



Cross Border Communications Report



Barriers, Opportunities, and Solutions for Border Area Emergency Responders

FINAL

March 11, 2015

Prepared by: **Canadian Interoperability Technology Interest Group**
National Public Safety Telecommunications Council

Table of Contents

Executive Summary	i
I. Introduction	1
II. Public Safety Requirements for Cross Border Communications	2
IV. Current Regulatory and Bi-National Treaty Environment	12
VII. Barriers & Opportunities	35
VIII. Best Practices Models	39
IX. Recommendations	41
APPENDIX A: Document Library	45
APPENDIX B: Web Link Resources	50
APPENDIX C: Acknowledgements to Contributors	52

On the cover: *An intersection which separates the State of Vermont and the Province of Quebec. The international boundary transects buildings on Church Street in Derby Line, Vermont, and Rue Church in Stanstead, Quebec, highlighting the close relationship between local first responders who frequently cross the border to render aid.*

Executive Summary

This report is a joint effort by the Canadian Interoperability Technology Interest Group (CITIG) and the National Public Safety Telecommunications Council (NPSTC) to study cross border public safety communications at the local first responder level. It is designed to clarify legal and regulatory policies, identify best practices and examples of interoperability excellence, and advance specific recommendations to enhance public safety communications at the national border.

Cross border public safety communications is a complex issue that affects all first responder organizations which operate near the U.S. and Canadian border. Fire departments and EMS organizations are frequently requested to cross the national border to render aid. They may be the primary agency assigned to respond to an emergency across the border. Law enforcement entities may be asked to respond across the border to assist neighboring departments. Some public safety agencies coordinate with officials at border crossings and have developed close working relationships while other first responder organizations operate in rural areas and must deal with border crossings which are closed overnight.

Most public safety agencies are not able to directly communicate with the agency they are assisting across the border. This problem is related to regulatory and technology barriers. There are also situations in which disparate and proprietary technology solutions are used by first responders, preventing direct communications across the border. Many public safety agencies report that they are unclear on their ability to execute mutual aid agreements and operational policy directives with sister agencies across the border. **The inability to directly communicate with other emergency responders puts both property and the lives of responders and the public they seek to protect at risk.**

In spite of these issues, significant progress has been made in many areas including inter-governmental coordination, joint standard operating procedure (SOP) development, and technology implementation. There is also greater awareness of border communications issues at all levels of the public safety community.

On July 6, 2013, a 74-car freight train derailed causing a massive fire and explosion in the town of Lac-Mégantic, in the eastern township of the Canadian province of Quebec. Forty-two residents were killed and more than 30 buildings were destroyed following the early morning disaster. Fire departments throughout the region responded to the emergency, including seven departments from Franklin County, Maine,¹ who responded more than 30 miles across the U.S. border. This incident required coordination with U.S. and Canadian border crossing agencies and the use of radio systems to coordinate the deployment, response, and on-scene activities.

¹ 30 firefighters from Franklin County, Chesterville, Eustis, Farmington, New Vineyard, Phillips, Strong, and Rangeley responded to render aid.

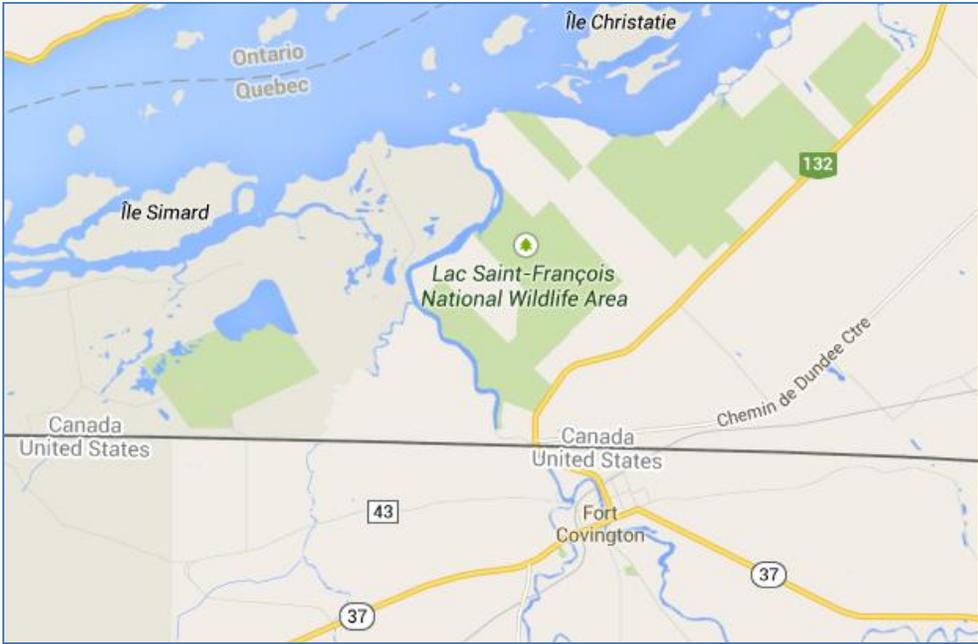


In another case, in Franklin County, New York, the Fort Covington Fire Department was dispatched to a report of a snowmobile which had fallen through the ice on the St. Lawrence River in Dundee, Quebec, Canada.² Fort Covington FD requested mutual aid from the Hogansburg/Akwesasne Tribal Fire Department for an airboat. As Fort Covington FD arrived on scene and set up for the rescue attempt, the St. Anicet Fire Department from Canada arrived. The airboat reached the scene a short time later and picked up one of Fort Covington FD's rescue swimmers and then responded into the waterway.

The victim was rescued and brought to the Canadian shore and transported by a Fort Covington FD ambulance to a United States hospital. The victim was a Canadian citizen, and an officer with U.S. Customs and Border Protection (CBP) accompanied the patient to the hospital.

Throughout this entire water rescue operation, response teams pertaining to different agencies on the scene could not communicate by radio with one another. The three fire departments did not have access to a common channel and there was no radio communication between the first responders and the federal authorities on either side of the border. The U.S. and Canadian 9-1-1 Centers dispatching these agencies did not have any direct radio communications and relied on the public switched telephone network (PSTN) to relay messages.

² Two Franklin County Fire Departments, Fort Covington and Constable, are contractually the first response with Canadian municipalities and routinely respond across the border as they are geographically adjacent.



Each day tens of thousands of vehicles travel through checkpoints along the border between the United States and Canada. The Blue Water Bay international bridge connects Sarnia, Ontario, with Port Huron, Michigan. This bridge is the second busiest international border between the U.S. and Canada and handles 4.9 million border crossings each year. Conversely, rural border crossing locations, such as those in the State of Montana, close overnight and do not allow public safety vehicle access. Bi-national initiatives, including the “Beyond The Border” program, have helped accelerate solutions at the federal level, including cross border communications enhancements.

Each day, almost a hundred public safety vehicles cross the border to provide urgent assistance at the scene of law enforcement, fire, and medical emergency events. The ability for U.S. and Canadian first responders to effectively communicate and operate together is hampered by a number of factors which are described in this report.

These impediments have included federal rules which prevent public safety agencies from directly accessing emergency frequencies in the adjoining country; insufficient technology solutions to provide effective voice and data communications on both sides of the border; and misinformation regarding regulatory and policy issues affecting cross border response.



It must be noted that the majority of all public safety cross border responses involve local agencies who provide automatic aid and mutual aid to nearby communities without regard to international jurisdiction.

This report includes an overview of the current state of cross border interoperability including a discussion of issues and problems which have been identified by first responder organizations across the shared U.S. / Canadian border.

The report also focuses on the opportunities for local public safety agencies to improve cross border communications and operations. It provides an overview of the current regulatory environment affecting cross border emergency communications as well as a discussion on current cross border efforts which are underway at the local, state/provincial, and federal level.

This report concludes with a series of recommendations which are designed to improve and enhance public safety communications between all levels of first responder entities. These recommendations are organized across all lanes of the U.S. Department of Homeland Security SAFECOM Interoperability Continuum and are listed in Section 9 of the report.

The following major core recommendations have been identified:

Recommendation #1: Distribute Report to all Stakeholders

Upon approval of this report, it should be distributed as broadly as possible to all U.S. and Canadian first responder agencies that operate along the two nation's borders. Information in the report should be shared at the local, regional, state/provincial, tribal, and federal level.

Recommendation #2: Provide Briefing to the CANUS CIWG

The findings and recommendations contained in this report should be presented to the joint Canada /U.S. (CANUS) Communications Interoperability Working Group (CIWG) for consideration and adoption, where appropriate, into their work plan.

Recommendation #3: Continue Outreach and Monitoring Efforts

CITIG and NPSTC should continue their ongoing outreach efforts to identify opportunities to enhance interoperable emergency communications between public safety agencies on both sides of the border. Monthly conference calls of the CITIG-NPSTC Cross Border Communications group should be continued in order to exchange new information and to monitor progress with implementation of the recommendations identified in this report.

This report also includes examples of best practices and excellence in cross border communication and coordination. A document library has been created which includes copies of policy, procedure, and governance agreements as well as treaties and other agreements between the two countries. A listing of web links is included which provides supplemental information on the issues discussed in this report.

Finally, CITIG and NPSTC would like to thank all of the public safety personnel who assisted in the creation of this report. Support was received from local agencies, state and provincial authorities, and federal entities. This document is a collaborative effort of more than 200 individuals. Many of them participated in weekly conference calls to gather and validate the information in this report.

I. Introduction

The purpose of this report is to provide an overview of border interoperability as seen through the eyes of local first responder agencies. It will provide an overview of the current regulatory environment, including efforts by the Federal Communications Commission (FCC) and Industry Canada (IC) to enhance emergency communications and enable future life-saving technologies. The report will document the state of several cross border communications projects which demonstrate options for improved coordination across the border. Finally, a series of recommendations and best practices are provided to help advance the conversation at all levels.

While CITIG and NPSTC have championed cross border communications issues, it must be noted that several other organizations and units of government have also been working diligently on the topic. The U.S. Department of Homeland Security, Office of Emergency Communications (DHS-OEC) has played a leading role in organizing resources and hosting an initial set of meetings. The Canada-U.S. Communications Interoperability Working Group (CANUS CIWG) has been studying this issue to identify and resolve public safety communications issues at the federal, state/provincial, and local level. This effort is a part of a broader bi-national “Beyond The Border” program seeking improvements at all levels of federal border interactions. Public Safety Canada (PS) serves in a leadership role with this group and co-chairs the CIWG with DHS-OEC. The FCC and IC have also been actively engaged in reviewing issues and identifying regulatory solutions. A full discussion of cross border initiatives is provided in Section 5 of this report.

The U.S. Department of Homeland Security, Science and Technology Directorate (DHS-S&T) and the Defence Research and Development Canada's Centre for Security Science (DRDC CSS) have been strong advocates championing the identification, testing and implementation of various radio, data, and technology platforms to enhance cross border emergency communications. The CAUSE III experiments, which are held annually at the Canada/U.S. border, leverage new and innovative solutions to support emergency responders.

II. Public Safety Requirements for Cross Border Communications

Existing problems with cross border emergency response interfere with the operational requirements of public safety agencies. These include a variety of communications and procedural issues that involve regulatory processes, technology, and governance matters. These problems exist across the entire national border of both countries including both urban and rural border crossings.

In one scenario, an ambulance is approaching a border crossing while responding to a mutual aid request in the other country. The ambulance cannot communicate with the border crossing personnel by radio to alert them that they are approaching. Upon reaching the border, the EMS personnel must be checked and cleared before they are allowed to proceed. The ambulance is not able to communicate with the agency which has requested their assistance. They arrive at the scene of the emergency and are not able to communicate with their dispatch center or the physician at the hospital in their home country.³

In another scenario, a fire truck is approaching the border while responding to a request for emergency assistance. Like the example above, the fire truck may be delayed at the border crossing before receiving clearance to proceed. The firefighters are not able to communicate with the incident commander or fire trucks already on the scene of the emergency. The incident commander at the scene of the house fire cannot tell the incoming fire truck to stop and connect to a designated hydrant.

When a large wildland fire occurs near the border, local, state/provincial, and federal fire agencies all respond. Dozens of emergency vehicles will be operating on both sides of the border in an attempt to control the fire. It is essential that all personnel be able to communicate directly with each other, regardless of their country of origin. The fire does not respect the international border and emergency personnel must frequently cross the boundary to coordinate their activities.

In all of these cases, emergency vehicles must cross the border to provide public safety services. Delays have been reported for a variety of reasons, including confusion at the border crossing when an emergency vehicle arrives unexpectedly. A Canadian fire engine was detained at the Rouses Point, New York, border crossing while firefighters were trying to respond into the U.S. to assist at the scene of a house fire.⁴ Lack of direct radio communications between the incident commander at the scene of the fire and the Canadian fire trunk contributed to the delay, as did lack of direct communications between the fire trucks and the border crossing station.

³ Regulatory requirements are designed to prevent radio systems in one country from providing coverage in the other country to minimize interference.

⁴ November 11, 2007 report by Canadian Consulate General, Stephen Brereton.

In other instances, the radio network of one country typically does not extend into the other country creating problems for emergency units who need to communicate with their home agency dispatcher. Ambulance personnel from the Niagara Emergency Medical Services⁵ report that their crews frequently lose radio communications and GPS tracking when they enter the Buffalo, New York, area.

Emergency operations within each country are impacted by cross border spectrum management policy. U.S. law enforcement, fire, and EMS units are not able to access designated nationwide interoperability channels in the VHF and UHF band because of frequency use restrictions within 75 miles/120 Km of the border.⁶ Nearly half of the State of Vermont is blocked from using some channels designated for nationwide designated interoperability, disrupting communications between local agencies and hampering mutual aid communications with adjacent states.

At the core of all of these scenarios is the problem of ineffective cross border mission critical voice communications. This issue is impacted by existing spectrum management policy, technology, and governance.

During a 2009 cross border conference sponsored by the DHS-OEC, public safety representatives identified three scenarios which represented the most common problems facing first responders on both sides of the border:

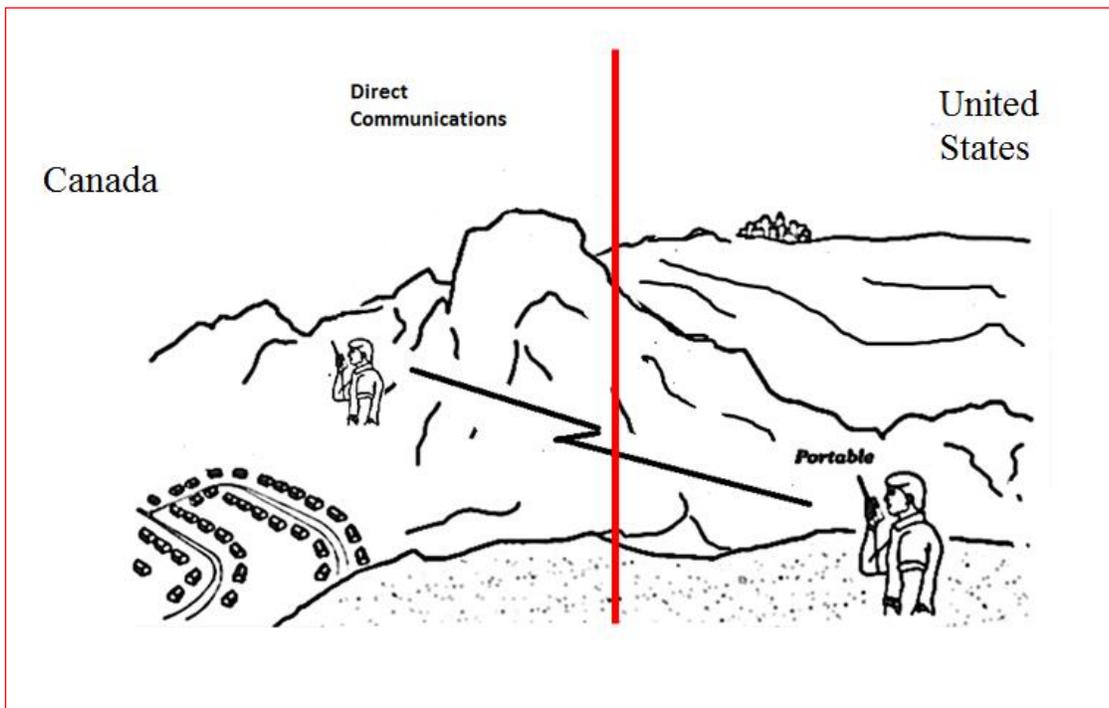
1. Public safety agencies need to communicate using handheld radios across the border. This will allow first responders to communicate with the agency they are assisting.
2. Public safety agencies need to collaborate on the installation and operation of joint infrastructure which will support interoperability across the border.
3. Public safety agencies need the ability to install fixed infrastructure on the opposite border in order to support local agency operations.

⁵ Information provided by Rick Ferron, ACP, MHM (Canada) Deputy Chief, Niagara Emergency Medical Services.

⁶ This zone is known as the Line A/Line B Coordination area.

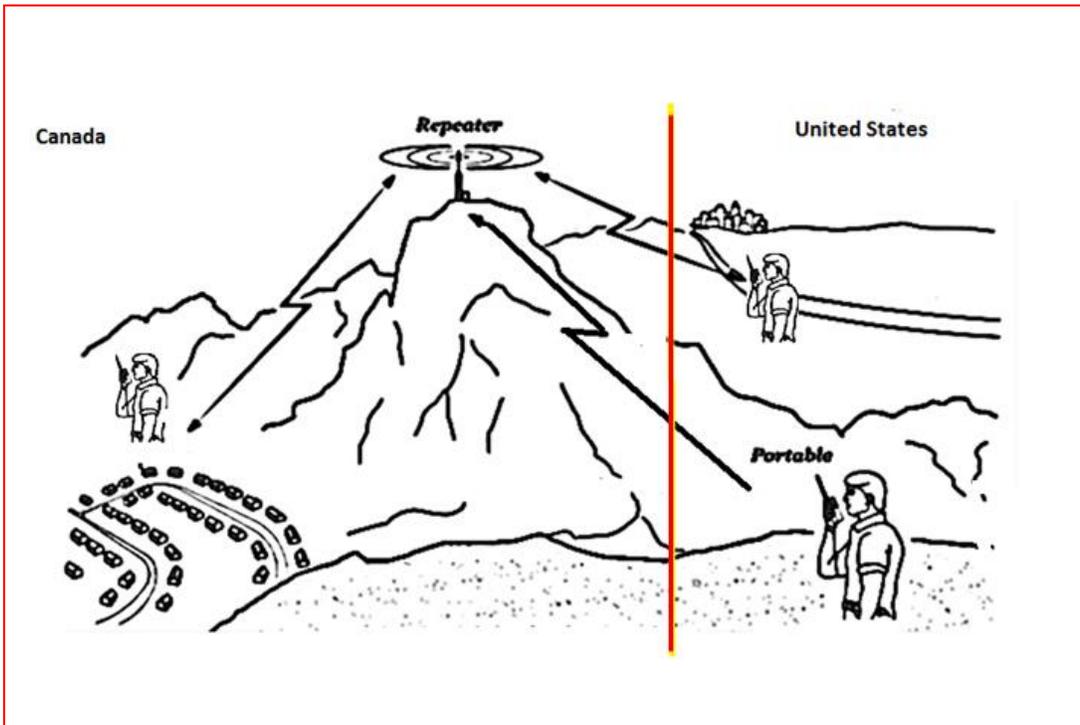
Scenario #1:

Public safety agencies need to communicate using handheld radios across the border. This would allow first responders to communicate with the agency they are assisting. For example, a firefighter at the scene of a wildland fire needs to communicate directly with a firefighter across the border. The message may be critical to life and safety, including an alert that the wind direction has shifted and the other firefighter is in extreme danger.



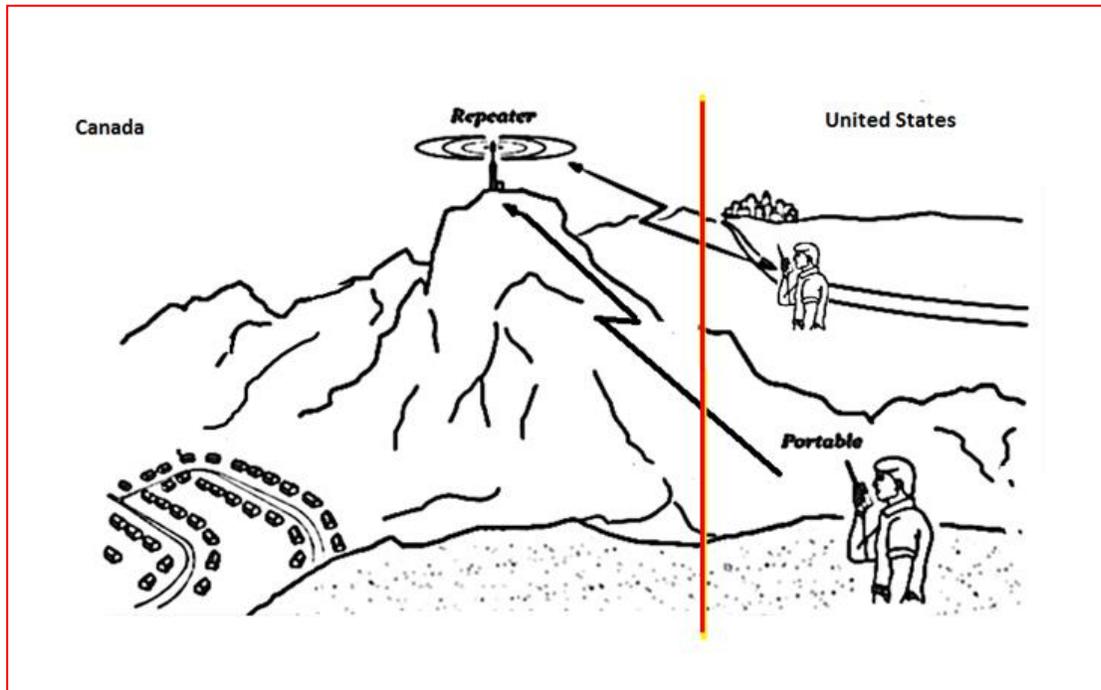
Scenario #2:

Public safety agencies need the ability to install and operate joint infrastructure which will support interoperability across the border. For example, a state agency on the U.S. side of the border needs to establish joint tactical communications with a provincial agency on the Canadian side of the border to allow first responders to communicate with each other. This may require the installation of a mutual aid repeater to allow extended interoperable communications. This facilitates voice communications between U.S. and Canadian public safety agencies. An ambulance responding from the U.S. into Canada would be able to communicate with the Canadian fire truck that is already on the scene. Mission critical communications need to occur from distances greater than are available using direct mode/simplex communications described in Scenario #1.



Scenario #3:

Public safety agencies need the ability to install fixed infrastructure on the opposite border to support local agency operations. In this scenario, a U.S. or Canadian public safety agency needs to install a base station radio on the soil of the other country in order to provide effective local emergency communications. There are many instances in which the mountainous geography will block radio systems from providing coverage. One solution is the installation of a base station repeater in a location that can reach the response area of the local agency. In some cases, the only location for the repeater may be across the border. For example, the Royal Canadian Mounted Police (RCMP) has experienced radio system dead zones where officers cannot communicate with their dispatcher. This creates an extreme officer safety issue. The placement of an RCMP base station on U.S. soil allows the radio system to provide coverage to those areas.



During a 2010 Canada/U.S. Cross Border Interoperable Communications Workshop,⁷ public safety participants identified 10 priority areas for further study:

1. Creation of the Canadian/American communications interoperability coordinating body.
2. Creation of a cross border communications working group.
3. Development of the interoperability mandate within both governments (Public Safety Canada and the Department of Homeland Security).
4. Formal identification of cross border interoperability channels available border wide through the creation of a working group.
5. Identification and address of legal hindrances that prohibit sharing of radio frequencies, personnel, and resources from working across state, provincial, and national borders.
6. Creation of a stakeholder map and service inventory.
7. Appointments of a cross border communications interoperability coordinator from each province and at the federal level equivalent to the Statewide Interoperability Coordinators (SWIC) in the U.S.
8. Identification and engagement of cross border champions.
9. Development of information-sharing inventory.
10. Development of draft model MOU for routine cross border use of licensed spectrum.

⁷ 2010 Canada-U.S. Cross Border Workshop was co-hosted by PS and DHS-OEC.

Cross border emergency response is complicated because of the various types of emergencies that occur near the border and the variety of public safety agencies who need to respond. Most public safety agencies operating along the international border have experience in responding to the other country and have implemented local solutions with varying degrees of success. However, first responder agencies that are more distant from the border may be requested for high severity emergencies. These agencies typically do not have experience with border crossing procedures and are less likely to have appropriate cross border communications equipment and documentation. It should also be noted that secondary responders are often called to assist with major emergencies. These include transportation, utilities, and other critical infrastructure entities. A comprehensive cross border emergency plan must account for all of these responder organizations.

It is also possible that an emergency event will impact the border crossing itself. The U.S. Department of Homeland Security recently conducted an exercise involving the crash of a tanker car less than 2 miles from a border crossing station.⁸ A simulated chlorine gas leak from the accident caused an evacuation of the border facility requiring immediate coordination with multiple agencies.

Many public safety agency executives report that they do not have a clear understanding of their agency's legal status upon crossing the border. For example, once paramedic across into the other country can they still legally perform medical procedures and administer drugs? Is their ambulance legally considered an emergency vehicle and authorized to use lights and siren in the other country? Are they carrying narcotics and other drugs legally? The answer to these questions may depend on state and provincial regulations that are not consistent across the border region. There is not a standardized bi-national solution.

In addition to border crossing issues, responding near the U.S./Canadian border also impacts the daily operations of police departments, fire departments, and EMS organizations. Regulations which independently allocate VHF and UHF radio frequency spectrum between the two countries frequently result in the inability of an agency to acquire a local emergency frequency.

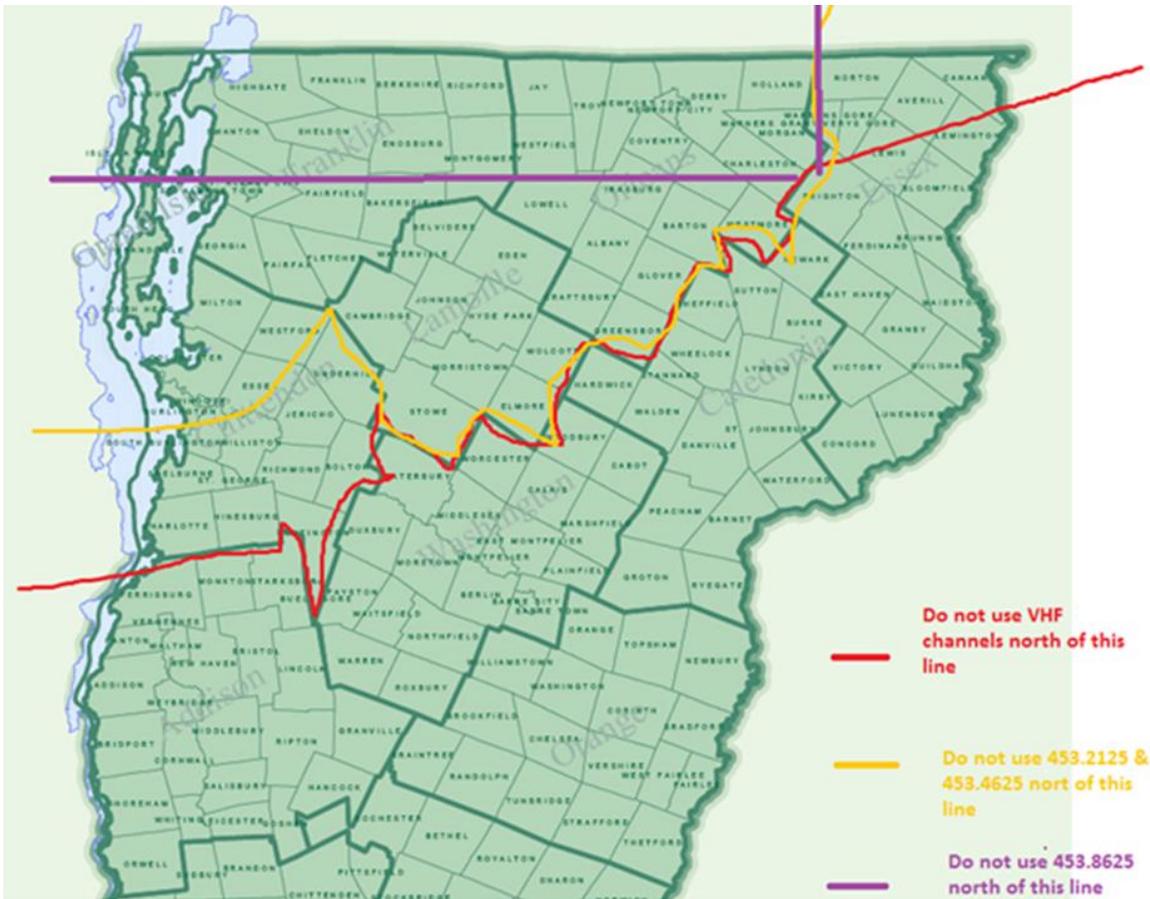
Any U.S. or Canadian agency operating within 75 miles/120 km of the border must go through a special radio licensing process. This process is designed to ensure that radio users from one country do not interfere with existing radio users in the other country. The map below shows the relative locations of Lines A/B along the continental U.S./Canadian border and Lines C/D along the border between Canada and Alaska. These lines identify the areas where special coordination procedures are required.

⁸ Exercise conducted at Bisbee, Arizona, near the Bryan Terry Border Crossing Facility in September 2014.



Because both countries share the same radio frequencies, there are conflicts in channel assignment in certain radio bands. The United States has allocated a series of nationwide public safety interoperability channels in all frequency bands. Many of these designated channels cannot be used near the U.S./Canadian border because Canada has previously assigned that same frequency to a local user in their country.

For example, the State of Vermont attempted to license a VHF nationwide calling channel (VCALL10) but was blocked from using the frequency in the northern half of their state. State officials had to designate another (non-standard) frequency for their public safety agencies to use. The map diagram below indicates areas in the State of Vermont where various interoperability channels cannot be used by mobile radios. These restrictions affect almost half of the entire state and impede emergency response due to the assignment of non-standard channels.



Public safety radio systems that are constructed near the border must also comply with special restrictions which are designed to prevent these radio signals from broadcasting into the other country and causing interference. Solutions frequently require the use of lower power output transmitters and antenna systems which are designed to limit the operational area of the radio system. This can result in compromised radio system coverage which may prevent a first responder from communicating with their own dispatcher inside their own country. Many public safety agencies operating near the border must use simplex radio channels to communicate with each other at the scene of an emergency. These channels provide low power communication directly between radio devices. Unfortunately, most of these channels cannot be monitored by the dispatcher or by other units further away from the incident scene. This creates a personnel safety risk for first responders, who may not be able to call for assistance in an emergency.

Local agencies on both sides of the border frequently experience problems when trying to locate a radio frequency to support public safety operations. The following steps are required as a part of the coordination process using a U.S. licensee as an example:

1. A local emergency response agency works with a designated public safety frequency coordinator to identify a frequency that is not currently in use.

2. U.S. databases are checked to find a clear frequency.
3. The IC online database is also checked to identify a clear frequency.
4. An application form is completed and submitted to the FCC.
5. The license request is checked by the FCC and then forwarded to Canada.
6. Canada then checks the license request to confirm that it will not cause any interference to or conflict with, existing users in their country.

a. Canada may reject the application because the frequency that appeared to be available was in fact assigned in Canada to a government entity performing sensitive operations. These channels are not listed in the online database. Canada also performs a coverage and interference analysis.

b. U.S. public safety agencies frequently conduct additional coverage and interference studies and have back-up documents in their calculations. However, while these files may be attached to the ULS system for review by the FCC, there is no electronic method for the FCC to send them to Industry Canada. Public safety agencies must contact the FCC to verify that the additional documents were manually transferred to Industry Canada.

It typically takes a month for a license request to go through the full cycle, traveling from the applicant to the FCC to IC, where it can be accepted or rejected and returned to the applicant. If rejected, the local public safety agency then has to attempt licensure of yet another channel that appears to be free and submit a new application which will go through an FCC and IC review, only to be possibly rejected again.

Public safety agencies in Canada may experience the same problem in that a frequency which appears to be available in the U.S. may be rejected because it is assigned to a federal government or military user in the U.S. and the channel does not appear in the FCC database.

There is currently no process to “pre-coordinate” and identify a clear channel prior to the full processing of a license request. The existing process requires extensive work by all of the parties involved and a significant staff time for all involved agencies. This process begs for a more efficient solution.

It is equally hard to identify a clear frequency that can be used on both sides of the border for interoperability between U.S. and Canadian first responders. An examination of existing U.S.-designated interoperability channels in the VHF and UHF band found there was no single frequency cleared for use along the entire national border. While significant improvements have been made in the coordination of the 700 MHz and 800 MHz band, it should be noted that the majority of all public safety agencies near the border operate in the VHF and UHF spectrum.

This issue continues to be a major source of frustration for public safety agencies on both sides of the border.

IV. Current Regulatory and Bi-National Treaty Environment

Frequency spectrum regulatory action in the United States is administered by the Federal Communications Commission (FCC) while Industry Canada (IC) handles all regulatory actions in Canada.⁹ In the VHF and UHF bands, the FCC designates certain frequencies for public safety use while Canada allows a first come, first serve approach which best meets the needs of their extensive geography. Both countries have worked to implement a 'block and zone' approach to licensing the 700 MHz and 800 MHz spectrum.

The FCC and IC have worked to improve the licensing and coordination process for public safety agencies near the border. IC has taken a number of steps to enhance the transparency of their licensing process and also posted related information on its website. For example, IC provides an explanation of how it processes cross border requests including a discussion on how the potential for interference is calculated.¹⁰ Because the U.S. uses a different interference calculation, the provision of this information by IC has been very helpful in educating U.S. agencies on how to more fully document radio system specifications on their license applications. IC will also provide the call sign of the Canadian station that triggered a license denial allowing the U.S. agency to conduct further research into their request.¹¹

The FCC has granted regulatory waivers to allow expanded use of some nationwide interoperability channels to enhance cross border use and has granted regulatory waivers to allow public safety agencies to operate on non-public safety frequency bands to achieve interoperability with Canada. Special coordination procedures have been used to place Canadian base stations on U.S. soil to support the radio system for the Royal Canadian Mounted Police (RCMP). These situations represent non-standard solutions that need a standardized process. The FCC and IC are currently working on those processes.

There are several regulatory and policy documents which control the allocation of public safety radio frequencies. The FCC and IC are required by law to follow these agreements and have little latitude to adjust their policies. Public safety agencies on both sides of the border should familiarize themselves with these documents.

⁹ An overview of Industry Canada perspectives with public safety is available at: <https://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10280.html>.

¹⁰ 2013 Technical Bulletin #7 from Industry Canada explaining the cross border license coordination process and interference determination process.

¹¹ The call sign and identity of the incumbent is not provided if the Canadian station user is classified as governmental/sensitive.

1951 Treaty

This document is titled “CONVENTION BETWEEN CANADA AND THE UNITED STATES OF AMERICA RELATING TO THE OPERATION BY CITIZENS OF EITHER COUNTRY OF CERTAIN RADIO EQUIPMENT OR STATIONS IN THE OTHER COUNTRY” and is sometimes referred to as the 1952 Treaty.

ARTICLE II of the Agreement has language¹² which allows public safety agencies to operate their mobile radios after they cross the border into the other country:

“The respective countries agree that mobile radio stations properly licensed in one country are permitted to be operated in the territory of the other country (except that the provisions of this article do not apply to ship or aircraft stations and are not intended to change or modify the terms of any agreements or treaties relating to such stations) subject to local operating conditions and regulations, as follows: mobile radio units installed in public safety vehicles, in vehicles employed in the operation or maintenance of a pipeline or other industrial facility standing across the border, or in vehicles regularly engaged in the public carriage of persons or goods between the two countries, may be operated in the course of normal rendition of service, by persons properly authorized by either country, for communication with those radio stations of either country that are license to be operated in the same type of radio service. For security purposes or to assure familiarity with domestic radio regulation and procedures, each country may require the registration or examination of citizens of the other country and the issuance of a permit extending the privileges stated above.”

It is important to note the following:

- This treaty allows a public safety agency to operate a mobile radio on a frequency authorized by their home country and does not automatically allow a public safety mobile radio to transmit on a frequency licensed by the other country.
- This treaty does not address portable radio communications across the border. This language hampered efforts to use radio caches across the border to support interoperability.

On October 8, 2014, the FCC and IC signed a letter of intent which clarifies the implementation of the treaty. Both countries have acknowledged that public safety agencies may use portable radios at the border and across the border in the other country. The agreement includes the following statement:

Furthermore, the Agencies recognize that in the April 15, 1991 Exchange of Letters between the Department of Communications (now Industry Canada) and the Federal Communications

¹² Emphasis added by author to citation of Article II.

Commission, the Agencies concurred to suspend the requirement under the 1952 Convention for the registration and the issuance of a permit to terrestrial mobile radio units operating in the other country, provided such mobiles are under the control of a properly licensed terrestrial station in the country in which they are operating. Similarly, the agencies do not intend to require registration or the issuance of a permit for the operation of mobile or portable radio units by public safety licensees of either country, regardless of whether or not these radio units are under the control of a terrestrial station in the country in which they are operating, provided such radio units are properly licensed in their country of origin.

This new agreement allows the following:

- U.S. and Canadian public safety agencies may use their portable radios as they approach and cross the border into the other country.
- The portable radio may use the local dispatch frequencies of their agency. For example, a Windsor police officer may use a portable radio communicating on City of Windsor police frequencies after entering the U.S.
- The portable radio may use frequencies licensed in the other country. For example, an Alberta Provincial ambulance may use a portable radio provided by the State of Montana to communicate on frequencies licensed by the State of Montana. This might include access to designated interoperability channels or direct access to a State of Montana local public safety frequency.
- This authorization includes portable devices that provide both voice and data services.

The FCC and IC have also indicated their joint decision to not require the issuance of a federal permit or other authorization to a public safety radio user who needs to use their licensed frequency across the border. This permitting process was provided for in the 1952 treaty at the discretion of either country and has never been implemented.

It noted that U.S. agencies who desire to allow Canadian public safety agencies to access their radio channels must provide approval for such access. The State of Montana has a mutual aid radio permitting process which grants authorization for public safety agencies to access State of Montana interoperability frequencies. Other agencies across the U.S. use a form letter and some agencies grant permission in an email message.

The National Telecommunications and Information Administration (NTIA) which manages frequency spectrum for U.S. federal and military agencies is not a party to this agreement.¹³

1962 Spectrum Management Treaty

¹³ As of the creation of this report, DHS is checking with NTIA to determine the impact to their operations.

This document is titled “COORDINATION AND USE OF RADIO FREQUENCIES ABOVE 30 MEGACYCLES PER SECOND” and was implemented through an exchange of notes between the U.S. and Canada, signed in Ottawa on October 24, 1962, and updated in 1965.

This treaty provided for frequency coordination between the U.S. and Canada and provided for rules and procedures to manage the VHF and UHF frequency bands. It created Lines A/B/C/D which encompasses 75 miles/120 km on either side of the border as a zone which requires special frequency coordination.

This process is described in Section 3 of this report.

Arrangement F

This document is titled “SHARING ARRANGEMENT BETWEEN THE DEPARTMENT OF INDUSTRY OF CANADA AND THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA CONCERNING THE USE OF THE FREQUENCY BANDS 806-824 MHz, AND 851-869 MHz BY THE LAND MOBILE SERVICE ALONG THE CANADA-UNITED STATES BORDER”

This document provides for the harmonization of 800 MHz frequencies between the U.S. and Canada and creates a set of public safety interoperability channels that may be shared by both countries. Section 3.2.3 of this document lists these interoperability channels.

3.2.3 Shared Channels:

The following 25 kHz bandwidth paired channels with the center frequencies as indicated are to be available as public safety interoperability channels. These channels are available for each Agency’s use in all areas. Usage of these channels in the Sharing Zones may be locally coordinated in accordance with the interoperability requirements of the Canadian and U.S. public safety licensees.

806.0125 MHz paired with 851.0125 MHz. (8CALL90)

806.5125 MHz paired with 851.5125 MHz. (8TAC91)

807.0125 MHz paired with 852.0125 MHz. (8TAC92)

807.5125 MHz paired with 852.5125 MHz. (8TAC93)

808.0125 MHz paired with 853.0125 MHz. (8TAC94)

These channels were changed to new frequency assignments due to a rebanding effort to minimize interference in the U.S. from Nextel cellular transmissions. It should be noted that some Canadian agencies that were licensed prior to August 1, 2011, for operation on these 800 MHz interoperability channels may continue to use the legacy I-CALL, I-TAC frequencies on a secondary basis. These “I-TAC” channels are not interoperable with the U.S. and Canada rebanded “8TAC” channels.

Arrangement Q

This document is titled, “SHARING ARRANGEMENT BETWEEN THE DEPARTMENT OF INDUSTRY OF CANADA AND THE FEDERAL COMMUNICATIONS COMMISSION OF THE UNITED STATES OF AMERICA CONCERNING THE USE OF THE FREQUENCY BANDS 768-776 MHz AND 798-806 MHz BY THE LAND MOBILE SERVICE ALONG THE CANADA-UNITED STATES BORDER”

This document was approved in May of 2013 and provides for the harmonization of 700 MHz frequencies between the U.S. and Canada and creates a set of public safety interoperability channels that may be shared by both countries.

Section 3.2.4 of the document identifies 33 pairs of interoperability channels and further identifies another series of low power narrowband voice channels.¹⁴

FCC Rule 90.407 Emergency Communications

This FCC rule states “*The licensee of any station authorized under this part may, during a period of emergency in which the normal communication facilities are disrupted as a result of hurricane, flood, earthquake, or similar disaster, utilize such station for emergency communications in a manner other than that specified in the station authorization or in the rules and regulations governing the operation of such stations. The Commission may at any time order the discontinuance of such special use of the authorized facilities.*”

Some U.S. public safety agencies have been incorrectly advised that this rule allows them to communicate on any frequency in order to provide life-saving services and can be used as a “standing waiver.” Other agencies incorrectly believe that this rule allows for use of interoperability channels above Line A when their FCC license specifically restricts such use.

¹⁴ In October 2014, the FCC issued a revised Report and Order which further defines use of the 700 MHz public safety frequencies, adopted a set of designated air-to-ground channels, and clarified the use of digital technology. This new document does not automatically change the operation of 700 MHz channels near the border.

FCC Rule 90.421

This rule allows the mobile and portable use of a licensed frequency by “...persons other than the licensee...” in order to meet the operational requirements of the public safety agency. It does not mandate how the authorization is documented. Some agencies provide a formal permit while others provide the authorization via an email message.

§90.421 Operation of mobile station units not under the control of the licensee.

Mobile stations, as defined in §90.7, include vehicular-mounted and hand-held units. Such units may be operated by persons other than the licensee, as provided for below, when necessary for the licensee to meet its requirements in connection with the activities for which it is licensed. If the number of such units, together with units operated by the licensee, exceeds the number of mobile units authorized to the licensee, license modification is required. The licensee is responsible for taking necessary precautions to prevent unauthorized operation of such units not under its control.

(a) Public Safety Pool.

(1) Mobile units licensed in the Public Safety Pool may be installed in any vehicle which in an emergency would require cooperation and coordination with the licensee, and in any vehicle used in the performance, under contract, of official activities of the licensee. This provision does not permit the installation of radio units in non-emergency vehicles that are not performing governmental functions under contract but with which the licensee might wish to communicate.

(2) Mobile units licensed under § 90.20(a)(2)(iii) may be installed in a vehicle or be hand-carried for use by any person with whom cooperation or coordination is required for medical services activities.

(3) On the Interoperability Channels in the 700 MHz Public Safety Band (See § 90.531(b)(1)), hand-held and vehicular transmitters may be operated by any licensee holding a license in the 700 MHz Public Safety Band or by any licensee holding a license for any other public safety frequency pursuant to part 90 of the Commission's rules. Therefore, individual licenses are not required for hand-held and vehicular transmitters in the 700 MHz Band.

(b) Industrial/Business Pool. *Mobile units licensed in the Industrial/Business Pool may be installed in vehicles of persons furnishing under contract to the licensee and for the duration of the contract, a facility or service directly related to the activities of the licensee.*

(c) *In addition to the requirements in paragraphs (a) and (b) of this section, frequencies assigned to licensees in the Private Land Mobile Radio Services may be installed in the facilities of those who assist the licensee in emergencies and with whom the licensee must communicate in situations involving imminent safety to life or property.*

There are a number of other binational treaties, compacts, and agreements between the United States and Canada which provide a framework for public safety response across the border. Many of these documents have been added to the Cross Border Library on the NPSTC and CITIG websites (see Appendix B).

Four example documents are identified below:

U.S./Canadian Emergency Management Compact: This document, signed by both governments, provides the basis for sharing of resources in an emergency. Local governments and state/provincial entities have used this document as the enabling agreement which allows additional local agreements to implement specific actions called for in the Emergency Management Compact.

DHS Compendium of U.S. – Canada Emergency Management Assistance Mechanisms: This 2012 report includes a listing of all emergency management agreements between the U.S. and Canada at the federal level. This report is helpful in identifying a specific “master agreement” which might be leveraged to create a local agreement.

Pacific Northwest Emergency Management Compact: This document covers Alaska, Idaho, Oregon, Washington, British Columbia, and the Yukon Territory and is based on a 1986 U.S./Canadian federal arrangement covering emergency management. It was amended in 1996 and 2005. Article V of the agreement provides for automatic cross border credentialing and licensing. An additional annex provides an operational plan for moving EMS staff and resources across the Washington State and British Columbia border. This document is an example of a state/provincial agreement that allows a paramedic from either country to maintain their professional certification while responding into the other country.

Narrowbanding of Frequency Spectrum Agreement: As of January 1, 2013 the FCC required that all radio frequencies operating in the U.S. below 512 MHz be modified to discontinue operations on 25 kHz channel centers and instead move to a 12.5 kHz channel center, allowing for more spectral efficiency. While Industry Canada has issued a 12.5 kHz mandate for higher bands (700 MHz and 800 MHz) they have not issued an equivalent mandate in the VHF and UHF band where Canadian public safety agencies operate on 25 kHz voice channels.¹⁵ Public safety agencies on both sides of the border need to be aware of this disparity in operations as it may impact interoperability.

¹⁵ A complete listing of Industry Canada narrowband requirements is located at: <http://www.ic.gc.ca/eic/site/smt-gst.nsf/eng/sf10102.html>

V. Cross Border Work Efforts

A number of groups and organizations have been working to enhance cross border communications and interoperability. These organizations should be credited for their work which is at the forefront of all efforts to improve emergency response at the border.

Western Border Interoperability Working Group (WBIWG)

This group was formed in February of 2005 for federal, provincial, state, local, and tribal entities and includes the States of Washington, Idaho, Montana and North Dakota. The State of Montana has more than 550 miles of border attaching to three provinces of Canada (Alberta, British Columbia, and Saskatchewan). There are 14 border crossings and ports of entry in the State of Montana. In January 2006, the WBIWG held its second border communications meeting in Sweet Grass, Montana, and continued to dialogue and expand coordination and membership. The third WBIWG meeting took place in April 2007 in Helena, Montana, while the fourth meeting was held in Lethbridge, Alberta, on April 16, 2008. The fifth meeting was held in Whitefish, Montana on April 21, 2009. The group met again in November of 2013 in Kalispell, Montana.¹⁶

2006 Northern Tier Interoperability Consortium

This organization included 12 counties in Montana including 4 Tribal entities. All were located above "Line A" across the 550 miles of border that Montana shares with Canada, placing them in a zone that requires special radio frequency coordination with Canada. This group held several meetings to review interoperability issues and concerns and to discuss implementation of a common cross border frequency.

2009 DHS-OEC Cross Border Workshop - Niagara Falls, New York

On October 20, 2009, the first Canada/ U.S. cross border interoperable communications workshop was held in conjunction with the U.S.-Canada Agreement on Emergency Management Cooperation. This event was sponsored by the U.S. Department of Homeland Security, Office of Emergency Communications. The workshop documented best practices and started the process to formulate action plans which would drive improvements in cross border communications interoperability. Three themes were identified:

- Lack of adequate governance structures.
- Outdated legal frameworks and regulatory processes.
- Cultural barriers to collaboration.

¹⁶ All meeting materials are located on this web site: <http://pssb.mt.gov/wbiwg/meetings.mcp>

Workshop attendees identified the following opportunities for improvement:

- Desire to expand and formalize cross border partnerships.
- Public recognition and demand that information sharing is required.
- The culture's gradual shift from hoarding information to "duty to share."

2010 DHS OEC Cross Border Workshop

The 2010 Canada-U.S. Cross Border Interoperable Communications Workshop was held on September 13-15 in Windsor, Ontario. This session was co-hosted by Public Safety Canada and DHS-OEC. More than 130 officials from all levels of government and first responder organizations from both Canada and United States met to work collaboratively to answer the following question, "*What do we need to do to formally address communications interoperability challenges in support of cross border operations?*" Three functional areas were identified as requiring a coordinated effort between policymakers and emergency responders. They include **planning**, **policy development**, and **operations**. Ten priority areas were identified during the session. The complete list is discussed in Section 3 of this report.

Beyond The Border (CANUS CIWG)

On February 4, 2011, President Obama and Prime Minister Harper announced a joint declaration between the two countries, titled "Beyond The Border: A Shared Vision for Perimeter Security and Economic Competitiveness". On December 7, 2011, both governments released the "Beyond The Border Action Plan" which set out joint priorities and initiatives to enhance cross border cooperation and communication. One component of this plan called for the harmonization of cross border emergency communications and interoperability capabilities, allowing public safety officials on both sides of the border to easily communicate in the event of an emergency or disaster.

The CANUS Communications Interoperability Working Group (CIWG) was formed in 2012 to coordinate a specific action plan on cross border communications. Their work is designed to fulfill the cross border communications requirement outlined in the Beyond The Border Action Plan, Item #7(b). The working group is co-chaired by Public Safety Canada and the DHS-OEC. The CIWG work plan is based on eight goals to improve engagement, collaboration, and information sharing at both the operational and strategic level:

- Goal 1: Coordinate national-level public safety communications plans and strategies.
- Goal 2: Identify future trends and technologies related to communications interoperability.
- Goal 3: Promote of the use of standards in emergency communications.
- Goal 4: Promote governance models and structures.
- Goal 5: Share best practices and lessons learned.

Goal 6: Promote interoperability between the Canadian Multi-Agency Situational Awareness System (MASAS) with the United States Integrated Public Alert and Warning System (IPAWS) and complement other emergency management situational awareness system(s) to enable sharing of alert, warning, and incident information to improve response coordination to bi-national disasters.

Goal 7: Harmonize Canadian and U.S. public safety broadband networks in the 700 megahertz (MHz) spectrum to enable cross border communications in these bands, and establish mechanisms/protocols to avoid interference issues.

Goal 8: Establish post Beyond the Border initiative transition activities.

2013 CITIG Cross Border Workshops

CITIG organized a series of cross border workshops throughout Canada in 2013. These sessions brought first responders together from both sides of the border that represented all levels of public safety. The goals of the sessions were to:

- Increase awareness of the issue of cross border public safety interoperability.
- Present information on some of the various interoperability programs and projects currently taking place in Canada, the U.S., and regionally.
- Obtain feedback from local participants about the current cross border interoperability situation, identify opportunities for information sharing, and outline next steps.
- Discuss next steps relevant to interoperability strategic planning in the region.
- Make both Canada and the U.S. safer!

The six meeting locations were distributed throughout the provinces of Canada and included:

- Sarnia, Ontario
- Lethbridge, Alberta
- St. Jean-sur-Richelieu, Quebec
- St. Stephen, New Brunswick
- Abbotsford, British Columbia
- Whitehorse, Yukon Territory

Information gathered from these sessions was instrumental in validating the problems which are facing first responders at the border. It also identified several areas where there is confusion and misinformation on policy and technology issues.

These workshops identified more than 80 elements that were assigned to an action plan based on a gap analysis. These recommendations were organized within the lanes of the SAFECOM

Interoperability Continuum, and included Governance, SOP, Technology, Training and Exercises, and Usage.

2014 CITIG Bi-National Cross Border Communications Conference

CITIG and the Canadian Association of Chiefs of Police (CACCP) hosted a 2-day conference on October 21-22, 2014, in Windsor, Canada, to discuss cross border communications issues. 75 delegates representing all levels of public safety in both countries attended the event. During the conference, the FCC and IC issued a joint announcement regarding a new agreement to formally authorize cross border portable radio use by public safety personnel. A draft copy of this report was distributed to the conference attendees to help promote conversation and innovation. A series of action plan documents were created to address ongoing gaps in cross border efforts. Information from those plans has been incorporated into this report.

2014 CITIG-8: The Eighth Canadian Public Safety Interoperability Workshop

CITIG and the CACP hosted a 2- day conference on December 2-3, 2014, in Ottawa, Ontario, to review interoperability issues and current public safety technology advances. Cross border emergency communications was one of several key themes presented in the conference and an overview of this report was provided to conference attendees.

VI. Cross Border Interoperability Projects and Solutions

The preparation of this report involved an extensive dialogue with front line emergency response personnel who work near both nations' borders. These public safety personnel have launched a number of cross border interoperability initiatives which have resulted in significant improvement in their operations.

This section of the report is designed to showcase these initiatives and explain where they have broad applicability along the entire border region.

A. Eastern Border Area (Maine to Minnesota & Nova Scotia to Ontario)

State of Maine/New Brunswick Province

There are several successful cross border interoperability projects in this region. The "Border Interoperability Guide" also known as the "BIG" is a comprehensive reference guide which includes first responder radio frequencies, border crossing site identification and contact information, maps, and communications plans. This document is a one stop shop for all information on local, state/provincial, and federal entities. It was produced by the Statewide Interoperability Coordinator (SWIC) for the State of Maine. A redacted copy of the report is available in the CITIG/NPSTC website cross border library.

The table of contents for the State of Maine, Border Interoperability Guide, illustrates the breadth and depth of information available to first responders in the state.

Table of Contents	
Introduction.....	2
How to use the Border Interoperability Guide.....	3
Table of Contents.....	4
Geographical Areas.....	5
Zone Map.....	6
Public Safety Zone Partnerships.....	7
Zone 1 (Washington County).....	7
Zone 2 (Aroostook County).....	9
Zone 3 (Somerset County).....	13
Zone 4 (Franklin/Oxford Counties).....	15
ZONE #1 Maine/Canada Agencies.....	17
ZONE #2 Maine/Canada Agencies.....	18
ZONE #3 Maine/Canada Agencies.....	19
Zone #4 Maine/Canada Agencies.....	19
United State Federal Agencies Contact numbers.....	21
Canada Agencies/Provincial.....	22
CONOPS.....	23
Aviation Frequencies.....	25
Marine Frequencies.....	26
Weather.....	28
U.S. – Canada Ports of Entry.....	29
Closed Crossings.....	31
Railroad Crossings.....	31
U.S. – Canada Ports of Entry Contact Numbers.....	32
Ferry Crossings.....	33
MOU Examples.....	34
Radio Caches locations.....	35

The Calais Fire Department¹⁷ (U.S) and the St. Stephen's Fire Department (Canada) have executed formal automatic aid agreements and share pagers for emergency alerting between the two agencies. Cache radios are also available on both sides of the border to enhance on scene direct communications. Calais Fire Department first responders have direct radio access with border crossing personnel in order to coordinate an emergency response into Canada.

The States of Maine, Vermont, New Hampshire, New York, and Pennsylvania are currently investigating the assignment of a regional cross border interoperability channel which can be shared with Canadian first responders. This program will mirror the VLAW 31 "Blue Channel" solution implemented by the State of Montana.

Michigan, Wayne County¹⁸

Wayne County, Michigan, received a Border Interoperability Demonstration Project (BIDP) grant from the U.S. Department of Homeland Security (DHS). The grant funded five components to enhance cross border communications with the following U.S. and Canadian agencies:

- City of Detroit, Michigan
- City of Windsor, Ontario
- Essex County, Ontario
- Town of LaSalle, Ontario
- Sault Area Hospital, Ontario
- Wayne County Airport Authority
- Monroe County, Michigan
- Chippewa County, Michigan
- Macomb County, Michigan

The first component involved the purchase of 170 portable radios which were distributed to ten agencies, (five on each side of the U.S./Canadian border). These dual band portable radios contain conventional interoperability channels and are connected to the Michigan State Public Safety Radio system. This allows direct communications between local, regional, state/provincial, and federal agencies.

The second component involves the purchase of an IP gateway system that will allow sharing of voice, data, and video between the agencies on both sides of the border. Each of the ten recipient agencies will receive a desktop unit and software.

The third component involves modifications to a radio tower in southeast Michigan which will tie in several independent radio networks and allow fully interoperable communications between adjacent regions of the state.

¹⁷ Information provided by Chief Robert Posick, Calais Fire Department.

¹⁸ Information provided by BIDP project manager Richard Cramb.

The fourth component of the grant involves the installation of a Bi-Directional Amplifier (BDA) system into the Detroit-Windsor tunnel. This system will resolve spotty public safety radio communications inside the tunnel and allow ambulances traveling through the tunnel to maintain radio communications with their dispatcher.

The fifth component of the project involves a large-scale demonstration/exercise to validate the improvements achieved with the grant funding.

Shared Emergency Management Data Applications

The State of Michigan and the City of Detroit have partnered with the City of Windsor, County of Essex, and the University of Windsor, Ontario, to share access to their emergency management software applications.¹⁹

In 2008, the University of Windsor Campus Police created virtual Emergency Operations Center (EOC) operations on campus and eventually offered to host the software solution for the City of Windsor and each municipality in the County of Essex so that EOC to EOC communications can be facilitated online, via PC, laptop, and mobile devices. A cost-sharing arrangement is in place between the University, Windsor Fire Department, and all towns in the County of Essex for annual support and maintenance. This partnership has also allowed for a regional streamlined and standardized training program and created a collaborative solution for EOC operations throughout the Windsor-Essex area. Emergency resources are shared online, including messaging, situation reports, press releases, situational awareness, and relevant documentation in emergencies.

Several years later, the State of Michigan replaced their legacy "E-Team" software solution with the WebEOC application, which was the same software used by the University.

In 2013, during preparation for the Detroit Free Press Marathon, several meetings took place to discuss the need to collaborate across the border, particularly with events and emergencies that would result in the need for cross border collaboration when EOCs were activated. The Michigan State Police provided the University of Windsor with access to their instance of the state software (Canada-Province of Ontario Representative user account). Consequently, the University provided the Detroit Homeland Security Office (as State of Michigan Representative) with an account into the University WebEOC on a full-time basis.

During the marathon last year, both agencies monitored the system (e.g., the State of Michigan WebEOC running in the City of Windsor EOC and vice versa). Operational information was shared via the Michigan WebEOC and vice versa. Each software application continues to operate on each agency's respective servers and interoperability is achieved through credentials into each instance of the software.

Michigan, Blue Water Bay / New Brunswick Region

¹⁹ Information provided by Sgt. C. Zelezney, University of Windsor, Campus Community Police

The Blue Water Bay region represents one of the busiest border crossings in the U.S. Public safety agencies on both sides of the border have been working to enhance cross border voice and data communications.

Integration between Canada's Multi-Agency Situational Awareness System (MASAS) and the U.S. Integrated Public Alerting and Warning System (IPAWS) has been tested in this region and has demonstrated the ability to share situational awareness data between both countries. A resilient GIS platform supports desktop and mobile data sharing. Work is also underway to discuss automated cross border emergency alerting for the general public. Concerns over application of relevant privacy laws have limited the full impact of this technology which could be used to exchange public safety situational and operational information through sharing of computer assisted dispatch data.

At the local level, multi-band radios have been shared with each Emergency Management office on both sides of the border to allow direct EOC to EOC voice communications in an emergency. VHF marine channels are also leveraged for cross border, multi-agency use, during incidents involving maritime assets.

In the Port Huron/Sarnia area, U.S. Customs and Border Protection (CBP) personnel share an IP radio and data link with Canada's Royal Canadian Mounted Police (RCMP). A specially engineered data link passes radio traffic from the U.S. side of the border to a DHS control point in Orlando, Florida, where it is forwarded to an RCMP control point in Ottawa and then to the RCMP officer²⁰ on their side of the border. This link provides for secure (encrypted) radio communications.

Lambton County, Ontario, has formalized a process with U.S. and Canadian border crossing entities to expedite the passage of EMS units at the border. Coordination of hospital to hospital transfers across the border involves the use of a specially designed FAX form which identifies the EMS crew and the patient to both border crossing entities. This allows a clearance check to be completed in advance of the ambulances arrival at the bridge check point. A lane on the bridge is cleared and the ambulance is allowed to pass through following a brief stop to confirm crew identity. This process is used at both the Sarnia/Port Huron bridge crossing and the Detroit/Windsor bridge and tunnel crossings. The Niagara Emergency Medical Services²¹ agency has a written procedure governing cross border responses which provides detailed instructions for emergency vehicles crossing the border. A copy of the Cross Border EMS FAX clearance form is provided in the Cross Border library on the CITIG and NPSTC websites.

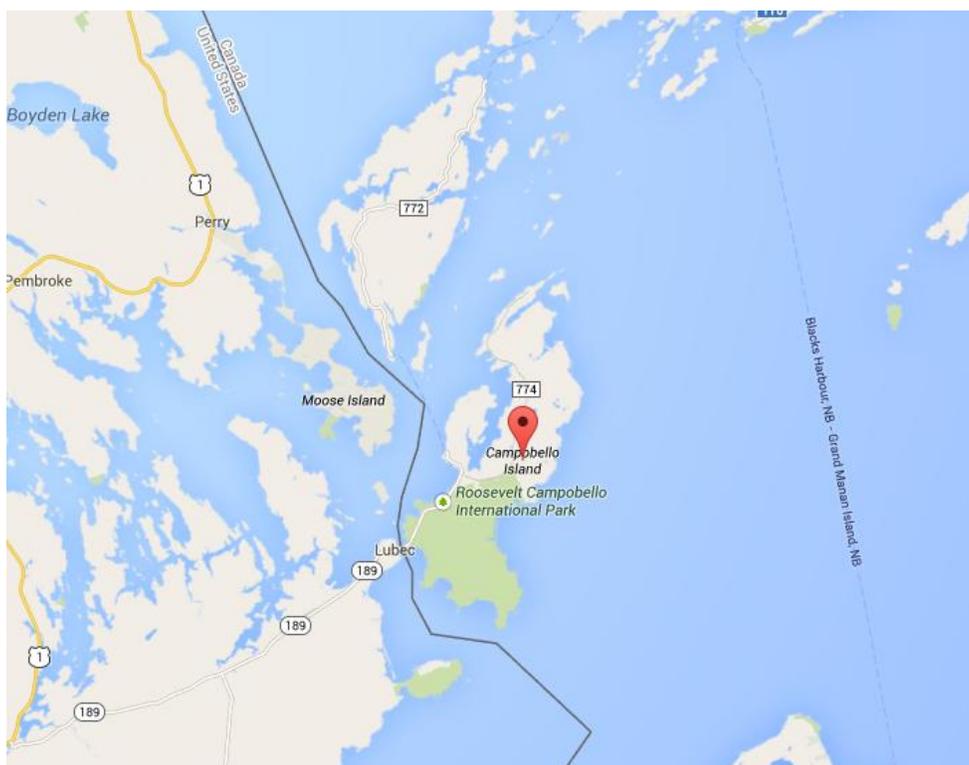
An agreement between the U.S. and Canada also allows certain critically injured patients in the Windsor, Ontario, area to be transported directly across the border to a Detroit area trauma center. This allows ambulances to bypass the closest hospital in Canada in order to reach a

²⁰ Information provided by US DHS CBP technical staff.

²¹ Information provided by Rick Ferron, ACP, MHM, Deputy Chief, Niagara Emergency Medical Services.

designated trauma center quickly. This agreement also impacts border crossing procedures because the ambulance may arrive at the border faster than the border agencies can prepare to handle the ambulance.

The EMS agency for the New Brunswick Province also has a challenging response through the United States to reach the Canadian island of Campobello. Coordination with U.S. and Canadian border crossing agencies provides for expedited border clearance. A patient on the island may also be transported directly to a U.S. hospital if their condition warrants immediate treatment.



State of Michigan Radio Network

The State of Michigan has been working cooperatively with the State of Ohio to cross connect their radio systems. An ISSI trunked radio solution is being implemented along with control station links. Ohio is looking to cross connect their radio network to the State of Pennsylvania. There is early discussion on the creation of an ISSI radio link with Windsor, Ontario.

Sault St. Marie Michigan²² & Sault St. Marie, Ontario

The International Bridge connects the two communities of Sault St. Marie, Ontario, with Sault St. Marie, Michigan. Cross border communications have been established between the two cities using portable radios, including the provision of local radios in border crossing stations.

²² Verification of technical details pending at the time of this report.

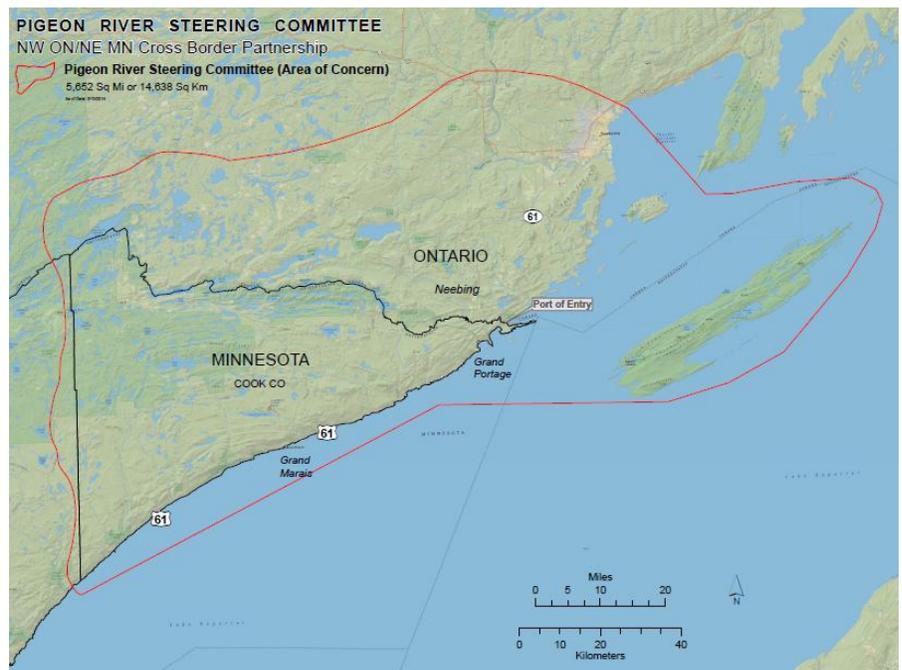
Lake County²³, Ohio

Lake County, Ohio, is working on a Northern Border initiative to share voice, data, and radar information across a multi-state area of the U.S., including Pennsylvania and Michigan. While this project does not involve Canadian agencies at this time, the infrastructure could be leveraged to support federal, state/provincial, and local connections in the future. Conceptually, the technology used in this project could allow the sharing of radar data from patrol boats between the two countries.

Minnesota, Pigeon River Region

The Pigeon River forms a portion of the Canada–U.S. border between the State of Minnesota and the Province of Ontario. In June of 2011, governments in the region (including Cook County, Minnesota; Grand Portage, Neebing, Ontario; Thunder Bay, Ontario), formed the Pigeon River Steering Committee. This group is working to enhance cross border relationships and to ensure that local first responders have easy access to interoperable systems during an emergency. Local

governments on both sides of the border in this region have executed a formal agreement linked to the U.S. Canadian Emergency Management Assistance Compact. A copy of this agreement is included in the Cross Border library on the NPSTC and CITIG websites.



²³ Information provided by DHS-OEC.

Province of Ontario²⁴

Ontario has created a Provincial Interoperability Strategy document. The 33-page plan identifies 11 focus areas for local communications planning. This document is significant in that cross border interoperability cannot occur unless there is a strong local interoperability plan. A copy of this report is included in the Cross Border library on the CITIG and NPSTC websites.

Great Lakes Fire Consortium²⁵

The Great Lake Forest Fire Consortium (GLFFC) recently created a communications working group that is examining radio issues, including air-to-ground communications, in the Minnesota, Wisconsin, Michigan, Ontario, and Manitoba area. This group focuses on successful interoperability between local, state/provincial, and federal response agencies on both sides of the border.

B. Western Border Area: (North Dakota to Washington State & Manitoba to Yukon

State of Montana

The State of Montana has implemented a statewide cross border interoperability project involving VHF frequency 155.4750 MHz (VLAW31). This channel is also known as the “Nationwide Law Enforcement Communications Channel” (NLECC) and locally in the Montana area as the “Blue Frequency.” In December of 2012, Montana applied for and received a waiver from the Federal Communications Commission to allow VLAW31 to be used by all public safety agencies for cross border emergency communications within 10 miles/16 Km of the border. This waiver²⁶ permits fire/rescue and EMS agencies to use this law enforcement channel.

The State of Montana then amended its Mutual Aid Radio Permitting system to allow Canadian first responders to obtain permission to transmit on the frequency while responding into the U.S. This is allowable under FCC Rule 90.421 which allows a license holder to allow others to operate on their radio system.

Industry Canada worked with the Province of Saskatchewan and in June 2013 authorized the use of this frequency for law enforcement, fire, and EMS personnel. The State of Montana had 19 existing

Public Safety Services Bureau
Mutual Aid Frequencies Permit Request INSTRUCTIONS HOW DO I? FEEDBACK

STEP 1 Please enter information in the fields below. All fields are required.

Organization Name:

Name of individual making request: Title of Individual making request:

Address: City/State/Zip: MT

Telephone: (xxx-xxx-xxxx) Email:

County:

Reason for application

²⁴ Kevin Bull, Provincial Interoperability Officer

²⁵ Jennifer Lord, Radio Communications Specialist-Forestry, Wisconsin Department of Natural Resources serves as the Communications Committee chair.

²⁶ FCC, DA 12-1984; Request for Waiver, Section 90.20(d)(41)

sites with VLAW31 base stations and leveraged a federal grant to install 14 additional radio base stations along the Montana/Canada border. Each border crossing station is now equipped with a base station radio on this frequency. In March of 2014, Saskatchewan and the State of Montana conducted a joint live exercise, resulting in the first cross border radio transmission between U.S. and Canadian agencies on this channel. This was a unique solution in that the frequency was available and assignable in both in the U.S. and Canada.

Saskatchewan²⁷ and North Dakota

The Province of Saskatchewan and the State of North Dakota are discussing options for extending the VLAW31 solution across their common border to support law enforcement, fire, and EMS operations.

Alberta Province²⁸

Alberta Health Services is responsible for the delivery of EMS in the province of Alberta. Paramedic response is coordinated through a South Zone Operations group along the U.S. border and is dispatched by a provincial dispatch center.

There is no interoperability currently between AHS ambulances and the Canadian Border Services. When communications is required, it is achieved through the phone system. AHS does not provide first responder services into the U.S. at this time. There are occasions where patients are moved from the U.S. to Canada and vice versa. Each organization involved in the transfer contacts their respective border agencies and coordinates the transfer. In the near future, voice communication between EMS units and allied agencies will occur over the new Alberta First Responder Radio Communications System (AFRRCS). This will provide the opportunity for improved interoperability. There are plans in the near future to test some of the AFRRCS infrastructure both with the U.S. and on an interprovincial basis.

State of Washington/British Columbia Province

The State of Washington applied to the FCC for a waiver²⁹ to utilize a VHF paging channel (158.490 MHz) near Blaine, Washington, to create an interoperability connection with the Royal Canadian Mounted Police (RCMP) radio system across the border. This waiver allows U.S. law enforcement first responders to communicate on a non-public safety frequency, called the CAN-AM channel, in order to achieve interoperability with local, provincial, and federal entities in Canada.

An ACU1000 gateway device at the border is maintained by the regional RCMP office in Surrey and also provides radio interoperability with local, state/provincial, and federal law enforcement first responder agencies.³⁰ This system is the primary interoperability gateway between U.S. and

²⁷ Information provided by Maureen Schmidt, Government of Saskatchewan, Manager, Saskatchewan Interoperability Development Office.

²⁸ Information provided by Pascal Rodier, Operations Manager, City of Saint John, Ambulance NB.

²⁹ FCC File No. 0002479866.

³⁰ Information provided by Mike Francis, RCMP.

Canadian law enforcement agencies. It has a fixed link between RCMP and the U.S. Integrated Wireless Network (IWN) system and can also support ad hoc patches as required.

A U.S. Department of Justice/DHS VHF trunked radio system, IWN, is also available for federal agency and local public safety communications in the border area surrounding Blaine, Washington. The CBP dispatch center provides 9-1-1 call processing and dispatch services for several U.S. communities in the immediate area of the border.

U.S. Customs and Border Protection personnel in the Spokane, Washington, area can communicate directly with Okanagan Integrated Border Enforcement Teams (IBET) and RCMP's "E" Division on one of several frequencies. Both countries share frequencies³¹ and encryption keys to communicate at border crossing stops.

Federal agencies in the Blaine, Washington, and Vancouver, British Columbia, area are also served by an IP-based communications network. While the system only supports voice traffic today, it is designed to handle data and video exchange between the two countries. This allows communications between IBET members, including Customs and Border Protection, the Coast Guard, Royal Canadian Mounted Police, and the Canada Border Services Agency. This pilot project is called the Tactical Communications Interoperability Framework and was started in 2012. A similar project was also implemented between Detroit, Michigan, and the London, Ontario area. The IP-based switching system allows each country to maintain autonomy of its network with no impact to spectrum or interconnection agreements.

The network design preserves the sovereignty of each nation. The U.S. and Canadian radio networks are not merged. Audio is sent over the network to the "other country." Each side is responsible to maintain and operate their own radio systems.

For example, a federal user radio transmission from Blaine, Washington, goes to an Internet Protocol Interoperability Collaboration System (IPICS) server and is routed to the National Law Enforcement Communications Center in Orlando, Florida. From there, the radio transmission is routed across one of two redundant circuits to Ottawa. From Ottawa, the officers' transmission then reaches Vancouver and into their radio network. The RCMP Network Operations Center in Ottawa, like the U.S. center in Florida, monitors the status of the connection and can disconnect the network if necessary.

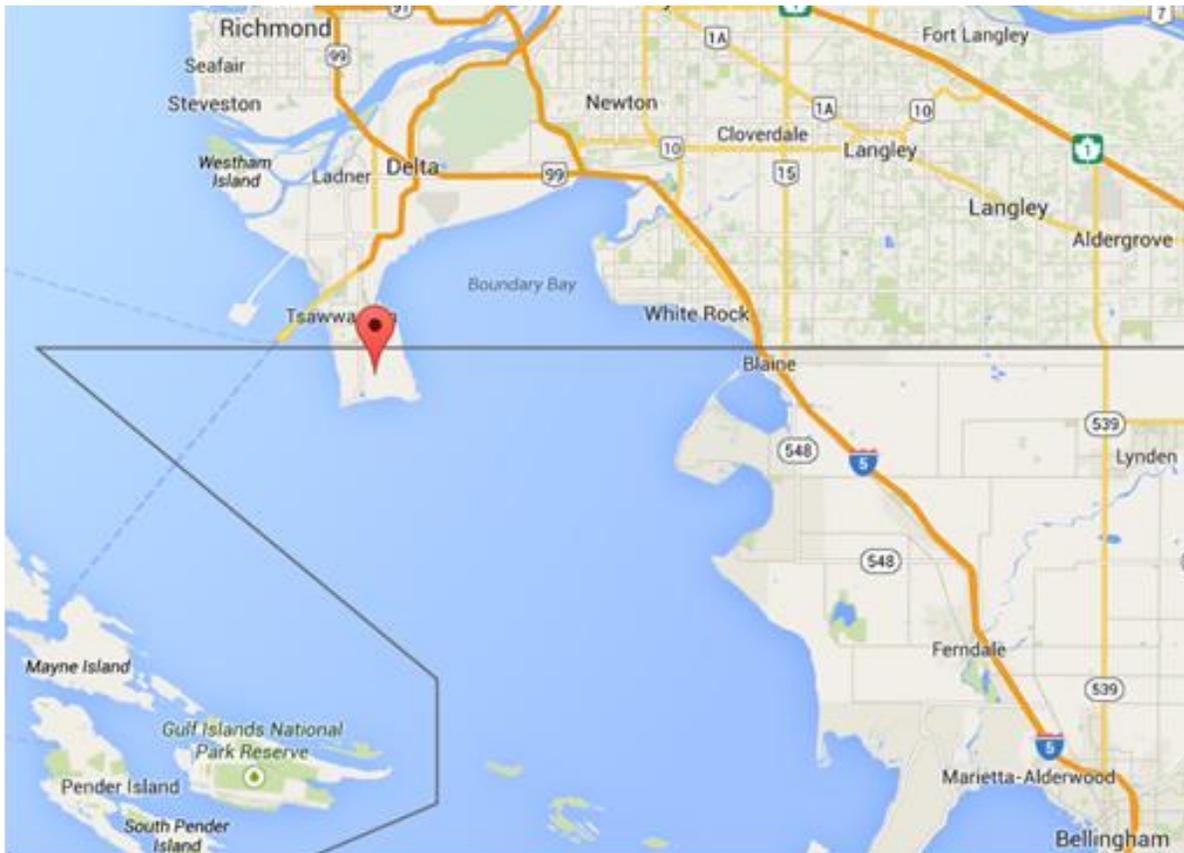
While these systems were designed for federal to federal communications, it is technically possible to expand their use to allow for local and state/provincial agency participation.

Western States/Provinces – EMS

³¹ The RCMP and US Border Patrol have a formal agreement for channel use and encryption keys (signed by Gloria Chavez, IC Spokane Sector USBP and Insp. Brian Gately, RCMP) on three channels for the Osoyoos/Oroville Border crossing area: (1) Analog: BP/RC A (simplex narrowband); (2) Digital and encrypted FEDCOM and BP/RC D. Federal LE 2 and LE3 are in use.

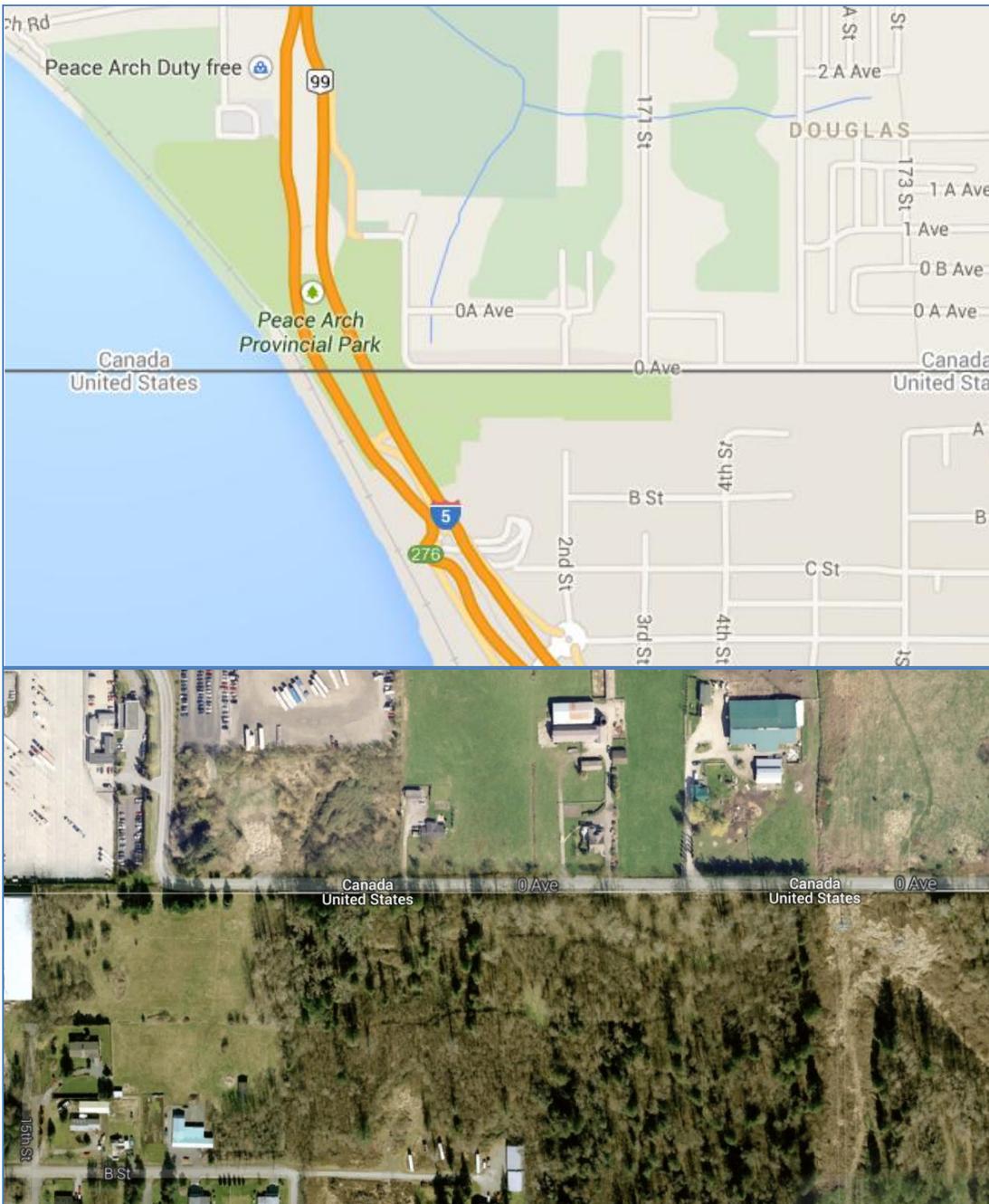
There is a high degree of cooperation among EMS providers in the western states and provinces. The States of Washington, Idaho, and Montana work cooperatively with the provinces of British Columbia, Alberta, and Saskatchewan. Ambulances from both countries routinely respond into each other's jurisdiction to provide medical care. A coordinated response is essential due to the presence of international boundary lines.

Point Roberts, Washington, is just one example of a U.S. location that is only accessible from Canada. Response to this community requires a 26-mile journey from Blaine, Washington, through Canada. Canada's Ministry of Health allows British Columbia ambulances to respond to this area and to transport the patient to an appropriate hospital on either side of the border.



Point Roberts, Washington, located immediately south of the Province of British Columbia

Another example involves emergencies which occur on the actual border between the U.S. and Canada. “0 Avenue” is a roadway which separates the U.S. and Canada near Blaine, Washington. Traffic crashes and other emergencies frequently result in a public safety response by both countries.



There are two agreements in the Pacific Northwest region which help maximize the efficiency of EMS services across the border.

PEMA (Pacific Northwest Emergency Management Arrangement)

As mentioned earlier in this report, an agreement between Alaska, Idaho, Oregon, Washington, British Columbia, and the Yukon Territory allows the creation of other agreements for specific purposes. Article V of the Arrangement codifies that any professional licensed in one country is

automatically recognized as licensed in the other country in a mutual aid incident. This statement allows EMTs and paramedics from both countries to continue treating the patient without regard to any jurisdictional boundary.

EMS Border Crossing Plan

There is a 2009 agreement between the State of Washington and British Columbia regarding the exchange of EMS resources across the border. This document also provides reciprocity of EMS licensure between the two countries.

C. General Cross Border Information – Non Attributed

During the creation of this report, public safety agencies frequently commented that they had to take necessary actions in order to provide safe and efficient emergency service. Many examples of “unauthorized” cross border solutions were identified. The public safety agencies involved asked that their identity not be compromised and noted that they felt they had to operate outside of the regulatory process because they could not find a way to operate within it.

- **Programming Radio Frequencies:** Several agencies on both sides of the border report that they have programmed frequencies for the “other country” into their mobile and portable radios to provide the required level of interoperability at the scene of an incident.
- **Radio Caches:**³² Several agencies report that portable and mobile radios are exchanged across the border between law enforcement, fire, and EMS agencies. These radios allow U.S. and Canadian first responders to monitor and communicate with the agency in the other country.
- **Base Stations:** Some agencies reported that they have installed base station radios or control stations at their dispatch centers and operational facilities to allow direct communication across the border.
- **Federal and Local Agency Interoperability:** Some agencies report that federal entities in the U.S. and Canada use local radio networks to communicate with their own units instead of using their assigned federal networks. This may be done to provide better coverage or to allow for interoperability with local and state/provincial first responders. In almost all instances, U.S. federal authorities lose mandatory encryption when switching to local networks.
- **Line A/B Frequency Coordination:** Some U.S. agencies report that they have to ignore the Line A/B/C/D frequency coordination restriction on their FCC licenses in order to maintain statewide communications with other public safety agencies operating below Line A.

³² Note that the new agreement between the U.S. and Canada now allows for cross border use of portable radios.

VII. Barriers & Opportunities

This section of the report will describe barriers and opportunities with cross border communications. Information in this section has been aligned with the five lanes of the Interoperability Continuum:

- Governance
- Standard Operating Procedures
- Technology (voice and data)
- Training and Exercises
- Usage

Governance

Barriers:

- Inability to resolve operational issues over disparate privacy laws governing the two countries. This results in a lack of real time information sharing of emergency event data.
- Regulatory issues prevent U.S. first responders from operating on Canadian public safety channels while Canadian public safety agencies can be authorized to use a U.S. public safety channel.

Opportunities:

- A procedure for U.S. first responders to legally transmit on Industry Canada approved frequencies, with the consent of the Canadian agency that is licensed for the frequency. This would be similar to FCC Rule 90.421 which allows a mutual aid radio permit to be issued to authorized responder agencies that support the licensee agency.
- Existing governance agreements between U.S. and Canadian agencies describe how local agencies can create their own agreements.
- Funding is available in many cases, but is not always used to leverage the best solution.
- The CANUS Communications Interoperability Working Group (CANUS-CIWG) is a good source for support and advocacy.
- The FCC and IC understand existing regulatory processes and the need for public safety operations.
- There are many examples of border interoperability solutions and best practices.

- Local agencies operating near the border that adopt a “know your neighbor” policy and share operational plans have better success with implementation of interoperability plans.
- Some Canadian provinces have fully embraced the need for interoperability planning officers at the provincial level.
- U.S. Statewide Interoperability Coordinators (SWICs) and Canadian provincial interoperability officers can coordinate on the creation of cross border work plans.

SOPs

Barriers:

- Misinformed belief that joint SOPs are not allowed.
- Belief that large scale, cross border incidents are rare and do not justify extensive planning.
- Lack of effective relationships between agencies on both sides of the border.

Opportunities:

- Existing joint SOPs have already been created by some agencies and serve as a model example.
- The FCC and IC both have information on their websites that describes the licensing process for border applications. This information is very helpful for agencies.
- Some agencies have developed operational policies that designate an ordered sequence of events for cross border responses, (what radio channels are used and when).
- The National Interoperability Field Operations Guide (NIFOG) is an excellent resource for radio channels and interoperability resources, but is lacking in border specific information.

Technology (Voice/Data)

Barriers:

- Disparate frequencies and disparate spectrum bands create interoperability challenges.
- Misinformation on the regulatory restrictions. Many Canadian agencies felt it was illegal for them to program a frequency into their radio if they did not hold an Industry Canada license for that frequency. It is possible for them to program in a U.S. frequency if they have permission from the U.S. license holder and only use the frequency upon crossing the border.

- Use of encryption by some local agencies hampers interoperability or causes confusion with agency personnel who believe that their transmissions are still encoded when they are not.
- Federal agencies are required to use encrypted system for day-to-day operations which hampers connectivity with local agencies.
- Lack of technologies inventory with frequency information documenting what is available today.
- Lack of a 5-year (or long term) technology plan for public safety agencies to serve as a roadmap.

Opportunities:

- The 1951 treaty language allows U.S. and Canadian public safety agencies to use their mobile radios across the border.
- There are shared interoperability channels in the 700 MHz and 800 MHz frequency band.
- Some agencies have adopted a recommend technology standard for cross border communications and avoid proprietary or non-standard systems.
- Some agencies conduct extensive research relating to encryption, frequency band, features, and options to ensure that RF networks and systems meet the operational needs and are compatible across the border.
- The Federal Partnership for Interoperable Communications (FPIC) is an excellent source of information regarding usage of encryption for public safety.
- Advanced technology products offer new solutions for cross border communications.
- Public safety broadband data systems are being planned by both countries.
- A technology inventory solution with frequency information that is available to the local agency and to others on an “as authorized” basis.
- Development of technology roadmaps including 5- year plans for technology upgrades and enhancements.

Training & Exercises

Barriers:

- Funding is not available for joint training and exercises.

- Full-scale exercises are expensive in terms of dollars expended and personnel use allocated.

Opportunities:

- Some agencies have implemented excellent training programs for all first responders on the operability of their radio equipment, as well as the interoperability components of their device.
- Some agencies also provide training on the use of technology and on policy that governs the technologies use.
- Some agencies conduct training exercises on a regular basis.
- Some agencies conduct training exercises that involve local, state/provincial, and federal level agencies.

Usage

Barriers:

- Many agencies experience infrequent cross border activation and are not current on cross border policies, procedures and technologies.

Opportunities:

- Some states, like Montana, have implemented common frequencies for cross border interoperability use.
- Some states are looking at the adoption of VHF and UHF cross border channels.
- Some agencies have implemented policies that require the use of interoperability channels on a daily basis.
- There are many federal-level solutions for cross border interoperability.
- The Cross Border Communications Report and related documents will help increase usage of appropriate SOPs, technology, and usage.

VIII. Best Practices Models

This section provides a series of best practices and examples of cross border interoperability excellence.

Cross Border Frequency Use: The 1951 treaty between the U.S. and Canada allows public safety responders to use their mobile radios as they approach and cross the border into the other country. The radio must be used on a frequency that is authorized and licensed by the home country. U.S. regulations allow a U.S. local agency to grant approval for a Canadian emergency responder to access their public safety frequencies while operating within the U.S. An October 2014 agreement between the FCC and IC has clarified the use of public safety portable radios when traveling across the border.

Public safety agencies operating in the 700 MHz and 800 MHz frequency band have access to a large number of interoperability channels that may be used on both sides of the border. It should be noted that 800 MHz rebanding activities in the U.S. may result in the Canadian public safety agency operating on different channels with the same name.

Frequency Coordination Solutions: Harmonization of the 700 MHz and 800 MHz bands including the identification of interoperability channels has been realized.

Model Frequency Sharing Agreement: The State of Montana's identification of VLAW31 as a clear frequency for use at the U.S. Canadian border and subsequent receipt of a waiver from the FCC authorizing its use for all public safety services is a model for future cross border communications.

The State of Washington's use of a waiver to access a non-public safety frequency to achieve interoperability with Canada is also a model example of cross border communications.

Cross Border System Sharing: The Michigan State Radio System provides access for U.S. local, state, and federal agencies to communicate directly. Local, provincial, and federal agencies in Canada also have access to this network allowing direct, interoperable communications.

The use of gateway systems, including IP gateways, allows emergency responders from both sides of the border to communicate directly with each other, while avoiding regulatory and system management issues.

IP-based information sharing systems which include voice, data, and video are being installed on both sides of the border to allow rapid sharing of critical information. The sharing of access credentials to cross border emergency management data systems provides real time access and information sharing.

Cross Border Exercises: In Fall 2014, Saskatchewan, Alberta, and the State of Montana worked together on a CAUSE III vignette that will join the three jurisdictions' LMR systems at the

network level. The experiment will also include Nationwide Public Safety Broadband Network (NPSBN) connectivity. Additionally, plans are to place all command and control personnel from the three areas into one command post for interoperable purposes.

Emergency Vehicle Border Crossing: Emergency vehicle border crossing events occur every day and are complex. Several solutions and best practices have been identified.

- Pre-Check of First Responder: Many public safety organizations operating near the border provide a roster of their personnel to their border security agency (Canada's Border Services Agency (CBSA) or U.S. Customs and Border Protection (CBP)). Personnel are then checked to ensure that they will be able to cross the border in an emergency. Some agencies use this pre-check as a condition of the public safety employee's background check for employment.
- Locally Coordinated Border Crossing Protocols: Many public safety agencies operating near the border have set up formal and informal border crossing protocols. In several cases, local public safety units can communicate directly with the border crossing, allowing lane clearing and expedited travel across the border. While abbreviated checks are done during the crossing of the border for the emergency event, full checks are done after the emergency when the emergency unit is returning home.
- Emergency Medical Services (EMS) FAX Program: CBP have worked with the CBSA and created a standardized FAX form used by EMS agencies for pre-clearance. During hospital to hospital transfers across the border, the EMS agency sends a FAX to both CBP and CBSA listing the identification of the crew and the patient. This allows expedited transit through the border crossing.

Model Cross Border Agreements: There are multiple examples of cross border initiatives which include formal agreements between states and provinces and between local governments on both sides of the border. Many of these documents are based on the authority granted in U.S.-Canadian federal agreements. Other MOUs exist exclusively at the local level. Examples include: State of Washington and British Columbia agreement on EMS, St. Stephens (Canada) and Calais Fire (U.S.) automatic aid agreement, Pigeon River Steering Committee Resolution on joint planning, and the St. Clair/Blue Water Bay Regional Planning document.

IX. Recommendations

1. Governance

1.1 Identify or establish a federal organizational body within Canada to coordinate with provincial entities to promote interoperability within Canada and across the border. The group should be informed by local, provincial, and federal committees.

1.2 Develop model MOUs that are legally sufficient to codify relationships between U.S. and Canadian first responder organizations. These would include permission to access/use radio systems, operational and tactical response policies, and other elements of emergency response coordination.

1.3 Governance bodies at the local, regional, state/provincial, and federal level should direct that cross border communications solutions be identified, that procedures be created and that training for first responders occur.

1.4 Share existing governance agreements as examples of best practice models for local agency MOUs.

1.5 Connect funding strategies to implementation of best practices using proven solutions.

1.6 Leverage the authority of the CANUS CIWG to advocate for cross border communications initiatives.

1.7 Encourage enhanced relationship building at all levels.

a) Provide state and provincial outreach to local public safety agencies operating near the border to advise them of solutions and best practices.

b) Encourage local agencies operating near the border to adopt a “know your neighbor” plan and encourage regular meetings with agencies on both sides of the border to discuss operational plans.

c) Encourage U.S. Statewide Interoperability Coordinators (SWICs) and Canadian provincial interoperability officers to coordinate cross border work plans.

2. SOPs

2.1 Work collaboratively with the FCC and Industry Canada to understand existing regulatory processes and potential for improvements. Enhance the efficiency of the public safety frequency licensing process between the U.S. and Canada.

- 2.2 SOPs should be created which direct initial and recurring training of first responders on cross border communications procedures and technology.
- 2.3 Codify a radio technology standard for cross border voice communications to ensure reliable operations (e.g., when should analog be used, when P25 digital should be used, how should encryption be used, etc.)
- 2.4 Explore the need for Canada to adopt a rule that mirrors FCC Rule 90.421 which would allow a mutual aid radio permit to be issued to a U.S. based first responder, allowing them to transmit on a Canadian frequency when responding to a request for emergency assistance. NOTE: The recent agreement between the U.S. and Canada regarding the 1951 treaty may provide the solution sought in this recommendation.
- 2.5 Share existing joint SOPs which may be reused as a cross border SOP template.
- 2.6 Develop an information guide on how to navigate the regulatory process for cross border frequency licensing requests. This should include licensing to address the three main border scenarios.
- 2.7 Create a model operational policy template which will identify an ordered sequence of interoperability solutions (what channels and systems are used in what order and by whom).
- 2.8 A new section of the U.S. National Interoperability Field Operations Guide (NIFOG) should be created to include border area interoperability channels.
- 2.9 Increase awareness of interoperability solutions and regulatory requirements via distribution of this report to all public safety agencies and authorities that operate near the border.
- 2.10 Ensure common channel naming between U.S. and Canadian first responders to ensure interoperability success.
- 2.11 Encourage states and provinces to create a Border Interoperability Plan and a Border Interoperability Guide.
- 2.12 Encourage a nationally standardized approach for emergency vehicle border crossings by U.S. CBP and Canada's CBSA, including personnel credentialing and notification processes.

3. Technology

- 3.1 Document proper use of technology systems in easy to read non-technical language to ensure that first responders understand how to properly use the systems.

3.2 Identify a single frequency for waterway operations to support the Bi-National Ship Rider Program and to enhance communications between the various personnel who participate in this program.

3.3 Determine available frequencies at the state/regional/provincial level to support cross border communications between U.S. and Canadian first responders. Ideally, a common interoperability frequency should be identified in both VHF and UHF bands to complement channels currently available in the 700 MHz and 800 MHz band.

3.4 Examine NG9-1-1 deployments in the U.S. and Canada to ensure the creation of a technology framework for sharing emergency data in real time across the border.

3.5 Research emerging broadband data technology to ensure that cross border data interoperability can be achieved and that first responders can leverage deployable and fixed data systems as authorized.

3.6 Continue to monitor and report on Border Interoperability Demonstration Projects (BIDP) to expand awareness of proven solutions.

3.7 Develop a technology roadmap that examines the impact of new systems and solutions with a focus on how they will impact cross border communications, to help guide agencies with long-term equipment purchase planning.

3.8 Recommend the creation of a technology life cycle and enhancement roadmap which would include a collaborative effort to identify appropriate interoperability solutions with current and future systems.

3.9 Examine how to leverage U.S. and Canadian federal interoperability and technology solutions to support local first responders, including IP gateway systems. For example, U.S. DHS allows local cities and counties along the Mexican border to interconnect their LMR radio networks with cities and other local government public safety agencies on the Mexico side of the border using a joint IP gateway. Ten U.S. cities were paired with ten cities in Mexico for this project.

3.10 Determine how to organize available communications resources into a shareable database for use by public safety responders of both countries, similar to how the Communications Assets and Mapping (CASM) tool is used in the U.S.

4. Training & Exercises

- 4.1 Encourage regular, recurring training on cross border procedures and technology to ensure successful implementation during an emergency.
- 4.2 Provide training to all first responders on the operability of their radio equipment, as well as the interoperability components of their device.
- 4.3 Provide training on use of the technology and on awareness of the policy that governs the technologies use. Identify differences in policy and procedure between the two countries.
- 4.4 Bi-National training exercises should occur on a regular basis.
- 4.5 Training exercises should involve local, state/provincial, and federal level agencies.

5. Usage

- 5.1 Take steps to codify the use of cross border solutions on a daily basis. The day-to-day practiced usage of these systems and procedures is essential to ensuring their successful implementation during an emergency.

APPENDIX A: Document Library

A document library has been created to store significant reports and agreements that impact cross border communications. The titles of these files have been modified to organize them by document type and may not reflect the actual name of the report being cited. All of these documents are available on the NPSTC website (<http://npstc.org>) and the CITIG website (<http://citig.ca>).

FCC, 700 MHz Agreement, Arrangement Q

An agreement between the U.S. and Canada harmonizes the 700 MHz frequencies and allocates and provides for sharing of interoperability frequencies.

FCC, 800 MHz Agreement, Arrangement F

An agreement between the U.S. and Canada harmonizes some 800 MHz frequencies and allocates and provides for sharing of interoperability frequencies.

FCC, Canada Border Frequency Coordination Public Notice, 2009

A report by the Federal Communications Commission discusses frequency coordination between U.S. and Canada.

FCC, Cross Border Spectrum Sharing Canada, News Release

A 2009 report from the FCC discusses an announcement from FCC on frequency sharing agreements with Canada.

FCC Waiver, State of Montana, Mutual Aid Blue

A 2012 waiver from the FCC allowing the State of Montana to utilize frequency VLA31 for cross border multi-agency use near the border with Canada to support interoperability.

IC 800 MHz Attachment F

A 2011 agreement between Industry Canada and the FCC regarding coordination of 800 MHz frequencies along the border.

IC 1951 Treaty

An Industry Canada document on the 1951 Treaty (signed in 1952) between the U.S. and Canada relating to the operation by citizens of either country of certain radio equipment or stations in the other country. Article II of this agreement explains how public safety mobile radios may be used across the border legally.

IC TB7 Cross Border License Coordination

A 2013 report, Technical Bulletin #7, from Industry Canada explaining the cross border license coordination process and interference determination process.

IC British Columbia Letter regarding Combined Events Radio Channels

A 2008 correspondence exchange between Industry Canada and British Columbia emergency management regarding how to license specific radio frequencies for interoperability.

U.S. Convention of 1951

A copy of the 1951 Treaty (signed in 1952) between the U.S. and Canada relating to the operation by citizens of either country of certain radio equipment or stations in the other country. Article II of this agreement explains how public safety mobile radios may be used across the border legally.

DHS CBSA Ambulance Border Crossing FAX

A document used by EMS agencies on both sides of the border to communicate with U.S. Customs and Border Protection (CBP) and Canada's Border Services Agency (CBSA). It allows for pre-clearance of EMS transports in the Detroit/Windsor and Blue Water Bay regions.

DHS Compendium of U.S. – Canada Emergency Management Assistance Mechanisms

A 2012 report by DHS listing of all emergency management agreements at the federal level between the U.S. and Canada. These federal agreements often form the basis for agreements between states and provinces as well as local government entities.

DHS – Canada, Compendium of Emergency Management Compacts and Agreements

A 2007 report from U.S. DHS and Canada providing reference information on all emergency management and bi-national agreements between the two countries.

DHS Guidelines for Encryption in LMR Systems

A 2013 report from DHS Office of Emergency Communications regarding the use of encryption in public safety radio communications.

DHS JWPMO Newsletter on Cross Border Initiatives

A May 2013 newsletter from the U.S. Joint Wireless Program Management Office which discusses CANUS LECI pilot project and Tactical Interoperable Framework).

DHS Northern Border Strategy 2010

A 2010 Report from DHS Office of Emergency Communications outlining a northern border strategy for emergency operations and communications between the U.S. and Canada.

MAINE Border Interoperability Guide Draft Redact

A redacted version of the 2011 State of Maine Border Interoperability Guide (BIG) which contains information on all public safety agencies operating on both sides of the border, frequency and channel information, interoperability plans, border crossing sites, and contact information, etc.

NTIA Cross Border Frequencies

A January 2007 report from the U.S. National Telecommunications and Information

Administration (NTIA) discussing the master process for cross border frequency sharing, including discussion on international frequency sharing agreements.

NWSIC Newsletter Border Issues

A September 2014 newsletter extract from the National Council of Statewide Interoperability Coordinators (NCSWIC) newsletter facilitated by DHS-OEC, outlining a number of cross border communications strategies and programs.

PEMA (Pacific Northwest Emergency Management Arrangement)

A 1996 agreement between the States of Alaska, Idaho, Oregon, Washington, and British Columbia and the Yukon Territory which covers emergency management measures and provides for the creation of other agreements for specific purposes. Article V states that a professional licensed in one country is automatically recognized as licensed in the other country during a mutual aid incident.

Resource Cross Border EMS Plan

A 2013 report which includes an example of a Cross Border EMS plan authorized by the Pacific-Northwest Emergency Management Agreement.

Resource St. Clair Cross Border Plan Development

A cross border planning document for St. Clair County (U.S.) and Lambton County (Canada) explaining the need for development of a trans-border program. It includes five goals and seven objectives.

Resource Pigeon River Steering Committee, Sample Resolution for international planning

A 2013 Memorandum of Understanding (MOU) between U.S. and Canada local agencies in the Cook County, Grand Portage, Neebing Ontario, Thunder Bay, Ontario area. The document references U.S. Congressional Resolution SJ 44 which enabled creation of local agreements. This file also contains a map of the Pigeon River Steering Committee area and a set of planning documents that examine agreements which can be created across the border.

Resource Montana Mutual Aid Radio Manual

A 2011, State of Montana, Mutual Aid Radio Manual, which explains the usage of interoperability frequencies in the state and also reviews their mutual aid radio permit system.

Resource Cross Border EMS Web Links

A 2014 document lists websites containing information on cross border EMS issues.

Resource Crowded Border Spectrum

A 2012 draft report on frequency coordination issues between U.S. and Canada.

Resource WA BC EMS Border Crossing Plan

A 2009 agreement between the State of Washington and British Columbia regarding the

exchange of EMS resources. It provides reciprocity of EMS licensure between the two countries.

RESOURCE Ontario Province Interoperability Strategy

A 2014 report that documents the interoperability strategy document for the Ontario Province.

RESOURCE Northwest Border Arrangement for Fire Protection

A 2004 agreement between the British Columbia - Ministry of Forests and U.S. Department of Agriculture - Forest Service also includes the States of Oregon, Washington, and Idaho. Section II-B of the document authorizes a system for emergency border crossings by both countries. Section IV (M) describes the Airspace Border Crossing protocol.

RESOURCE U.S. Congress JR IEMC Northeast US Canada

A 2007 U.S. Congressional agreement for Emergency Management covering Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, and the Provinces of Quebec, New Brunswick, Prince Edward Island, Nova Scotia, and Newfoundland.

RESOURCE U.S. Congress JR IEMC Mid US Canada

A 2012 U.S. Congressional Joint Resolution for Emergency Management assistance between the States of Illinois, Indiana, Ohio, Michigan, Minnesota, Montana, North Dakota, Pennsylvania, New York, and Wisconsin, and the Canadian Provinces of Alberta, Manitoba, Ontario, and Saskatchewan.

RESOURCE U.S. Canada Mexico Public Health Compact

A 2007 agreement between the three nations to provide support for a public health emergency.

RESOURCE Canada U.S. Civil Emergency Planning

A 1986 agreement between Canada and the U.S. for Civil Emergency Planning, which has since been replaced with newer agreements between the two countries.

RESOURCE Canada Compendium U.S. Agreements

A 2004 list of formal and informal agreements between Canada and the U.S.

RESOURCE City of Sarnia Mutual Aid Agreement Port Huron 1998

A 1998 inter-local agreement between the City of Sarnia (Canada) and Port Huron (U.S.) for an automatic aid agreement between the two city fire departments.

RESOURCE U.S. Canada Public Health Treaties

A 2014 list of public health treaties and agreements between the U.S. and Canada.

RESOURCE Pacific Northwest Health Alliance

An undated agreement between Alberta, British Columbia, Saskatchewan, Yukon, and the States of Alaska, Idaho, Montana, Oregon, and Washington for response to public health emergencies.

RESOURCE Pacific NorthWest Health Alliance 2014 Report

A 2014 conference report on cross border issues including radio coordination which would be needed during a public health emergency.

RESOURCE Niagara EMS Cross Border Transport

A procedure used by the Niagara EMS agency in Canada providing instructions for cross border EMS transports.

APPENDIX B: Web Link Resources

This section contains a set of web page links that contain information on cross border communications. This report, including all referenced reports and documents, is available on the CITIG and NSPTC websites.

CITIG (Canadian Interoperability & Technology Interest Group) <http://citig.ca/>

NPSTC (National Public Safety Telecommunications Council) <http://npstc.org/>

Federal Communications Commission Check for Line A and Line C
http://wireless.fcc.gov/uls/weeklypn.htm?job=line_a_c

Industry Canada: Main website <http://www.ic.gc.ca/spectrum>
Frequency Database Search <http://spectrumdirect.ic.gc.ca/>

Canada/U.S. Working Group (CANUS)
<http://www.dhs.gov/oec-international-cross-border-emergency-communications-efforts>

Beyond The Border
<http://www.dhs.gov/beyond-border-shared-vision-perimeter-security-and-economic-competitiveness>

State of Montana, Public Safety Communications <http://pssb.mt.gov/pscommunications.mcp>

Mutual Aid Permit Request page <https://app.mt.gov/mutualaid/>

1952 Treaty, United States & Canada <http://npstc.org/crossBorder.jsp>

2014 Agreement to 1952 Treaty covering Public Safety Portable Radios
<http://npstc.org/crossBorder.jsp>

1960 Treaty, United States & Canada, Spectrum Coordination
<http://npstc.org/crossBorder.jsp>

Pacific Northwest Emergency Management Arrangement
<http://www.pnwbha.org/reports/PNEMA-annex-a-and-b.PDF>

Sample Omnibus Operational Plan for Moving Emergency Medical Services Staff and Resources Across the Canada and United States Border
<http://www.pnwbha.org/wp-content/uploads/2013/05/Sample-Omnibus-Border-Operational-EMS-Plan-05-10-2013.pdf>

Operational Plan for the Movement of Emergency Medical Services Staff and Resources Across the British Columbia – Washington Border
<http://www.pnwbha.org/wp-content/uploads/2010/04/WA-BC-EMS-Border-Crossing-Plan.pdf>

Cross Border Emergency Medical Services (EMS) Preparedness Websites and Links
<http://www.pnwbha.org/wp-content/uploads/2014/02/Cross-Border-Emergency-Medical-Services-EMS-Preparedness-Web-sites-and-links-02-19-2014.pdf>

International Emergency Management Group
<http://www.iemg-gigu-web.org/index-e.asp>

U.S. State Department & Canada Agreement on Emergency Management
<http://www.state.gov/documents/organization/142916.pdf>

Compendium of Emergency Management Agreements between US and Canada
<http://www.dhs.gov/xlibrary/assets/policy/btb-compendium-of-us-canada-emergency-management-assistance-mechanisms.pdf>

APPENDIX C: Acknowledgements to Contributors

CITIG and NPSTC wish to acknowledge the members of the Cross Border Communications Working Group for their efforts in helping locate information and resources used in the creation of this report.

Scott Bradford, State of Montana, Public Safety Communications (retired)
Jeff Brooks, County of Lambton, Ontario EMS
Kevin Bull, MCSCS-OFMEM, Ontario
Norman Cook, Halifax, NS DOT
Michael Dixon, consultant
Brendan Dodd, Windsor Police
David Eierman, Motorola Solutions
John Evans, Alberta Emergency Management Agency
Joe Fournier, drdc-rddc.gc.ca
Ed Freeborn, Unmanned Experts
Rick Galway, NENA
Paul Garvey, Fairmont Fire
Bruce Grandy, Province Of New Brunswick, Dept of Transportation & Infrastructure
Christel Ivanyshyn, Perth County – POINT
James Jarvis, DHS - OEC
Tracy Klingbyle, Windsor, Canada Police Service
Farohk Latif, APCO International – Frequency Coordination
Terry LaValley, Vermont Dept of Public Safety
John Lenihan, Battalion Chief, Los Angeles County Fire Department
Barry Luke, National Public Safety Telecommunications Council
Steven Mallory, State of Maine SWIC
Craig Marek, Kenora Central EMS/Fire Communications
Vernon Marshall, Wildland Fire Management, Yukon Community Services
Tad Matheson, NW-Regional Interoperability Coordinator, WI
Peter Moncure, RadioSoft
Brian Moore, APCO, IAEM, MASAS Advisory Group, CANHUG
Chris Osborn,
Tim Pierce, SWIC, State of Wisconsin
Prithu Prakesh, General Dynamics Canada
Bruce Richter, DHS-OEC (AK, ID, OR, WA)
Tom Roche, IACP Comm & Tech Comm
Pascal Rodier, Ambulance New Brunswick
Don Root, NPSTC Cross Border WG, San Diego County Sheriff's Office
Mark Ryckman, City of Corning, New York
Maureen Schmidt, Saskatchewan Interoperability Development Office
Jack Spillman, Flathead County OES, MT

Brad Stoddard, State of Michigan, Michigan Public Safety Communications - MI SWIC
Michael Swaney, Ohio EMA
Eric Torunski, CITIG
Galen Varon, U.S. Coast Guard
Derek Wells, Harris Corporation
Brent Williams, Michigan Department of Community Health, EMS Section
Jian Zhou, RCMP
Staff Sergeant Rene Bernard, RCMP, J Division
Richard Cramb, Wayne County, Michigan
Mike Francis, RCMP, Manager Communications Systems SE District
Jeff Friedland, St. Clair County
Ryan Lawson , ECOMM
Robert Posick, Fire Chief, Calais Fire-EMS, Maine
Robert Schwent, Washington State Patrol
Shawn Steiner, US Customs and Border Protection

Additional information was obtained from participants in the CITIG Cross Border Workshops. Information in this report should be attributed to CITIG and NPSTC and does not necessarily represent the views or opinions of the persons listed below.

Francis Albert, Fire Director (Retired)
Bernard Alexander, City of Detroit Homeland Security Emergency Management
Darryl Anderson, Ohio MARCS/OHIOSWIC/SIEC Administrator
Akram Askoul, Niagara Regional Police Service
Frederick Austin, Austin Wireless LLC
Brad Barber, Federal Engineering
Richard Barrow, City of Calgary
Don Beer, Abbotsford Fire Rescue Service
Denis Berry, Yukon Fire Marshal
James Bitting, Philadelphia International Airport
Kenneth Boley, consultant
Daniel Campagna, Sûreté du Québec
George Carbonell
Chris Coker, Niagara Emergency Medical Services
Wim D'Hondt, consultant
Toby Dusha, New York State Division of Homeland Security and Emergency Services
François Ferland, Ministère de la Santé et des Services sociaux
Donald Fortin, Ministère de la Sécurité Publique - Québec
Howard Georgeson, Saskatchewan Government
Jayson Hansen, RCMP
Norm Hansen, Sarnia Police Service
Regina Harrison, NTIA

Mark Hoppe, consultant
Jan Johnson, Coutts Fire & Rescue
John Jones, Government of Manitoba
Chris Kearns, City of Lethbridge PSCC
David Kerwin, Enbridge Pipelines
John Kopinak, Union Gas/Spectra Energy
Thomas Lampe, Iowa Dept. of Public Safety
Sol Lancashire, BC hydro
Shawn Lapinski, DHS-CBP
John Leitch, Saskatchewan Interoperability Development Office
Chris Lombard, Seattle Fire Department
Jason Low, Redwood Meadows Emergency Services
Myles Lu, consultant
Rick Lucy, Abbotsford Police Department
Magni Magnason, City of Calgary Public Safety Communications
Michael Manning, Vermont State Police - VT SWIC
Vernon Marshall, Yukon Government - CS-PS-WFM-C19
Nezih Mrad, DRDC-CSS
Chad Pacholik, IPREM, British Columbia
Juan Rivera, DHS/NPPD/CS&C/OEC
Jim Peter, Safar Inter-Op Canada & Mutualink
Rod Salem, British Columbia Ambulance Service
K. Sammy Sampson, Sierra Systems
Jean Pierre (JP) Sharp, Canadian Coast Guard / SAR / JRCC Trenton
Kyle Sneesby, Medical Transportation Coordination Centre (MTCC), Manitoba, Canada
Raymond St-Jean, RCMP
Gregory Sundie, State of Arizona, FirstNet Program
Christopher Tuttle, DHS-OEC
Julius Ueckermann, Ornge Canada
Lance Valcour, CACP ICT Committee
Dave Weeks, Niagara Regional Police Service
Shawn Wolkowski, Cambridge/Windsor C.A.C.C., Emergency Health Services
J. Mark Wrightstone, PA Statewide Radio Network Division