust and familiarity that has been developed while working with other professional responders in GSAR roles, and the fact that volunteer interest can be maintained between emergency activations through activations in GSAR roles.

Recommendations

1. Develop an Agreement on Emergency Response Roles

Provincial SAR groups should be engaged by PEP and other key stakeholders to determine the desired nature and extent of SAR groups' role(s) in emergency response. Based on the survey results there is significant support from both existing and potential tasking agencies, as well as the SAR groups themselves to have SAR groups take on all of the four potential emergency response roles at a level commensurate with their ability to train and perform these roles.

The strong link between the skills, equipment and experience of provincial SAR groups with each of the four potential emergency response roles provides further support to the concept of SAR groups taking on some or all of these roles. The skills, assets and experience of SAR groups have been developed through the dedication, hard work, and funding efforts of the province's SAR volunteers, as well as the key stakeholders who supported them in their work. The planned and effective use of these valuable assets in emergency incidents appears to be a very cost effective way for the province and other level of governments to increase response capacity and enhance public safety.

As indicated in the survey results, SAR groups are already being engaged in emergency incidents and thus formalizing their role and ensuring policies and procedures are in place to guide their involvement seems both necessary and prudent. By formalizing the role of SAR groups in emergencies, the SAR groups will be able to strengthen their own capabilities and engage with other professional responders in emergency planning, drills, and exercises. Clear

recognition of the role of provincial SAR groups in emergencies and disasters will reduce role

ambiguity during an incident and help foster trust and integration among responders.

Based on the results from both surveys, it is recommended that SAR groups should be

given consideration for all four of the potential emergency response. In terms of urban SAR, it is

recommended that the Light Urban SAR level would be most appropriate, based on the training

and equipment requirements at this level. The extent of the role of SAR groups in notification

and evacuations will need to be outlined. Leadership of convergent volunteers will require

tasking agencies to develop systems for managing convergent volunteers, and determine the

roles where they will be used prior to formalizing the role of SAR groups in this area. Using

SAR groups in emergency incident management would require further consideration as to when

and where to utilize the SAR volunteers.

Individual SAR groups should have the final say as to whether they develop an

emergency response capacity, as is the case with traditional GSAR specialty roles such as rope

and swiftwater rescue.

2. Develop a Funding Model to Support Emergency Roles

PEP should work with the various levels of government and the SAR community to

develop an appropriate funding model to support SAR groups entry into new (or formalized)

emergency response roles and address gaps in existing funding. Based on the survey results, no

single level of government should shoulder the full cost of funding SAR groups in these roles.

The various participants should work together to establish a shared funding model that is

equitable and ensures that SAR groups across the province are equally supported. Local and

regional governments may be much more inclined to provide financial support to provincial SAR groups if their role is clearly expanded to provide emergency response services within local government jurisdictions, versus the current situation where many of the traditional GSAR roles are performed outside their boundaries.

The development of a funding model is critical to gain SAR group support to move forward with the concept of SAR groups formally accepting emergency response roles. The survey results clearly demonstrate that SAR volunteers are already giving substantially, both financially and in terms of their time, to provide a valuable public service. Appropriate funding would reduce the substantial amount of time many SAR groups currently must devote to fundraising. Liberating the SAR groups from their current fundraising demands would allow them to devote that time to the additional training required to properly prepare for their new role(s) in emergency response.

3. Develop a Training Program for Emergency Response Roles

For SAR volunteers to perform emergency response role(s) safely and effectively, it is imperative that appropriate training courses and materials are developed and provided. As the survey responses indicate, some SAR groups are already being utilized in emergency response roles, even though little or no training has been provided. Lack of formal training and preparation for the SAR volunteers undertaking these roles not only puts into question the safety of the volunteers, but also raises questions of liability that tasking agencies themselves will need to address.

There are a variety of available training materials and courses that could be borrowed from or adapted for use by provincial SAR groups. The existing expertise of the Justice Institute's Emergency Management Division and the PEP Academy at the Justice Institute support the notion that these bodies would be well suited to lead the development of a training program. For instance, the Justice Institute has already developed some training for Light Urban SAR.

A critical factor in the development of a training program will be to determine the length and content of training required to ensure that it does not exceed the available SAR volunteer time. As survey respondents indicated, any role that SAR groups take on in emergency response should be commensurate with the time they have available to train and prepare for that role. Due to the correlation between the existing GSAR skills and experience of SAR volunteers, and the potential emergency response roles, additional required training may be less than may be initially anticipated.

Appendix D includes a list of some of the existing training courses that may be applicable for SAR groups in relation to the four potential emergency response roles outlined. Once it is determined what emergency response roles SAR groups will assume, consideration should be given to the pros and cons of establishing a single emergency response training program versus individual courses for each of the roles assumed.

4. Ensure Appropriate Volunteer Coverage for Emergency Response Roles

Responses to the GSAR version of the survey indicated clear concern that Work Safe BC and liability coverage need to be in place for SAR groups and their volunteers that are requested

to serve in emergency response roles. The Provincial Emergency Program and others key stakeholders should work together to ensure these protections are in place, and verify who provides these coverages, and under what circumstances.

5. Address Remuneration for Emergency Response Roles

PEP and other key stakeholders should work together to address the issue of lost wages of SAR volunteers when serving in an emergency response role. The majority of survey respondents in both versions of the survey agreed with the concept that SAR volunteers should be compensated for work in emergency responses. This issue should not be construed as one where volunteers are seeking to gain monetarily from emergencies, but simply a matter of ensuring volunteers (and their families) are not financially burdened or precluded from responding because of the costs to them.

There are number of approaches that could be taken for compensating SAR volunteers for their time spent serving in emergency response roles. A daily rate could be established that all SAR volunteers would be paid for their emergency response work. Another option might be to have a set daily rate that is considered after a specified number of days of emergency response work. Other ideas that could be explored are tax exemptions and deductions, annual stipends, and indirect monetary incentives. Providing SAR volunteers with some form of financial compensation when responding to emergency incidents would certainly be a lower cost option than adding additional paid responders.

SAR survey respondents commented on this as being an issue of fundamental fairness that emerges in emergency responses, where professional responders and volunteers such as

firefighters are paid for their service where SAR volunteers doing the same or comparable jobs are not. SAR volunteers, as all citizens of the province, need to support their families, pay their monthly rent or mortgage payments, and cover a variety of living expenses. Tasking agencies and the public should not expect SAR volunteers to provide emergency response services at the expense of their personal financial security.

However, it should be clear that the concept of payment for services does not extend to the current GSAR roles of SAR volunteers. GSAR activities are typically of a shorter duration than one might encounter in an emergency, and especially in a disaster situation. In GSAR operations, the SAR volunteers are also not working side by side with other responders who are being paid to carry out the exact same duties, and therefore the issue of unequal treatment does not arise.

Chapter 5 - Research Implications

Use of Recommendations

To effectively address the recommendations provided, it is critical to engage the entire array of SAR stakeholders and the various orders of government. It would be very difficult to move forward with any of the recommendations without these participants working together to reach some form of consensus. Ultimately, these recommendations could act as a catalyst to increase BC's emergency response capacity, strengthen the existing SAR program, address existing financial concerns, and increase inter-organizational cooperation.

The research suggests that PEP serve as the lead organization to address the study's recommendations. PEP was identified as such, solely in recognition of its role as the coordinator of ground and inland water SAR groups in the province, as well as its larger responsibility to ensure the province is properly positioned to address significant emergencies and disasters. It should be noted and acknowledged that the recommendations are not necessarily within the purview of the province of BC to implement.

BCSARA may also be an appropriate vehicle to address the recommendations provided. BCSARA includes representation from PEP, the RCMP, SAR groups and other tasking agencies, which includes a significant number of the stakeholders required to address the recommendations. Consideration could be given by BCSARA to the creation of a *Director at Large* position in their organization to lead a committee tasked with addressing the recommendations.

Future Research

Funding of Search and Rescue Programs

Funding is a major issue for the existing search and rescue program in BC and appears to be inadequate to meet the stated needs and expectations of SAR groups and the public. The SAR Strategic Plan Working Group (1996) examined various ideas to address the shortfalls in funding the provincial SAR program. Examples include taxes on outdoor equipment, charging subjects for search and rescue costs, requiring backcountry users to purchase insurance, and others. An opportunity exists to analyze and re-evaluate the various options and could include a review of how other jurisdictions have addressed this issue.

Value of the Provincial Search and Rescue Program

Some information was presented in this paper related to value of the SAR program to British Columbian's, however, it does not appear that PEP, BCSARA or others have carried out research to fully quantify the value. There is a need to conduct further research to quantify the value that SAR groups provide in the province, and examine the costs versus benefits of the current SAR model. The research could include an assessment of the value to the province of utilizing SAR groups in emergency response roles. Information on the value of the SAR program and the services it does, or could provide, would be of use to both the SAR community and key stakeholders. This information would assist decision makers in determining what services SAR groups should provide, and what levels of funding are appropriate.

SAR groups and their Membership

Information on the number and makeup of SAR groups in the province does not appear to be consistent or reliable. Research should be undertaken to verify the number of SAR groups in the province and compile better information on the SAR group's capabilities. It appears that neither PEP, nor BCSARA have clear information on the total number of active SAR volunteers in the province, and the specific qualifications they possess. Research on this topic would be of value to BCSARA in their support of the provincial SAR groups, and would provide a true accounting of capacity and capability for PEP and tasking agencies.

Use of Volunteers in Urban SAR

The United Nations, FEMA and Public Safety Canada have all developed information on USAR levels and requirements but this information is primarily focused on the establishment of professional USAR teams. Additional research could be conducted to assess what the most appropriate level of USAR is for SAR or other volunteer groups, and how these volunteers could be integrated with professional USAR teams. This research would be of value to the SAR community and would assist key agencies in determining the role and use of volunteers in USAR activities.

Chapter 6 - Lessons Learned

Survey Design

It is important to develop a survey review team to review the survey questions and test the survey. Based on the comments received, there were several questions on the survey that appeared to have caused some confusion for the respondents. Having additional people with subject matter expertise would have assisted in the design of the research survey and would have ensured that the questions were clearer for the respondents. Having multiple people test the survey prior to its launch would have assisted in ensuring all ambiguity had been removed and respondents were able to answer the questions as intended.

A key challenge lies in providing sufficient information for intended respondents to answer survey questions, without adding too much content that might result in a lengthier survey, and potentially frighten off these respondents. The tasking agency version of the survey was particularly challenging because, unlike the SAR group audience, the tasking agency target audience was much more diverse. Therefore, survey questions had to be more generic, which resulted in them being less meaningful to some of the respondents or appeared less applicable to their organization. Additional versions of the survey could have been created in an attempt to better focus the questions for the different target audiences. However, this may have made comparing the survey results more challenging.

Survey Timing

A couple issues arose in terms of the timing during which the surveys were circulated for response. The surveys were open during the first three weeks of December 2008, and this timing may have reduced the number of responses as some potential respondents may have been preoccupied with the approaching holiday season, or year-end deadlines and activities. Unfortunately, due to academic time constraints the survey could not be delayed. An earlier launch of the surveys was precluded due to the design, review and approval processes. In retrospect, survey delivery earlier in the fall or spring may have resulted in higher response rates.

An additional timing factor was the release of a number of other non-associated surveys to both SAR groups and emergency management personnel in the province. In November, the Justice Institute and BCSARA distributed a training survey to all SAR groups in the province, and PEP circulated a survey on the BC Emergency Response Management System. As both of these surveys had a similar and overlapping target audience, there may have been some survey fatigue on the part of potential respondents, which may have had a negative impact on survey response rates.

Survey Recipients

It was challenging to deliver the surveys to the target audiences through the various intermediaries used to circulate the surveys. Many people are concerned with the receipt of unsolicited email or other forms of correspondence, and in many cases organizations actively shield their members from such correspondence.

There was some initial difficulty in distributing the tasking agency version of the survey via PEP (the project sponsor). Because of early confusion within PEP as to what assistance it would provide in distributing the survey, there was some initial hesitation to send the surveys out via PEP's contact lists. It became important, therefore, to work with the project sponsor to ensure that these matters were discussed and resolved at the earliest stages of the project, and that the necessary information was shared throughout the organization as required.

The distribution of the SAR group version of the survey through BCSARA Regional Directors was also challenging. BCSARA agreed to assist with the research project and indicated its willingness to be an official project sponsor. As survey results started to arrive, it appeared that several regions in the province did not receive the survey information. This problem was overcome through the assistance of past BCSARA Regional Directors and the use of alternate contact methods.

Another distribution problem emerged over RCMP Members who could not open the circulated survey web link, likely due to RCMP internet security protocols. The problem was resolved through the provision of an alternate access to the survey. However, it likely resulted in a lower response rate.

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Appendices

Appendix A – Approved Activities of Provincial SAR Groups in BC

Eligible Search Activities	Eligible Rescue Activities	Ineligible Activities
- wilderness search - urban search - surface searching on water - equine search - dog search - evidence search [1] - air search	- avalanche rescue - swift water rescue - medical rescue [1] - cave rescue - rope rescue - helicopter rescue - mountain rescue - domestic animal rescue [1]	- underwater search and recovery involving the use of diving apparatus by volunteers [1] - hazardous material response and/or cleanup - tree rescue (arboreal rescue) [1] - fire suppression (structural or wild land) - searching for potentially dangerous individuals (people who may be armed with weapons, people who may be violent, people engaged in criminal activities, people fleeing from the police, etc) - transporting BCAS patients to medical care (riding in ambulances, driving ambulances, etc) - BCAS First Responder patient move assists or lifts [1] - Transporting police or other law enforcement or regulatory agencies involved with search/apprehension of dangerous individuals/ criminal investigations - Transporting fire department crews engaged in fire response activities

Table 7 - Tasks Supported and Not Supported by PEP for SAR Group Participation

Note. [1] These activities come with additional qualifiers in PEP Policy.

Source: Provincial Emergency Program (2008d)

Appendix B - Ground Search and Rescue Groups in British Columbia

BC Search and Rescue Association Region	SAR Group Name
Northwest North	- All Islands SAR (Queen Charlotte Islands) - Atlin SAR - Fort St. James SAR - Houston SAR - Prince Rupert SAR
Northwest South	- Bulkley Valley SAR - Burns Lake SAR - Kitimat SAR - Nechacko Valley SAR - Terrace SAR
Northeast North	- Chetwynd SAR - Fort Nelson SAR - North Peace SAR - South Peace Emergency Response Team - Tumbler Ridge SAR
Northeast South	100 Mile and District SAR - Bella Coola Valley SAR - Central Caribou SAR - Mackenzie SAR - Prince George SAR - Quesnel SAR - Robson Valley SAR - West Chilcoltin SAR
Central North	- Barriere SAR - Kamloops SAR - Logan Lake SAR - Lytton SAR

	• Nicola Valley SAR • Shuswap SAR • Vernon SAR • Wells Gray SAR
Central South	• Central Okanagan SAR • Keremeos SAR • Oliver – Osoyoos SAR • Penticton and District SAR • Princeton SAR
Southwest West	• Coquitlam SAR • Lions Bay SAR • North Shore Rescue • Pemberton District SAR • Squamish SAR • Sunshine Coast SAR • Surrey SAR • Whistler SAR
Southwest East	• Central Fraser Valley SAR • Chilliwack SAR • Hope SAR • Kent Harrison SAR • Mission SAR • Ridge Meadows SAR
Southeast West	• Castlegar SAR • Grand Forks SAR • Kaslo SAR • Nakusp SAR • Nelson SAR • New Denver / Silverton SAR • Rossland SAR • Salmo SAR • South Columbia SAR

Southeast East	- Columbia Valley SAR - Cranbrook and District SAR - Elkford SAR - Fernie SAR - Golden SAR - Kimberley SAR - Revelstoke SAR - Sparwood SAR
Vancouver Island North	- Alberni Valley Rescue Squad - Arrowsmith SAR - Campbell River SAR - Comox Valley SAR - Nanaimo SAR - Powell River SAR - Westcoast Inland SAR
Vancouver Island South	- Cowichan SAR - Juan de Fuca SAR - Ladysmith SAR - Metchosin SAR - Peninsula Emergency Measures Organization - Saanich SAR - Salt Spring / Gulf Islands SAR - Victoria SAR

Table 8 - List of Volunter SAR Groups in BC by Region

Source: BC Search and Rescue Association (2008f)

Appendix C - Public Safety Canada USAR Training and Performance Requirements

Source: *Canadian urban search and rescue classification guide.* Retrieved 22, December, 2008, from http://www.publicsafety.gc.ca/prg/em/usar/usar-guide-eng.aspx, Public Safety Canada. Reproduced with the permission of the Minister of Public Works and Government Services, 2009.

Light USAR operational level

Training	Performance requirements
Basic Urban Search and Rescue:	
Initial assessment	Recognize the risk presented by light frame structures and potential consequences
Safety procedures	Maintain and take action under relevant codes and standards for workplace occupational health and safety
Rescue equipment	Properly operate and maintain rescue equipment
Common hand tools	Properly operate and maintain hand tools
Search procedures	Apply basic visual and verbal search techniques
Basic rope rescue techniques	Single point anchor systems, knots hitches and bends, construct and operate a belay system
Patient packaging	Demonstrate proper patient immobilization techniques
Extrication	Demonstrate extrication procedures for partially buried or lightly trapped victims
Structural collapse theory – types of building construction and collapse/voids	Apply rescue techniques, including removal of light rubble in damaged or failed light frame structures
Emergency building shores (EBS)	Construct various applicable shoring components, apply mechanical advantage and cribbing to lift loads and stabilize collapse structures
Basic life support (BLS)	Provide BLS, patient packaging, and extrication
Hazardous materials awareness	Apply basic procedures for hazardous material incidents safety

Training	Performance requirements
Basic Urban Search and Rescue:	
Incident management system (IMS)	Establish an incident management system and/or join command already established. Demonstrate ability to implement IMS principles.
Relevant codes and standards for workplace occupational safety and health	Demonstrate knowledge of relevant and applicable codes and standards, e.g. CSA, COSH
INSARAG marking systems	Apply the INSARAG marking systems

Table 9 - Public Safety Canada's Training & Performance Requirements for Light Urban SAR

Source: *Canadian urban search and rescue classification guide.* Retrieved 22, December, 2008, from http://www.publicsafety.gc.ca/prg/em/usar/usar-guide-eng.aspx, Public Safety Canada. Reproduced with the permission of the Minister of Public Works and Government Services, 2009.

Medium USAR operational level

Training	Performance criteria
Collapsed structure search and rescue	Recognize the risks associated with all types of construction, their characteristics, collapse patterns and their potential consequences. ▪ Apply lifting techniques for loads up to 10 metric tons, using mechanical, hydraulic, electrical, and pneumatic equipment. ▪ Apply stabilizing and cribbing techniques to loads and drag and roll loads (not with use of cranes). ▪ Construct shoring systems for all construction types.
Safety officer	Demonstrate knowledge of relevant and applicable codes and standards (e.g. CSA, COSH).
HazMat operations technician level (optional)	Operate air monitoring / gas detection equipment. Apply basic procedures for hazardous material incidents safety.
CBRN awareness level	Recognition of CBRN threats.
Medical equipment and protocols	Apply medical protocols in delivery of ALS and HazMat care related to *NFPA 472*.
Confined space rescue	Conduct rescue operations consistent with *NFPA 1670* (*NFPA 1006* optional).
Trench rescue	Conduct rescue operations consistent with *NFPA 1670* (*NFPA 1006* optional).

Training	Performance criteria
Rope rescue	Conduct rescue operations consistent with *NFPA 1670* (*NFPA 1006* optional).
Vehicle and machinery rescue	Conduct rescue operations consistent with *NFPA 1670* (*NFPA 1006* optional).
Technical search (optional)	Apply optical, acoustic / seismic search techniques (optional).
Canine search (optional)	Control / handle USAR trained search dog (optional).
Surface water rescue (optional)	Demonstrate knowledge of surface water rescue *(NFPA 1670 / 1006).*

Table 10 - Public Safety Canada's Training & Performance Requirements for Medium

Urban SAR

Source: *Canadian urban search and rescue classification guide.* Retrieved 22, December, 2008, from http://www.publicsafety.gc.ca/prg/em/usar/usar-guide-eng.aspx, Public Safety Canada. Reproduced with the permission of the Minister of Public Works and Government Services, 2009.

Heavy USAR operational level

Training	Performance criteria
Technical search	Apply optical, acoustic/seismic search techniques
Canine search	Implement USAR trained search dog procedures
Advanced cardiac life support (ACLS) and Advanced trauma life support (ATLS) medical equipment and protocols	Apply medical protocols in delivery of ACLS / ATLS care
Rigging Specialist	Apply rigging and lifting safety and operating standards
Technical information	Collect and disseminate relevant technical information
HazMat / CBRN specialist	Ability to mitigate HazMat / CBRN incident effects
Planning Specialist	Ability to develop and record operational plans

Training	Performance criteria
Structural Specialist	Registered professional structural engineer with demolition experience
Logistics Specialist	Ability to procure and manage equipment and supplies for team operation
Communications Specialist	Licensed to operate and ability to maintain all team communication systems
Dedicated Public Communications / liaison Specialist(s)	Ability to liaise with outside agencies and / or act as a public information officer

Table 11 - Public Safety Canada's Training & Performance Requirements for Heavy

Urban SAR

Source: *Canadian urban search and rescue classification guide.* Retrieved 22, December, 2008, from http://www.publicsafety.gc.ca/prg/em/usar/usar-guide-eng.aspx, Public Safety Canada. Reproduced with the permission of the Minister of Public Works and Government Services, 2009.

Appendix D – Possible Emergency Response Training Components

The following provides a list of known existing courses available in BC which could potentially form part of an emergency response training program for SAR groups in the province, or be adapted for SAR group use.

Urban Search and Rescue

- Province of BC – provides a 1 day course in Light (basic?) USAR.

- Justice Institute of BC – provides a Basic USAR training course.

- Vancouver HUSAR team – has in the past provided spaces in their Rescue Systems 1, one week training course to volunteer SAR group members in the province.

- Canadian Forces at CFB Esquimalt – have provided spaces in their 1 week USAR course to volunteer SAR group members on southern Vancouver Island.

Emergency Notifications and Evacuations

- Justice Institute of BC – offers a 1 day Emergency Evacuations course.

- Royal Canadian Mounted Police – have some ability to provide Emergency Evacuations training for SAR volunteers in the province.

Emergency Incident Management

The following emergency management courses are available through the Justice Institute of BC. Many of the Justice Institute emergency management courses are available free through PEP. The Incident Command System (ICS) courses are also available from a number of other training providers both on-line and in person. Full descriptions of these courses and their content are available at the Justice Institute of BC's website (Justice Institute, 2008d)

- ICS 100 – available on-line

- ICS 200 – 2 day course

- ICS 300 – 2 day course

- ICS 400 – 3 day course

- Introduction to Emergency Management – available on-line

- Emergency Operations Center (EOC) Level 1 – available on-line

- EOC Level 2 – 2 day course

- EOC Level 3 Operations – 1day course

- EOC Level 3 Planning – 1 day course

- EOC Level 3 Logistics – 1 day course

- EOC Level 3 Finance and Administration – 1 day course

Appendix E – SAR Group Survey

I.   Introduction

Greetings,

My name is Graham Knox and I am a student in Royal Roads University's Master in Disaster and Emergency Management Program. My credentials with Royal Roads University can be established by telephoning ▮▮▮▮▮, Program Head, MA in Disaster and Emergency Management, at ▮▮▮▮▮▮▮▮▮. I would also like to acknowledge that I currently serve as the Vice-President of the British Columbia Search and Rescue Association and as a ground search and rescue volunteer.

The attached survey is being conducted to examine the current and potential activities of Ground Search and Rescue (GSAR) groups in British Columbia. The results of the survey will be analyzed and reported out in the form of a major research paper being prepared to fulfill the requirements of Royal Roads University's Masters Program in Disaster and Emergency Management. The finalized major research paper will be available to the public upon its acceptance and approval by the university.

The survey data and resulting major research paper will provide important information for SAR groups in British Columbia in assessing both their current and future roles. The results could also influence future provincial policies relating to SAR and may have implications for critical issues such as training opportunities and financial support for provincial SAR groups. Your participation will help ensure your SAR group's views and concerns are reflected in the findings of the major research paper.

Participation in this survey is strictly voluntary on the part of those persons receiving the survey. No personal identifying information will be collected on those persons completing the survey. Your completion of the survey will indicate that you have freely consented to participate and that you have been informed that your participation is voluntary.

1. Please select the appropriate respondent category below

☐   BC Search and Rescue Association Executive or Regional Director

☐   SAR Group Representative

2. For those respondents in the SAR Group Representative category, please provide the name of your SAR group

II. Current SAR Group Roles

The traditional role of GSAR groups in British Columbia has been the provision of ground search and rescue services for lost, despondent, or missing persons or assisting police with evidence searches. GSAR groups have in some parts of the province been asked to assist in other types of emergencies and disasters. This section seeks to identify the current activities of GSAR groups in the province.

1. What emergency / disaster response roles does your SAR group currently train for or participate in (please check all that apply)?

- ☐ Ground SAR (GSAR)
- ☐ Rope Rescue
- ☐ Swift Water Rescue
- ☐ Avalanche Rescue
- ☐ Road Rescue
- ☐ Light Urban SAR (structural collapse - basic)

- ☐ Medium Urban SAR (structural collapse - intermediate)
- ☐ Heavy Urban SAR (structural collapse - advanced)
- ☐ Emergency Notifications / Evacuations
- ☐ Leading Convergent Volunteers
- ☐ Emergency Incident Management

Other (please specify) [   ]

2. Please indicate the type of incidents your SAR group has been activated for in a capacity other than ground SAR (check all that apply)?

- ☐ Floods
- ☐ Snow or Ice Storms
- ☐ Wind Storms
- ☐ Urban Interface Fires
- ☐ Structural Fires
- ☐ Earthquakes

- ☐ Tsunamis (including warnings)
- ☐ Structural Collapses
- ☐ Hazardous Materials Incidents
- ☐ Health Emergencies
- ☐ Oil Spills
- ☐ None

Other (please specify) [   ]

3. On average, what is the number of activations for your SAR group per year, for each of the following activities (check all that apply)

	0	1 - 3	4 - 6	7 - 10	> 10
GSAR	○	○	○	○	○
Rope Rescue	○	○	○	○	○
Swift Water Rescue	○	○	○	○	○
Avalanche Rescue	○	○	○	○	○
Road Rescue	○	○	○	○	○
Urban SAR (structural collapse)	○	○	○	○	○
Emergency Notifications	○	○	○	○	○
Emergency Evacuations	○	○	○	○	○
Emergency Incident Management	○	○	○	○	○

4. On average, how many days (full or partial) of training does your SAR group complete per year, for each of the following activity types?

	0	1 - 3	4 - 6	7 - 10	> 10
GSAR	○	○	○	○	○
Rope Rescue	○	○	○	○	○
Swift Water Rescue	○	○	○	○	○
Avalanche Rescue	○	○	○	○	○
Road Rescue	○	○	○	○	○
Light Urban SAR	○	○	○	○	○
Medium Urban SAR	○	○	○	○	○
Heavy Urban SAR	○	○	○	○	○
Emergency Notifications	○	○	○	○	○
Emergency Evacuations	○	○	○	○	○
Emergency Incident Management	○	○	○	○	○

III. Financial and Liability Information

Funding and liability concerns are issues that volunteer SAR groups must address. The following section is intended to elicit information on the significance of these issues for your SAR group and how you acquire funds.

1. How does your SAR group currently acquire funds for required training activities (check all that apply)?

☐ Training funds from the BC Search and Rescue Association, RCMP and / or the Provincial Emergency Program

☐ Local government (i.e. city, town, municipality)

☐ Regional government (i.e. regional district)

☐ SAR group fundraising efforts

☐ Grant programs

Other (please specify) [_____]

2. To what degree does the funding provided by the above sources meet the training needs of your SAR group.

○ Fully

○ Mostly

○ Less than half

○ No funding provided

○ Not sure

3. How does your SAR group currently acquire funds for required equipment purchases (check all that apply)?

☐ Funds from the BC Search and Rescue Association, RCMP and the Provincial Emergency Program

☐ Local government (i.e. city, town, municipality)

☐ Regional government (i.e. regional district)

☐ SAR group fund raising efforts

☐ Grant programs

Other (please specify) [_____]

4. To what degree does the funding provided by the above sources meet the equipment needs of your SAR group.

○ Fully

○ Mostly

○ Less than half

○ No funding provided

○ Not sure

5. On average, how much time do you spend on fundraising activities, per year

○ 0 days

○ 1 - 5 days

○ 6 - 10 days

○ 11 - 20 days

○ > 20 days

6. In order to take part in SAR operations, volunteer SAR group members may incur financial losses from missed time away from work.

In your opinion, how significant a concern is this for your SAR group members?

○ Critical

○ Important

○ Neutral

○ Insignificant

○ Not sure

7. In most cases SAR volunteers purchase their own personal gear for their SAR activities.

In your opinion how significant of an issue is this for your group members?

○ Critical

○ Important

○ Neutral

○ Insignificant

○ Not sure

8. Currently, core SAR training courses are funded by the BC Search and Rescue Association, the RCMP, and the Provincial Emergency Program. This funding however, does not currently provide for full reimbursement of travel expenses for SAR volunteers to attend the training.

To what degree is this an issue for your SAR group members?

○ Critical

○ Important

○ Neutral

○ Insignificant

○ Not sure

9. Currently, the Provincial Emergency Program provides Work Safe BC and liability coverage for SAR volunteers during training and operations.

In your opinion, how significant an issue is the current liability and Work Safe BC coverages for your SAR group members?

○ Critical

○ Important

○ Neutral

○ Insignificant

○ Not sure

IV.   Potential Emergency and Disaster Response Roles

This section of the survey will explore the potential emergency and disaster response roles that volunteer SAR groups in the province may be interested in undertaking.

The following definitions have been provided to assist you in providing your responses.

Urban SAR:
The search for, and rescue of, missing or trapped persons in structures. These activities could be required due to flood events (example: Hurricane Katrina), earthquakes, or other events that result in structural collapses or entrapment.

Emergency Notifications / Evacuations:
Assisting agencies such as police, fire or local governments with emergency notifications or evacuations of persons from homes or businesses. These activities could be required for events such as urban interface fires, floods, hazardous material releases, etc.

Leading Convergent Volunteers:
Providing leadership and oversight of members of the public who spontaneously come forward to assist in emergencies or disasters. These activities could include leading convergent volunteers in earthquake or flood events.

Emergency Incident Management:
Filling incident command system roles at an incident command post or an emergency operations center during an emergency or disaster. These activities could be required during any type of emergency or disaster.

1. Please indicate your level of interest in taking on the following potential roles.

	Very Interested	Interested	Neutral	Uninterested	Very uninterested
Urban SAR	○	○	○	○	○
Emergency Notifications / Evacuations	○	○	○	○	○
Leading Convergent Volunteers	○	○	○	○	○
Emergency Incident Management	○	○	○	○	○

Other (please specify and indicate your level of interest based on headings above)

2. In your opinion, what would be your SAR group's level of concern in regards to taking on additional emergency and disaster response roles

	Very significant	Significant	Neutral	Insignificant	Very insignificant
Increased training demands	○	○	○	○	○
Additional equipment required	○	○	○	○	○
Suitability based on experience working in ground SAR operations	○	○	○	○	○
Lost work / wages of SAR volunteers while engaging in this role	○	○	○	○	○

Other (please specify and provide level of concern) [   ]

3. Please indicate which common ground SAR skills (listed in the first column) you believe would also be applicable, or transferable, in fulfilling each of the emergency and disaster responses roles listed below (please check all that apply)

	Urban SAR	Emergency Notifications / Evacuations	Leading Convergent Volunteers	Emergency Incident Management Communications
Leadership	☐	☐	☐	☐
Management	☐	☐	☐	☐
Volunteer management	☐	☐	☐	☐
Search techniques	☐	☐	☐	☐
Navigation	☐	☐	☐	☐
Rescue techniques	☐	☐	☐	☐
Rope	☐	☐	☐	☐
First aid	☐	☐	☐	☐
Critical Incident Stress	☐	☐	☐	☐
Survival	☐	☐	☐	☐
Swiftwater	☐	☐	☐	☐

Other (please specify and indicate your level of interest based on headings above)

4. For each of the potential emergency and disaster response roles (listed in the top row), please indicate which commonly held ground SAR equipment would be of use to SAR groups in fulfilling these response roles (please check all that apply)

	Urban SAR	Notifications and Evacuations	Leading Convergent Volunteers	Emergency Incident Management
Rope gear	☐	☐	☐	☐
Communications	☐	☐	☐	☐
Mobile command posts	☐	☐	☐	☐
All terrain vehicles	☐	☐	☐	☐
Snowmobiles	☐	☐	☐	☐
First aid	☐	☐	☐	☐

Other (please specify equipment and which potential role(s) it would apply to)

[   ]

5. Please indicate whether you believe the experience developed by SAR groups in delivering ground SAR services is relevant to each of the potential response roles.

	Yes	Somewhat	No	Unsure
Urban SAR	○	○	○	○
Emergency Notifications and Evacuations	○	○	○	○
Leading Convergent Volunteers	○	○	○	○
Emergency Incident Management	○	○	○	○

V. Overall Support

This final section of the survey is designed to assess the overall interest of volunteer ground SAR groups in taking on additional emergency and disaster response roles and identify potential impediments.

1. How would you rank the following potential roles for SAR groups in emergencies and disasters in terms of fit and desirability (with high being the best fit / most desirable)

	High	Medium	Low
Urban SAR	○	○	○
Emergency Notifications & Evacuations	○	○	○
Leading Convergent Volunteers	○	○	○
Emergency Incident Management	○	○	○

Other (please specify and rank) [   ]

2. Who should provide the additional funding required for training and equipping SAR groups to enable them to take on emergency / disaster response roles (check all that apply)

☐ BC Search and Rescue Association (through additional fund raising efforts)

☐ Local government

☐ Regional government

☐ SAR groups (through additional fund raising efforts)

☐ Provincial government (i.e. Provincial Emergency Program)

☐ Federal government (i.e. Public Safety Canada, RCMP)

Other (please specify) [   ]
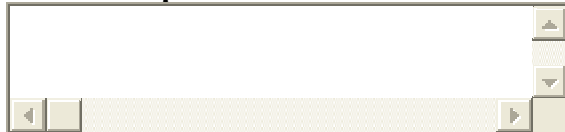
3. To what degree do you agree that SAR volunteers should be paid when they are activated in an emergency or disaster response role?

○ Strongly agree

○ Agree

○ Neutral

○ Disagree

○ Strongly Disagree

4. Overall, To what degree do you agree with the idea of SAR groups taking on additional emergency and disaster response roles with the appropriate level of support?

○ Strongly Agree

○ Agree

○ Neutral

○ Disagree

○ Strongly disagree

5. Please use this space to provide any additional comments or concerns you may have related to the concept of volunteer SAR groups assuming additional emergency and disaster response roles.

VI. Conclusion

You have now completed the survey!

Thank you for responding to this survey and assisting with my research into the potential role of volunteer ground SAR groups in emergency and disaster response.

The results of this survey and the accompanying research will be accessible to both survey respondents and the general public in the form of a major research paper through Royal Roads University. Additionally copies will be made available to the BC Search and Rescue Association.

Sincerely,

Graham Knox

Appendix F – Tasking Agency Survey

I.   Introduction

Greetings,

My name is Graham Knox and I am a student in Royal Roads University's Master in Disaster and Emergency Management Program. My credentials with Royal Roads University can be established by telephoning ███████, Program Head, MA in Disaster and Emergency Management, at ████████████████. I would also like to acknowledge that I currently serve as the Vice-President of the British Columbia Search and Rescue Association and as a ground search and rescue volunteer.

The attached survey is being conducted to examine the current and potential activities of Ground Search and Rescue (GSAR) groups in British Columbia. The results of the survey will be analyzed and reported out in the form of a major research paper being prepared to fulfill the requirements of Royal Roads University's Masters Program in Disaster and Emergency Management. The finalized major research paper will be available to the public upon its acceptance and approval by the university.

The survey data and resulting major research paper will provide important information for local governments, police forces, and provincial tasking agencies of volunteer SAR groups in assessing the potential emergency and disaster response roles of ground SAR groups in British Columbia. The results could also influence future provincial policies relating to SAR and may have implications for emergency and disaster response capacity and capability in the province. Your participation will help ensure your community or agency's views and concerns are reflected in the findings of the major research paper.

Participation in this survey is strictly voluntary on the part of those persons receiving the survey. No personal identifying information will be collected on those persons completing the survey. Your completion of the survey will indicate that you have freely consented to participate and that you have been informed that your participation is voluntary.

1. Please select the appropriate respondent category below
- ○ Local Government Emergency Program Coordinator
- ○ RCMP / Municipal Police
- ○ Provincial Agency
- ○ Other

2. Based on your category above, please provide the name of the community / region, detachment, provincial agency, or organization you represent

[ ]

II.   Current Use of Provincially Recognized Volunteer Ground SAR Groups

The traditional role of ground SAR groups in British Columbia has been the provision of ground search and rescue services for lost, despondent, or missing persons or assisting police with evidence searches. Ground SAR groups have in some parts of the province been asked to assist in other types of emergencies and disasters. This section is focused on examining your current use of ground SAR groups in the province.

1. For which of the following activities does your organization request the assistance of SAR groups (Please check all that apply)?

☐ None - our organization does not currently use ground SAR groups

☐ Ground SAR (GSAR)

☐ Rope Rescue

☐ Swift Water Rescue

☐ Avalanche Rescue

☐ Road Rescue

☐ Light Urban SAR (structural collapse - basic)

☐ Medium Urban SAR (structural collapse - intermediate)

☐ Heavy Urban SAR (structural collapse - advanced)

☐ Emergency Notifications / Evacuations

☐ Leading Convergent Volunteers

☐ Emergency Incident Management

Other (please specify) [   ]

2. In which types of incidents has your organization requested the assistance of SAR groups (check all that apply)?

☐ None - our organization does not currently use SAR groups

☐ Floods

☐ Snow or Ice Storms

☐ Wind Storms

☐ Urban Interface Fires

☐ Structural Fires

☐ Earthquakes

☐ Tsunamis (including warnings)

☐ Structural Collapses

☐ Hazardous Materials Incidents

☐ Health Emergencies

☐ Oil Spills

Other (please specify) [   ]

3. On average, how often does your organization request the assistance of SAR groups per year, for each of the following activities (check all that apply)?

	0	1 - 3	4 - 6	7 - 10	> 10
GSAR	○	○	○	○	○
Rope Rescue	○	○	○	○	○
Swift Water Rescue	○	○	○	○	○
Avalanche Rescue	○	○	○	○	○
Road Rescue	○	○	○	○	○
Urban SAR (structural collapse)	○	○	○	○	○
Emergency Notifications	○	○	○	○	○
Emergency Evacuations	○	○	○	○	○
Emergency Incident Management	○	○	○	○	○

III.   Financial and Liability Information

Funding and liability concerns are issues that volunteer SAR groups must address in conjunction with those organizations who utilize the services they provide. The following section is intended to elicit information on these issues and the involvement of your organization in supporting ground SAR activities.

1. On average, how much funding does your organization provide to SAR groups for training activities per year?

○ None

○ Unsure

○ $1 - $5,000

○ $5,001 - $10,000

○ $10,001 - $25,000

○ $25,001 - $50,000

○ $50,001 - $100,000

○ $100,000 - $150,000

○ > $150,000

2. Does your organization provide non-monetary support to SAR groups for training activities?

○ Yes

○ No

○ Unsure

If yes, please specify the type of support provided

3. On average, how much funding does your organization provide to SAR groups for their equipment needs per year?

○ None

○ Unsure

○ $1 - $5,000

○ $5,001 - $10,000

○ $10,001 - $25,000

○ $25,001 - $50,000

○ $50,001 - $100,000

○ $100,000 - $150,000

○ > $150,000

4. Does your organization provide non-monetary support to SAR groups for their equipment needs?

○ Yes

○ No

○ Unsure

If yes, please specify the type of support provided |_____|

5. Does your organization provide any of the following for SAR groups (check all that apply)?

☐ Group meeting space

☐ Office equipment or services

☐ Training facilities

☐ Vehicle insurance

☐ Vehicle or equipment storage areas

☐ Work Safe BC coverage

☐ Liability insurance

Other (please specify) |_____|

IV.   Potential Emergency and Disaster Response Roles

This section of the survey will explore the potential emergency and disaster response roles that your organization may be interested in seeing and supporting volunteer SAR groups in taking on.

The following definitions have been provided to assist you in providing your responses.

Urban SAR:
The search for, and rescue of, missing or trapped persons in structures. These activities could be required due to flood events (example: Hurricane Katrina), earthquakes, or other events that result in structural collapses. Urban SAR is further broken into 3 levels based primarily on the skills and equipment required, and the type of environment they can operate in. The levels are referred to as Light Urban SAR (LUSAR), Medium Urban SAR (MUSAR), and Heavy Urban SAR (HUSAR).

Emergency Notifications / Evacuations:
Assisting agencies such as police, fire or local governments with emergency notifications or evacuations of persons from homes or businesses. These activities could be required for events such as urban interface fires, floods, hazardous material releases, etc.

Leading Convergent Volunteers:
Providing leadership and oversight of members of the public who spontaneously come forward to assist in emergencies or disasters. These activities could include leading convergent volunteers in earthquake or flood events.

Emergency Incident Management:
Filling incident command system roles at an incident command post or an emergency operations center during an emergency or disaster. These activities could be required during any type of emergency or disaster.

1. Please indicate which common ground SAR skills (listed in the first column) you believe would be applicable, or transferable, in fulfilling each of the emergency and disaster response roles listed below (please check all that apply)

	Urban SAR	Emergency Notifications / Evacuations	Leading Convergent Volunteers	Emergency Incident Management Communications
Leadership	☐	☐	☐	☐
SAR Management	☐	☐	☐	☐
Incident Command System	☐	☐	☐	☐
Volunteer management	☐	☐	☐	☐
Search techniques	☐	☐	☐	☐
Navigation	☐	☐	☐	☐
Rescue techniques	☐	☐	☐	☐
Rope	☐	☐	☐	☐
First aid	☐	☐	☐	☐
Critical Incident Stress	☐	☐	☐	☐
Survival	☐	☐	☐	☐
Swiftwater	☐	☐	☐	☐

Other (please indicate the skill(s) and which role(s) it applies to)

2. For each of the potential emergency and disaster response roles (listed in the top row), please indicate which commonly held ground SAR equipment would be of use to SAR groups in fulfilling these response roles (please check all that apply)

	Urban SAR	Emergency Notifications / Evacuations	Leading Convergent Volunteers	Emergency Incident Management
Rope gear	☐	☐	☐	☐
Communications equipment	☐	☐	☐	☐
Mobile command posts	☐	☐	☐	☐
All terrain vehicles	☐	☐	☐	☐
Snowmobiles	☐	☐	☐	☐
First aid	☐	☐	☐	☐

Other (please specify equipment and which potential role(s) it applies to)

[   ]

3. Please indicate whether you believe the experience developed by SAR groups in delivering ground SAR services is relevant to each of the potential response roles (listed in the first column).

	Yes	Somewhat	No	Unsure
Urban SAR	○	○	○	○
Emergency Notifications and Evacuations	○	○	○	○
Leading Convergent Volunteers	○	○	○	○
Emergency Incident Management	○	○	○	○

4. Please indicate how significant your organization's level of concern would be in having SAR groups take on additional emergency and disaster response roles vis a vis the items listed in the first column.

	Very significant	Significant	Neutral	Insignificant	Very insignificant
Additional training demands on SAR groups	○	○	○	○	○
Availability of funding to support increased demands	○	○	○	○	○
Suitability to assume these roles	○	○	○	○	○
Economic impacts to SAR volunteers (missed work)	○	○	○	○	○
Liability concerns	○	○	○	○	○

Other (please specify and provide level of concern) [   ]

5. Please indicate your organization's level of interest in seeing SAR groups utilized in the following potential roles.

	Very Interested	Interested	Neutral	Uninterested	Very uninterested
Urban SAR	○	○	○	○	○
Emergency Notifications / Evacuations	○	○	○	○	○
Leading Convergent Volunteers	○	○	○	○	○
Emergency Incident Management	○	○	○	○	○

6. Please indicate any additional emergency and disaster response roles that your organization believes would be a good fit for SAR groups, and indicate why?

[ ]

V.   Overall Support

This final section of the survey is designed to assess the overall level of interest your organization has in seeing and supporting SAR groups assume emergency and disaster response roles.

1. Would your organization be willing to provide additional support to SAR groups to facilitate their expansion into additional emergency / disaster roles?

○ Yes

○ No

○ Unsure

2. If yes, in what ways would your organization be willing to provide support (check all that apply)?

☐ Province wide training funds

☐ SAR group specific training funds

☐ Province wide equipment funds

☐ SAR group specific equipment funds

☐ Facilities for SAR group meeting / training

☐ Facilities for SAR group equipment / vehicle storage

☐ Provide training directly

☐ Liability coverage

☐ Work Safe BC coverage

Other (please specify) [ ]

3. How would your organization rank the following potential roles for SAR groups in emergencies and disasters in terms of fit and desirability (with high being the best fit / most desirable)

	High	Medium	Low
Urban SAR	○	○	○
Emergency Notifications & Evacuations	○	○	○
Leading Convergent Volunteers	○	○	○
Emergency Incident Management	○	○	○
Other (please specify and rank)			

4. Please indicate the level of funding you believe the following organizations should provide for the training and equipping of SAR groups to fulfill additional emergency / disaster response roles

	Primary funding	Secondary funding	Possible funding	No funding	Unsure
Federal government	○	○	○	○	○
Provincial government	○	○	○	○	○
Regional government	○	○	○	○	○
Local government	○	○	○	○	○
BC Search and Rescue Association	○	○	○	○	○
Local SAR groups	○	○	○	○	○
Other (please specify)					

5. Emergencies and disasters can last considerably longer than normal ground SAR operations and this could have a significant effect on a volunteer's ability to meet their financial obligations, and thus their willingness to respond. Other volunteer groups, such as firefighters, have established payment for their participation in emergency and disasters that fall outside their normal role.

Do you agree that SAR volunteers should receive some form of payment when they are activated in an emergency or disaster response role?

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly agree

Comments [   ]

6. Your organization agrees with the concept of SAR groups taking on additional emergency and disaster response roles.

- ○ Strongly disagree
- ○ Disagree
- ○ Neutral
- ○ Agree
- ○ Strongly Agree

7. Do you have any additional comments or concerns regarding SAR groups taking on additional roles in emergency / disaster settings?

[   ]

VI.   Conclusion

You have now completed the survey!

Thank you for responding to this survey and assisting with my research into the potential role of volunteer ground SAR groups in emergency and disaster response.

The results of this survey and the accompanying research will be accessible to both survey respondents and the general public in the form of a major research paper through Royal Roads University. Additionally, copies will be made available to the Provincial Emergency Program who are sponsoring this research.

Sincerely,

Graham Knox