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THESIS

**BEYOND SISTER CITY AGREEMENTS: EXPLORING
THE CHALLENGES OF FULL INTERNATIONAL
INTEROPERABILITY**

by

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March 2016

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FULL INTERNATIONAL INTEROPERABILITY**

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ABSTRACT

Communities on the international border are often interconnected by more than simple proximity. They are connected through social networks, economy, culture, and shared natural resources. Despite this interdependent relationship, and in spite of international agreements that support mutual aid between countries, crossing the border with emergency resources, even for a humanitarian purpose, can be problematic. This thesis examined existing agreements on both the northern and southern U.S. borders to determine how various regions address their cross-border agreements. Research indicated that unique challenges—such as liability concerns, local politics, and border violence—along the Mexican border must be addressed. By examining the fuller context, this thesis recommends that local entities examine their specific challenges to establishing fully interoperable agreements. Local interoperability agreements just might move us “beyond sister city agreements” and put us on the path toward functional international partnerships.

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LIST OF ACRONYMS AND ABBREVIATIONS

BECC	Border Environment Cooperation Commission
C-TPAT	Customs-Trade Partnership against Terrorism
EMAC	Emergency Management Assistance Compact
EPFD	El Paso Fire Department
FAST	Free and Secure Trade plan
FEMA	Federal Emergency Management Agency
HF	(anhydrous) hydrogen fluoride
IBEP	Integrated Border Environment Plan
ICE	Immigration and Customs Enforcement
IEMAC	International Emergency Management Assistance Compact
JCP	joint contingency plan
JRT	joint response team
MSA	Metropolitan Statistical Area
NADB	North American Development Bank
NAFTA	North American Free Trade Agreement
NEMAC	Northern Emergency Management Assistance Compact
PNEMA	Pacific Northwest Emergency Management Agreement
REMAC	Regional Emergency Management Advisory Council
SPEMAMA	State and Province Emergency Management Assistance Memorandum of Agreement

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EXECUTIVE SUMMARY

Border communities are often interconnected by more than simple proximity. They are connected through social networks, economies, cultures, and shared natural resources. The more closely connected the communities are, the more likely they are to be mutually impacted by a significant emergency event. In a metroplex region where commercial trade is a significant part of daily business, the chances of any event, such as a major traffic accident that shuts down a port of entry, regional flooding, or hazardous materials incidents, impacting the economies of both entities are significant. This connectedness necessitates collaboration and coordination, but significant issues arise due to the presence of an international border. Despite this interdependent relationship, crossing the border with emergency resources—even for a humanitarian purpose—can be problematic. While any area can have interoperability concerns, the issues are most problematic along the southern border. The framework along the Mexican border is for interoperability agreements to be developed locally rather than regionally, as they are along the northern border. This makes them more susceptible to local legal, political, and economic difficulties. These challenges impact the ability, and inclination, to allow international border-crossing for emergency and non-emergency operations. This begs the question: “What are the challenges facing a fully interoperable preparedness and response framework within binational, sister city regions in the U.S.-Mexico borderlands?”

A literature review provides an overview of the issues framing the research question. This overview includes a discussion of interoperability in general, with communications-related difficulties highlighting the complexities that can impede interoperable efforts. The literature further provides examples of successful binational collaboration in both emergency and non-emergency situations. As the research question focuses on the relationship with our Mexican neighbor, a sampling of literature introduces regional challenges such as border security, drug violence, and economic/trade deals. Literature also illustrates the

dynamic trade and economic drivers that led to the development of sister city partnerships.

To understand binational agreements' importance, the thesis evaluates globalization's impact on the push to develop international agreements. Discussions on impacts of trade agreements, including the North American Free Trade Agreement (NAFTA), and of disaster-driven diplomacy provide an understanding of the issues that have resulted in mutually beneficial international partnerships. Globalization's impact is also demonstrated through a brief history of three sister city pairs: San Diego/Tijuana, Detroit/Windsor, and El Paso/Juarez. This helps justify the value of establishing partnerships with our Canadian and Mexican neighbors. Looking at this history, it becomes clear that emergency preparedness and response agreements are a natural outgrowth of these partnerships.

This evolution can be seen in the emergency preparedness and response agreements that have been developed with both Canada and Mexico. A brief history of these interoperability agreements is presented, showing the distinctions between the regional compact (Canada) and the local sister city agreement (Mexico) models. Canadian border agreements are fairly consistent throughout and include the necessary provisions for cross-border resource deployment. The Mexican border sister city agreements are, however, inconsistent. While emergency preparedness interoperability has been achieved to varying degrees of success, there are unique challenges along the Mexican border that must be addressed in order to develop fully interoperable response agreements.

The limitations to full interoperability are examined in order to identify potential challenges to binational response agreements on the southern border. Some of these challenges are specifically stated in the existing agreements; others are not. Examples include the San Diego/Tijuana agreement, which states that personnel and equipment liability issues and communications concerns, along with other unspecified issues, are absolutes that cannot be overcome in order to allow emergency response resources into Mexico. The El Paso/Juarez

agreement does not identify specific issues; it simply states that resources shall not be deployed into Mexico. Regardless of how explicitly they are defined, these challenges all impact local entities' ability and/or desire to develop fully interoperable cross-border partnerships. This thesis examines whether these challenges can be overcome. Identifying possible challenges to full interoperability opens up the discussion about potential impact on local communities, as well as on international relations. As the majority of these are local challenges, they must be addressed locally. A recommendation is made for municipalities to task steering committees to re-evaluate their local agreements, taking into account the information presented in this document as part of their review.

A "what-if" scenario is offered to consider how overcoming the identified challenges would improve the preparedness and response capabilities between binational partners, and to examine how impacts would reach beyond sister city agreements. No matter if an emergency occurs one-half mile across the Texas-New Mexico border or one-half mile across the U.S.-Mexico border, the citizens of the international region can benefit from emergency assistance by their closest neighbors. The impact of local interoperability agreements just might move us "beyond sister city agreements" and put us on the path toward functional international partnerships.

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I. INTRODUCTION

A. RESEARCH QUESTION

What are the challenges to fully interoperable emergency preparedness and response frameworks within binational, sister city regions in the U.S.-Mexico borderlands?

B. PROBLEM STATEMENT

This thesis examines the concept of international interoperability to identify what limits exist that prevent regions from achieving full interoperability within binational, sister-city metro-zones on the U.S.-Mexican border. Border communities are often interconnected by more than simple proximity to an international boundary. They are connected through social networks, economics, culture, and by shared natural resources. An example of this is in El Paso, Texas, where the communities of El Paso and Ciudad Juarez, Mexico, are strongly interwoven: “Tens of thousands of people go back and forth across the border every day, and the cities share the same history, the same food, music, culture and language, even the same pollution.”¹ The economies of both El Paso and Juarez are linked. With \$91.4 billion in trade in 2013, the El Paso Customs Trade District ranks as 13th-largest trade district in the United States.² In 2014, more than 466,000 pedestrians, 374,000 commercial vehicles, and 2.5 million personal vehicles crossed the border at a single port of entry from Juarez to El Paso.³ In addition, many of the workers on both sides of the border are employed

¹ John M. Crewdson, “In Sister Cities of El Paso and Juarez, 400 Years of History Erase a Border,” *New York Times*, July 18, 1981.

² Borderplex Alliance, *North American Borderplex Regional Profile* (El Paso, TX: Borderplex Alliance, March 2014), [http://www.borderplexalliance.org/files/NAB%20Profile\(1\).pdf](http://www.borderplexalliance.org/files/NAB%20Profile(1).pdf).

³ “2014 Bridges Traffic Volume Archives,” City of El Paso, Texas International Bridges Department, accessed April 10, 2015 <http://www.elpasotexas.gov/~media/files/coep/international%20bridges/bridges%20pages/zaragoza%20bridge%20vehicle%20and%20pedestrian%20volumes%20for%202014.ashx?la=en>.

or have employment directly impacted by the maquiladora industry in Juarez. Maquiladoras in Juarez are linked to about 14,000 El Paso–area jobs.⁴

The more closely connected the communities are, the more likely they will be mutually impacted by a significant emergency event. In a metroplex region where commercial trade is a significant part of daily business, the chances of any event—such as a major traffic accident shutting down a port of entry, regional flooding, or hazardous materials incidents—impacting the economy of both entities are significant. In addition to economic loss, there is a significant potential for a life threat, as border metro-zones can have populations in the millions. El Paso/Juarez has over 2.5 million people in the region while San Diego/Tijuana has close to 6.5 million.⁵ Shared natural resources are also a significant concern and have been the source of considerable tension. Water supplies, specifically, are critical to life on both sides of the border: “The active participation of local border communities is essential to meet the future challenges for managing water scarcity.”⁶

This connectedness necessitates collaboration and coordination; however, limits to interoperability come into play due to the presence of an international border. In spite of this interdependent relationship, crossing the border with emergency resources, even for a humanitarian purpose, can be problematic. There are legal, political, economic, and other limitations to crossing international borders for emergency and non-emergency operations. The legal issues include border crossing rules, municipal charters authorizing/prohibiting such agreements, and liability riders. Political issues are highlighted in the national framework of “border issues,” but local politics also play a significant role. The national divide over how to strengthen border protection has the potential to

⁴ Borderplex Alliance, *North American Borderplex Regional Profile*.

⁵ Ibid.; San Diego Regional EDC, “2014 Economic Outlook,” presented at the San Diego County Economic Roundtable, January 2014, http://www.sandiegocounty.gov/economic-roundtable/docs/ert2014_Cafferty.pdf.

⁶ Vincente Sanchez-Munguia, “The US-Mexico Border: Conflict and Co-Operation in Water Management,” *International Journal of Water Resources Development* 27, no. 3 (September 1, 2011): 577, doi: 10.1080/07900627.2011.594032.

impact efforts to break those borders down in the spirit of emergency services interoperability. The challenges that limit binational response frameworks, specifically among sister cities on the U.S.-Mexican border, are the focus of this study.

When assessing these international border regions, in-place plans must address regional events that cross boundaries. Whether it is notification, collaboration, resource sharing, or full interoperability, countries must work together to solve a problem that may impact both communities. This understanding was the impetus behind developing cooperative agreements with partners on the northern U.S. border with Canada and on the southern U.S. border with Mexico. The agreements on the northern border include the Northern Emergency Assistance Compact, the International Emergency Assistance Compact, and the Pacific Northwest Emergency Management Arrangement. “The three international mutual aid agreements are modeled after the Emergency Management Assistance Compact [EMAC]. EMAC, which allows assistance across state lines, has been credited with successful responses in numerous disasters, from Superstorm Sandy to the 2001 terrorist attacks.”⁷

On the southern border, there have been sister city agreements established under the focus of international environmental protection efforts. The sister cities are part of the larger Border 2020 initiative, which seeks to further international interoperability in preparation for, response to, and recovery from a disaster: “A critical element of the U.S.-Mexico border cooperation program is the developing of sister city partnerships between municipalities and counties in the United States and Mexico.”⁸ These agreements call for first responders from

⁷ Beverly Bell, “Mutual Aid, Mutual Benefits: Agreements between Canada, U.S. States Can Bring Emergency Assistance More Quickly,” *Capitol Ideas* (Sept/Oct 2013): 47, http://www.csg.org/pubs/capitolideas/2013_sept_oct/2013_sept_oct_images/CISeptOct13.pdf.

⁸ Environmental Protection Agency, *Semiannual Report on United States-Mexico Border Contingency Planning Activities* (EPA 550-R-01-001) (Washington, DC: Environmental Protection Agency, 2010), 4, <http://nepis.epa.gov/Adobe/PDF/P100BKN2.pdf>.

either side of the border to respond to major fires, hazardous materials spills, and other emergencies.

In spite of international agreements that support automatic aid between countries, there appear to be issues that restrict the full implementation of this interoperable plan between local entities, specifically metro-zone areas. This can be seen in evaluating the agreements between San Diego and Tijuana, El Paso and Juarez, and Detroit and Windsor. These three major metro-zones are very interdependent, yet face limitations to cooperative resource-sharing in emergencies. During a significant industrial fire on May 13, 2013, which burned for hours in Windsor, Detroit fire crews did not respond to assist with the blaze.⁹ In the case of El Paso and San Diego, the sister city agreement prohibits sending resources across the border. The cities can train, collaborate, and inform, but their resources will not cross the border into the other country. This contradicts the stated plans of the federal border cooperation initiatives. The challenges that result in limitations to a fully interoperable binational response framework are the focus of this study.

C. PURPOSE OF THE STUDY

This thesis explores the limitations to full interoperability from a binational, U.S.-Mexico, sister city metro-zone viewpoint. The existence of an interdependent binational community provides many opportunities for actions that are mutually beneficial. Economic incentives, trade pacts, information- and resource-sharing, etc., are all possible components of a growing and vibrant sister city region. Assessing the limitations to emergency preparedness and response interoperability under this lens helps to identify if these limits are absolute or if there is potential, as part of the existing metro-zone collaboration, to overcome them. An example of the difficulty in developing full interoperability can be seen in comparing the agreements between El Paso, Texas, and Sunland

⁹ Aaron Foley, "There is a Huge Industrial Fire in Windsor Right Now," *Jalopnik Detroit*, May 21, 2013, <http://detroit.jalopnik.com/there-is-a-huge-industrial-fire-in-windsor-right-now-509130254>.

Park, New Mexico, and between El Paso, Texas and Ciudad Juarez, Mexico. The makeup of the El Paso/Juarez metropolitan zone offers the opportunity to evaluate factors that impact interoperable relationships across three states and two nations. This unique geographic setting provides one constant (El Paso Fire) against which to evaluate two variables (interstate and international borders), and provides a case study on the impacts of various borders on interoperability agreements. In many places along the border, El Paso is closer to Juarez than it is to Sunland Park. The agreements allow for El Paso resources to cross the state line to mitigate fire, medical, or hazardous material-related incidents in order to help minimize the negative impact on the citizens of both communities. But the agreements prohibit the same actions across the international border. Regardless of where the incident originates, it may have the potential to affect both jurisdictions and it may take combined resources to successfully mitigate the incident. Why the disparity? What are the factors that limit this international cross-border assistance? Does the metropolitan nature of the region have an impact on international interoperability? The end goal of this analysis is to identify challenges to fully interoperable, binational emergency preparedness and response frameworks within binational, sister city regions in the U.S.-Mexico borderlands, and to offer evaluative tools to help local entities determine if they can be overcome.

This research evaluates existing international interoperability agreements to identify their commonalities and differences, with the ultimate goal of determining if there are insurmountable challenges to full, emergency preparedness and response interoperability in a binational sister city metro-zone. While the agreements on the U.S.-Canadian border were evaluated, the northern border is not addressed beyond evaluating those agreements for common challenges. In addition, this evaluation addresses emergency preparedness and response from a fire, medical, and emergency management perspective. While the role of violence was evaluated to determine what challenges it brings to the

equation, there is no discussion on the role of law enforcement prevention efforts.

The identified challenges were evaluated focusing on sister cities along the U.S.-Mexico border. Both smaller regional partnerships and larger metro-zone relationships were studied. This analysis attempts to identify whether the interoperability challenges are more readily overcome in a metro-zone, or if they are more problematic in those areas. A case study, in the form of an emergency management scenario, is used to demonstrate the manner in which those challenges impact a binational metro-zone and what full international interoperability may look like if those challenges can be overcome.

The goal of this thesis is to simply explore the existing agreements, and to determine what limitations exist on preparing for and responding to an event that impacts a binational border community. Identifying the existing challenges/limitations to full international interoperability may provide the reader information with which to better evaluate if those challenges exist in their own local/regional interoperability agreements. This may further assist any entity that is experiencing interoperability challenges by identifying potential ways to overcome them, whether from an interstate or international perspective.

D. THE ROADMAP TO INTEROPERABILITY: UPCOMING CHAPTER OVERVIEW

The information and analysis used to answer the research question is presented as follows: Chapter II is a literature review providing an overview of the issues framing the research question, which examines challenges to fully interoperable, binational agreements within sister cities on the U.S.-Mexico border. This overview includes a discussion of *interoperability* in general, with communications-related difficulties highlighting the complexities that can impede interoperable efforts. The literature further provides examples of successful *binational collaboration*, in both emergency and non-emergency situations. As the research question focuses on the relationship with our Mexican neighbor, a

sampling of literature introduces *challenges* such as border security, drug violence, and economic/trade deals. Lastly, literature is reviewed that illustrates the dynamic trade and economic drivers that led to the development of *sister city* partnerships. These concepts provide a general understanding of the context in which the research question is evaluated.

Chapter III, “Globalization: An Overview of its Role in International Cooperation,” evaluates the impact of globalization on the push to develop international agreements. It begins with a discussion of the binational, tri-state partnership between El Paso, Texas; Sunland Park, New Mexico; and Ciudad Juarez, Mexico, in order to demonstrate the disparity in local response agreements along this international border. Discussions on impacts of trade agreements, including the North American Free Trade Agreement (NAFTA), and of disaster-driven diplomacy provide an understanding of the issues that have resulted in mutually beneficial international partnerships. The impact of globalization efforts on local partnerships is then demonstrated through a brief history of three specific sister city pairs: San Diego/Tijuana, Detroit/Windsor, and El Paso/Juarez. This section describes the justifications for and the value of establishing partnerships with our Canadian and Mexican neighbors and shows that emergency preparedness and response agreements are a natural outgrowth of these partnerships.

Chapter IV, “Evaluating Existing Interoperability Agreements,” focuses specifically on the emergency preparedness and response agreements with Canada and Mexico. A brief history of these interoperability agreements shows the distinctions between the regional compacts (Canada) and the local sister city agreements (Mexico) models. The emergency preparedness and response provisions found in the three Canadian regional compacts and in the 14 U.S.-Mexican sister city agreements are evaluated for similarities and differences. This comparison demonstrates that, while emergency preparedness interoperability has been achieved to varying degrees of success, there are

unique challenges that must be addressed in order to develop fully interoperable response agreements along the Mexican border.

Chapter V, “Limitations of Full Interoperability,” examines the identified challenges to these fully interoperable binational response agreements on the southern border. Some of these challenges are specifically stated in the existing agreements; others are not. Regardless of how explicitly they are defined, these challenges, including legal and liability issues, political conditions, optics and public perception, presence of other involved entities—such as the military—and the role of violence, all impact local entities’ ability and/or desire to develop fully interoperable cross-border partnerships. This chapter leads to the discussion on whether or not these noted challenges can be overcome.

Chapter VI, “Potential Impacts and Recommendations,” discusses the potential impact on local communities, as well as on international relations, if the identified challenges can be overcome and fully interoperable cross-border resource-sharing agreements are developed. A recommendation is made for municipalities to task a steering committee to reevaluate their local agreements, taking into account the information presented in this document as part of their review.

The thesis then concludes by summarizing the challenges and considering the broader impacts of local emergency aid agreements. A “what if” scenario is offered to consider how overcoming the identified challenges would improve the preparedness and response capabilities between binational partners, and in so doing would provide impacts that reach beyond sister city agreements.

II. LITERATURE REVIEW

A. INTRODUCTION

When researching the challenges to international interoperability among sister city metro-zones along the U.S.-Mexico border, there are several contextual concepts through which the research question must be evaluated. First, the idea of interoperability in general helps explain common goals for, and issues with, developing and maintaining regional partnerships. The literature on interoperability reviewed for this document focuses on difficulties from an emergency response standpoint. While there are many facets to functional interoperability, one of the most commonly cited themes found in this review centered on communications-related issues.

Second, an overview of varied agreements between the United States and her northern and southern neighbors is provided. Many of these agreements are focused on trade deals and other non-emergency situations. These types of compacts, with both Canada and Mexico, demonstrate the capacity to work across national borders on items of mutual concern. Next, when looking specifically at partnerships with Mexico, there are several negative issues apparent in the literature. These issues impact national-level partnerships and affect the ability to develop the types of local interoperability agreements of concern to this thesis. We must understand the national picture in order to evaluate how it influences the local picture.

One of the last concepts to be addressed in this literature review is the influence of trade on local partnerships, specifically on international partnerships among border communities. The sister city concept provides insight into the varying degrees of interconnectedness between binational city pairs. It is important to demonstrate that local issues bring local challenges, which are addressed through local partnerships, regardless of the presence of an

international border. This literature review is intended to offer a fuller context under which to understand the research question's key components.

B. INTEROPERABILITY IN GENERAL

The first concept to define is interoperability in general. Interoperability, in the context of this research, is defined as “the ability of systems, personnel, and equipment to provide and receive functionality, data, information and/or services to and from other systems, personnel, and equipment, between both public and private agencies, departments, and other organizations, in a manner enabling them to operate effectively together.”¹⁰ This definition focuses on the ability of whole systems to work together for a common goal during emergency situations. Within the U.S. borders, interoperability stretches beyond municipalities and can cross county and state lines. In spite of the Federal Emergency Management Agency's (FEMA) push for improved interoperability, including providing significant grant funding, the reality of interoperability remains problematic, even within our own borders.

The literature provides a historical picture of the concept of interoperability, as it was taken from the military realm and adapted for civilian emergency management use. In the 1997 article “Red Alert,” Gary Anthes discusses this history:

Indeed, the history of hurricanes, earthquakes, terrorist bombings and other disasters in the U.S. shows a pattern of slow response and poorly coordinated activities. An integrated crisis management system is available for use by military forces, but nothing comparable exists to support civilian emergency response. The result, experts say, is unwarranted loss of life, limb, and property, and a recovery cost far higher than necessary.¹¹

Using the military model, civilian emergency response entities began to adapt concepts of information- and resource-sharing and adaptability.

¹⁰ “Fema,” W3C, last modified March 24, 2009, <https://www.w3.org/2005/Incubator/eiif/wiki/Fema>.

¹¹ Gary H. Anthes, “Red Alert,” *Computerworld* 31, no. 27 (July 1997): 83–84.

The progress toward interoperability was slow and barriers were caused by the various specific, individual-entity response plans and procedures, as well as by technology issues, such as a lack of manufacturer standards for communications equipment. Joseph Straw, in discussing the barriers to interoperability, explains that the Government Accounting Office “found that one major barrier to success has been the lack of interoperability standards to which equipment manufacturers can build devices.”¹² He goes on to state that “more than five years after 9–11, interoperability of communications among first responders is still not a reality...even though the Department of Homeland Security has meted out \$2.15 billion in grant money to the states for that express purpose since 2003.”¹³

A 2006 report following Hurricane Katrina showed that meaningful interoperability is still lacking: “Insufficient funding and a lack of coordination at all levels of government plague efforts to establish meaningful communications interoperability. Despite numerous tragedies and national attention to interoperability problems, many first responders in the hurricane states are no closer to achieving interoperability.”¹⁴ In his 2007 “Interoperability Baseline Survey,” David Boyd provides information regarding the progress toward interoperability. As he explains, a small percentage of emergency response agencies have formalized standard operating procedures and conduct exercises, with only 20 percent of agencies having strategic plans to ensure interoperability across disciplines.¹⁵ The survey further indicates that funding remains a formidable challenge to deploying needed systems, as a majority of agencies—43 percent—reported little or no funds available for one-time capital investments,

¹² Joseph Straw, “The Barriers to Interoperability,” *Technofile* (July 2007): 48–49.

¹³ Straw, “The Barriers to Interoperability,” 49.

¹⁴ Paul Kirby, “In Wake of Katrina, Focus Still on Interoperability,” *Telecommunications Reports* 72, no. 9 (May 2006): 12–13, <http://search.proquest.com/docview/216986899?accountid=12702>.

¹⁵ David Boyd, “Interoperability Baseline Survey,” *Law & Order* 55, no.7 (July 2007): 58. <http://search.proquest.com/docview/197244929?accountid=12702>.

such as equipment and radios.¹⁶ Plan development, training and exercise, and funding all remain barriers to, or areas of needed improvement in, interoperability efforts.

While progress has been—and continues to be—made through grant funding and established design standards, as demonstrated in the P-25 (“Interoperable Communications for Public Safety Agencies”) Project, full interoperability across jurisdictional boundaries continues to be problematic. This leads to the question: If interoperability has been this problematic within our city, county, and state borders, how much more difficult will it be when looking across our international borders?

C. AGREEMENTS WITH CANADA AND MEXICO

The body of literature dealing with existing and historical emergency management agreements between our neighbors on the northern and southern borders includes both the actual agreements as well as analytical documents that discuss the context under which the agreements were instituted. Included in the various documents are the developmental chronology for the agreements and some of the limiting factors to developing them. These timelines and limitations are the specific focus of Chapter IV and V, respectively.

The ability to develop emergency management agreements stems from a history of shared events impacting both sides of the border, but their foundations were also laid on non-emergency-related cooperation. Examples include resolutions formed by the Conference of New England Governors and Eastern Canadian Premiers regarding trade, environment, and energy-related issues: “In one resolution, the participants gave a new mandate to the Standing Committee on Trade and Globalization to set up a mechanism to prevent trade disputes and establish direct dialogue between the parties involved.”¹⁷ The focus on the flow

¹⁶ Boyd, “Interoperability Baseline Survey,” 56.

¹⁷ Julie Demers, “Cross-Border Cooperation,” *CMA Management* 76, no. 10 (February 2003): 48, <http://search.proquest.com/docview/197826751?accountid=12702>.

of goods and information in trade agreements helps to develop and maintain the spirit of interoperability that is required for successful emergency management agreements.

Not all of the literature regarding international interoperability is positive. Literature also addresses concerns over national sovereignty and equality of partnerships, and questions the form and fashion under which some agreements were made. Dr. Eric Lerhe explains the concern regarding sovereignty: “In fact, the great disparity in military and other elements of national power between Canada and the United States has created a longstanding concern over the degree to which Canada is able to maintain its sovereignty and to act independently when it cooperates with the United States.”¹⁸ On the Mexican side of the fence, a weekly intelligence briefing in *The Economist* discussed the political climate between Mexico and the United States as a “clouded relationship.”¹⁹ The briefing discussed the 2011 circumstances created by the U.S. Ambassador to Mexico Carlos Pascual’s statements, “called into question the ability of the Mexican army to pursue drug-trafficking organizations; warned about poor coordination among local security forces; and complained about official corruption.”²⁰ These statements had the potential to undermine any agreements and “conjured up troublesome images in local political circles of foreign meddling in Mexico’s internal affairs.”²¹ These documents demonstrate that there are issues that remain to be addressed in regard to establishing international agreements in general, let alone agreements that address interoperability. In spite of the potential negative issues inhibiting the development of emergency management agreements, there have been

¹⁸ Eric Lerhe, *At What Cost Sovereignty? Canada–US Military Interoperability in the War on Terror* (Nova Scotia, Canada: Dalhousie University, 2013), 11.

¹⁹ “Country Monitor, Mexico/US: Clouded Relationship,” *Economist* XIX, no. 11 (March 28, 2011).

²⁰ “Country Monitor, Mexico/US: Clouded Relationship,” *Economist*, 1.

²¹ *Ibid.*

numerous agreements developed and implemented with both Mexico and Canada.

1. Canada

On the Canadian border, the following documents (listed in the Department of Homeland Security's *Compendium of U.S.-Canada Emergency Management Assistance Mechanisms*) are a small sampling of those developed over the years to address emergency management issues that may impact both countries. Some of these documents are further analyzed in Chapter IV.

- The Inland Plan: "provides a cooperative mechanism for...polluting incidents, threatening 15.5 miles of the inland boundary on either side."²²
- The Canada-U.S. Civil Assistance Plan: provides "a framework for the military of one nation to provide support to the military of the other nation while in the performance of civil support operations...(e.g., floods, forest fires, hurricanes, and effects of terrorist attacks)."²³
- U.S. Foreign Assistance Act of 1961, as Amended, Chapter 9, "International Disaster Assistance": authorizes the president "to furnish assistance to any foreign country, international organization, or private voluntary organization."²⁴
- Agreement between the Government of Canada and the Government of the United States of America on Emergency Management Cooperation: "facilitates the movement of evacuees and emergency personnel and equipment...in support of civil emergency authorities."²⁵

²² Department of Homeland Security, *Compendium of U.S.-Canada Emergency Management Assistance Mechanisms* (Washington, DC: Department of Homeland Security, June 2012), 4, <https://www.dhs.gov/xlibrary/assets/policy/btb-compendium-of-us-canada-emergency-management-assistance-mechanisms.pdf>.

²³ Department of Homeland Security, *Compendium of U.S.-Canada*, 7.

²⁴ *Ibid.*, 15.

²⁵ *Ibid.*, 21.

2. Mexico

On the Mexican border, there are a series of emergency management agreements, developed under the guidance of the Environmental Protection Agency and designed to facilitate preparedness and response to hazardous materials releases and other events, which may impact border residents and their environment. These agreements are the focus of more detailed analysis in Chapter IV.

- The 2011 Agreement between the U.S. and Mexico on Emergency Management Cooperation in Cases of Natural Disasters and Accidents: calls for the establishment of plans and programs to prepare for, protect against, respond to, recover from, and mitigate emergencies that cause injury or damage to the people or infrastructure of either party.²⁶
- The Joint United States Mexico Contingency Plan, June 1999: “established a foundation for cooperative efforts regarding prevention, preparedness, response, and mitigation of hazardous substance releases in the border area.”²⁷
- The Border 2012 Initiative: “emphasized bottom-up approach, anticipating that local decision making, priority setting, and project implementation will best address environmental issues in the border region.”²⁸
- Sister city agreements: “A critical element of the U.S.-Mexico border cooperation program is the development of sister city partnerships between municipalities and counties in the U.S. and Mexico. Plans call for police, fire, paramedics, and other personnel from both sides of the border to respond quickly to large fires, dangerous chemical spills, or other emergencies.”²⁹

²⁶ *Agreement between the Government of the United States of America and the Government of the United States of Mexico on Emergency Management Cooperation in Cases of Natural Disasters*, 2011, 4, <http://www.state.gov/documents/organization/161801.pdf>.

²⁷ *Binational Hazardous Materials Prevention and Emergency Response Plan among the County of San Diego, the City of San Diego, California, and the City of Tijuana, Baja California*, January 2013, 8, http://www.epa.gov/sites/production/files/2016-01/documents/san_diego_ca_-_tijuana_baja_ca_jan_14_2013.pdf.

²⁸ Environmental Protection Agency, *Semiannual Report*, 3.

²⁹ *Ibid.*, 4.

Chapter IV also analyzes the sister city agreements to identify which ones meet the stated goals of the U.S.-Mexico Border Cooperation Program. Initial reviews indicate that some agreements include the cross-border response component, while others have a stated prohibition against such responses. This begs the question: What factors cause one municipality to agree to share responses while another one does not? Is it the larger metropolitan areas that resist the shared response component of the agreements or is there something else that impacts this decision?

D. U.S.-MEXICO BORDER ISSUES

The next category of information that can be grouped together when assessing the literature on this research topic is border issues, specifically on the U.S.-Mexico border. In this body of work, three themes can be identified: politics of securing our borders, immigration concerns, and drug trafficking/violence. These three issues are found more significantly on the southern border, as opposed to the northern border, and are the source of heated public discourse and political debate. The optics of these issues have the potential to overshadow and derail the cooperation that has been achieved.

1. Securing Our Borders

When it comes to securing our borders, proponents want 100-percent security, but while still allowing for the flow of goods and people in a legal and expeditious manner. This is a difficult, if not impossible, act. Horacio Alderete highlights this duplicity by stating, “Increasing security, if done in a vacuum, can slow the movement of goods, services and people, thus hindering the characteristic vibrancy and social interaction of the border region and other parts of the United States that are highly dependent on trade with Mexico.”³⁰ He further states that the passage of the Antiterrorism and Illegal Alien Control Act of 2005 by the House of Representatives, which mandates over 600 miles of fence,

³⁰ Horacio Aldrete, “Increased Security: A Careful Balancing Act for the U.S.-Mexico Border Region,” *Harvard Journal of Hispanic Policy* 18 (2005): 76.

“highlights the increased attention that control over the flow of people, goods and services has attracted in the public debate.”³¹

In a *Geographic Review* article, however, Reece Jones discusses the opposite: “Why Walls Won’t Work.” He explains that “in 1950 there were fewer than five border walls anywhere in the world, whereas today there are almost fifty.”³² New barriers must be supported by more border guards and/or technology. He further discusses reasons why border walls do not work, including: “the border has long been a place of connection...twin city prosperity requires there be no barriers... people always find ways over, under, through, and around walls...governments and private interests continue opening portals in the wall...and because Mexico is going global and democratic.”³³

Peter Andreas argues that U.S. border policy:

has been driven by the twin objectives of facilitating authorized border crossings and deterring unauthorized crossings. Balancing these tasks has always been politically and bureaucratically frustrating and cumbersome, but both the challenge and the stakes have grown substantially as counterterrorism has been added to and redefined the border-control agenda since September 11, 2001.³⁴

This needed balance represents a potential hurdle to the development of interoperable agreements that is analyzed in this research.

2. Immigration

Immigration is another border issue prevalent in the literature that requires a delicate balancing act. The balance is between legal immigration’s value to the economy and the struggles to control illegal immigration. Legal immigration

³¹ Aldrete, “Increased Security,” 76.

³² Reece Jones, “WHY WALLS WON’T WORK: Repairing the US-Mexico Divide,” *Geographical Review* 103, no. 2 (April 2013): 306, doi: 10.1111/gere.12021.

³³ Jones, “WHY WALLS WON’T WORK,” 308.

³⁴ Peter Andreas, “Politics on Edge: Managing the US-Mexico Border,” *Current History* 105, no. 688 (February 2006): 64.

impacts the nation's demographics and provides the potential political influence to force policy changes favoring the home country. According to Rodolfo de la Garza, this push is not the norm.³⁵ Mexican immigrants tend to play an active role in supporting policies that benefit their former homelands: "There are limited examples of immigrants organized to support their home countries when those countries are in conflict with the United States...The case of immigrants from Mexico or Mexican Americans, however, is potentially an exception to the pattern of the low salience of home-country politics to American ethnics."³⁶ This activism further intensifies the debate over immigration and widens the political divide that exists in our nation over the issue. Terence Garrett writes, in support of this argument, "A constructive discourse regarding immigration and border security policy is currently nearly impossible for elected officials and their audience, the American public, to have a meaningful debate."³⁷

Illegal immigration carries with it many issues, from concerns over criminal and terror threats to political questions regarding law enforcement and amnesty. On such concern is the Mexican government's limited role in curbing illegal immigration. Kenneth Hill writes that "the majority of unauthorized immigrants are believed to originate in Mexico where the phenomenon is also regarded with concern, partly because it is a source of friction with the United States and partly because the remittances from Mexicans working in the United States are an important contribution to Mexico's economy (the second largest source of foreign exchange after oil)."³⁸ The concern over criminal behavior is not exclusively focused on terror-related issues. In a June 2010 fact sheet regarding the southwest border, the Department of Homeland Security reports that the U.S. Immigration and Customs Enforcement (ICE)

³⁵ Rodolfo de la Garza and Louis DeSipio, "Interests Not Passions: Mexican-American Attitudes toward Mexico," *International Migration Review* 32, no. 2 (Summer 1998).

³⁶ de la Garza and DeSipio, "Interests Not Passions," 402.

³⁷ Michael Garrett, "Market Spectacle: Immigration Policy along the US/Mexico Border," *International Journal of Social Economics* 41, no. 1 (2014): 34, doi: 10.1108/IJSE-01-2011-0015.

³⁸ Kenneth Hill and Rebeca Wong, "Mexico-US Migration: Views from Both Sides of the Border," *Population and Development Review* 31, no. 1 (2005): 1.

has prioritized enforcement against convicted criminal aliens who pose the most danger to communities while strengthening oversight and consistency in immigration enforcement across the country. Since its launch in October 2008, Secure Communities has identified more than 34,900 aliens charged with or convicted of the most serious, violent or major drug offenses.³⁹

The political climate and concern over criminal elements crossing the border illegally poses another potential obstacle to the development of international interoperable agreements.

3. Drug Trafficking and Related Border Violence

When examining border issues to find barriers to interoperable agreements, the issue of drug trafficking-related border violence is a common theme. The issue is one of concern to both U.S. and Mexican governments, and agreements to combat the threat of drug violence have been signed. The Merida initiative is expected to result in \$10 billion over three years to combat drug violence.⁴⁰ The reason for the joint effort is that Drug Enforcement Administration, FBI, and border protection officers—alongside their Mexican counterparts—have been victims of the violence: “More than 60 of Mexico’s best law enforcement officers in whom we have placed our trust and with whom we have collaborated on sensitive investigations, shared intelligence, and in many cases trained and vetted have been murdered by the cartels.”⁴¹

The concern over drug-related violence spilling into U.S. border cities is serious. The threat has evolved to use more insurgent tactics, which have the potential to impact both sides of the border. In response to Secretary of State Clinton’s comments regarding the Sinaloa Cartel using car bombs as a tactic, Lieutenant Colonel Curry from the Army War College states: “Unfortunately for Mexican officials and the population of Mexico, one aspect of Secretary Clinton’s

³⁹ “Fact Sheet: Southwest Border Next Steps,” Department of Homeland Security, June 23, 2010, <http://www.dhs.gov/news/2010/06/23/fact-sheet-southwest-border-next-steps>.

⁴⁰ Ramon Bracamontes, “US Still Stands with Mexico against Drug Cartels,” *Deming Headlight*, February 17, 2011, <http://search.proquest.com/docview/851925029?accountid=12702>.

⁴¹ Bracamontes, “US Still Stands with Mexico.”

remarks is true; the violent tactics used by drug cartels are similar to insurgents, to include the sophistication of weaponry and the escalation of brutality.”⁴² Whether or not the violence spills across the border, its existence is a significant barrier to developing interoperability agreements. This issue is evaluated in more detail in Chapter V.

E. BORDER RELATIONS, METROPOLITAN ZONES, AND DYNAMIC TRADE

One final theme identified in the literature review regarding international interoperability among sister cities along the U.S.-Mexico border was the impact of globalization in the development of dynamic trade partners and local metropolitan zones. The development of trade partners is critical to the economic success of a nation, and building up that partnership along our border regions simply makes sense: “The United States could do itself a world of good by deepening its integration and cooperation among its closest neighbors, Canada and Mexico, and building on the foundation of the North American Free Trade Agreement.”⁴³ Opening the borders to trade, in part due to NAFTA, helps improve both countries’ economies. An example of this is the maquiladora industry. This manufacturing industry has been credited with opening new markets to the United States while improving the standard of living for residents on the Mexican side of the border. But perhaps more important, Diana Haytko explains, “the industry is responsible for a burgeoning Mexican middle class, hungry for U.S. products, and it acts as a bridge to markets in Latin America, which represent major market opportunities for U.S. products.”⁴⁴ James Gerber further summarizes the importance of a sustainable trans-border region:

⁴² Warren J. Curry, “Ciudad Juarez: A Feral City on our Doorstep?” (research paper, U.S. Army War College, 2013), 7.

⁴³ “Editorial: Making US, Mexico and Canada the World’s Most Dynamic Region,” *Farmington Daily Times*, October 7, 2014, 2.

⁴⁴ Diana L. Haytko, John L. Kent, and Angela Hausman, “Mexican Maquiladoras: Helping or Hurting the US/Mexico Cross-Border Supply Chain?” *International Journal of Logistics Management* 18, no. 3 (2007): 348.

The U.S.-Mexico border region has two important but often overlooked characteristics. First, it is the physical place of most of the integration between the United States and Mexico, including market driven integration such as trade flows, migration, and investment as well as policy driven integration such as security cooperation, infrastructure development, and emergency response. Second, the border region has a growing transnational population that lives, works, goes to school, and participates in family and social networks on both sides of the border.⁴⁵

NAFTA, and other trade agreements, have helped spawn international metropolitan zone development. According to Aldrete, trade with Mexico used to center around Mexico City, Guadalajara, and Monterrey. There is a “decentralization of industrial and commercial activity to the country’s U.S. border. Today, Tijuana, Juarez, Mexicali, Matamoros, Nuevo Laredo, and Reynosa are important alternative industrial and commercial centers.”⁴⁶ The development of these border trade partners is especially critical, as each has a sister city on the U.S. side of the border. This trade creates an interdependent relationship, which helps foster cooperation that defies borders. The presence of the international border does pose issues; however, the economic and trade impact provides incentives to work through those issues for mutual benefit. How far that interdependent relationship can be taken in terms of emergency response capabilities and interoperability is question this research evaluates.

In this literature review, a broad range of issues were presented—from interoperability in general to specific cooperative efforts along the Canadian and Mexican borders, and from the impacts of globalization to the development of local metro-zone partnerships. In so doing, this chapter sought to provide a fuller context under which to explore the challenges to fully interoperable, binational, emergency preparedness and response agreements. This exploration begins in

⁴⁵ James Gerber, Francisco Lara-Valencia, and Carlos de la Parra, “Re-Imagining the U.S.-Mexico Border: Policies toward a More Competitive and Sustainable Transborder Region.” *Global Economy Journal* 10, no. 4 (2010): 1.

⁴⁶ Aldrete, “Increased Security,” 76.

Chapter III by examining why binational response agreements are a point of consideration in the first place.

III. GLOBALIZATION: AN OVERVIEW OF ITS ROLE IN INTERNATIONAL COOPERATION

A. FRAMING THE DISCUSSION: A TALE OF THREE CITIES

In order to frame the discussion, let us consider the following emergency response scenarios that may occur in the international metro-zone of El Paso/Juarez/Sunland Park. As illustrated in Map 1, this region encompasses three states (Texas, New Mexico, and Chihuahua) and two nations (the United States and Mexico). The El Paso Fire Department (EPFD) is the largest municipal fire and emergency response entity in the region. According to its 2015 Community Risk Analysis and Standard of Cover, EPFD is an all-paid department with approximately 900 firefighters and 36 fire stations, which staff the regional hazardous materials response and special rescue teams; covers a primary response area of 285 square miles; and has established limited mutual aid agreements with its regional partners, including two emergency services districts (ESDs) in El Paso County and Dona Ana County, New Mexico.⁴⁷ The ESDs are made up primarily of volunteer department or mixed paid/volunteer departments, and have no hazardous materials technician-level response resources. Horizon City is one of the ESDs that partners with EPFD. According to its website, it has only one station and uses an all-volunteer force to cover a 150-square-mile response area.⁴⁸ The level of support that can be provided by El Paso Fire is based in part on the need to maintain adequate response resources within the City of El Paso. EPFD also has a sister city agreement with Ciudad Juarez, which entails emergency incident notification and information sharing.

⁴⁷ El Paso Fire Department, *Community Risk Analysis and Standards of Cover* (El Paso, TX: El Paso Fire Department, September 2015): 5–6, <http://www.elpasotexas.gov/~media/images/coep/fire%20department/divisions/operations%20research%20program/pdfs/el%20paso%20fire%20department%20standards%20of%20cover%20-%20202015.ashx?la=en>.

⁴⁸ “El Paso County Emergency Services District No. 1 Homepage,” accessed December 3, 2015, <http://epcesd1.com/>.

Map 1. El Paso, Juarez, and Sunland Park Proximity



Source: Federal Highway Administration, *Measuring Border Delay and Crossing Times at the U.S.-Mexico Border: Final Report* (Washington, DC: U.S. Department of Transportation), <http://ops.fhwa.dot.gov/publications/fhwahop12049/ch2.htm>.

This international region is home to approximately 2.5 million people and has multiple industrial facilities, including hazardous materials plants, which ship their products by truck and rail through various international ports of entry.⁴⁹ One of the most hazardous chemicals transported across the border is anhydrous hydrogen fluoride (HF). It is manufactured in the Solvay plant in Juarez, which, according to an environmental activist report, is “the most dangerous factory in the El Paso-Juarez region, and one with the potential to create a Bhopal-type disaster.”⁵⁰ According to David Bierling’s transportation study, this HF is processed in Juarez and shipped by rail into the United States, crossing the border in Downtown El Paso, where Ferromex (Mexican rail) interchanges with

⁴⁹ Borderplex Alliance, *North American Borderplex Regional Profile*.

⁵⁰ Oscar Morales, Sara Grineski, and Timothy Collins, “Structural Violence and Environmental Injustice: The Case of a US–Mexico Border Chemical Plant,” *Local Environment: The International Journal of Justice and Sustainability* 17, no.1, (November 2011): 5, doi: 10.1080/13549839.2011.627321.

both Union Pacific Railroad and Burlington Northern Santa Fe Railroad.⁵¹ This hazardous cargo then makes its way through Sunland Park, New Mexico and on toward multiple points in the United States.

If there is a railcar accident on the United States side of the border, the mutual aid agreement will be initiated and El Paso's Regional Hazardous Materials Response Team will be called on to cross the state border and assist with the incident mitigation. Other El Paso resources may also be requested to assist in evacuation, sheltering, and other needs to protect the public of Sunland Park and western El Paso County from the effects of this event.⁵² If this same railcar accident occurs either at the Juarez plant or in a railcar on the Mexican side of the border, EPFD resources will not be deployed to assist with incident mitigation. According to Oscar Morales and others, there are concerns that if this HF incident does occur in Mexico, the U.S. side of the port of entry may be closed.⁵³ Technical experts may provide guidance; however, resources will remain on the U.S. side of the border and will begin actions to protect El Paso County and Dona Ana County residents from the effects of the regionally impactful incident.

A second scenario may help further illustrate the disparity in response to a regional event. Active shooter scenarios are becoming more and more commonplace within America's borders. In 2012, the City of Juarez was the deadliest city in the world due to wars between drug cartels. Violence is unfortunately a fact of life everywhere; however, it has significantly threatened the El Paso/Juarez region. The threat of violence, whether by a disgruntled former employee, drug cartels, or a lone-wolf terrorist, is something for which we must be prepared.

⁵¹ David Bierling et al., *Cross-Border Hazardous Materials Transportation Study: El Paso, Texas* (College Station, TX: Texas A&M Transportation Institute, March 2013), 9, <http://d2dtl5nnlpfr0r.cloudfront.net/tti.tamu.edu/documents/186052-00003-1.pdf>.

⁵² *Binational hazardous materials emergency plan modification among City of El Paso, Texas, Sunland Park, New Mexico, Municipality of Juarez, Chihuahua, and Ysleta del Sur Pueblo*, 2009 [revised], 7.

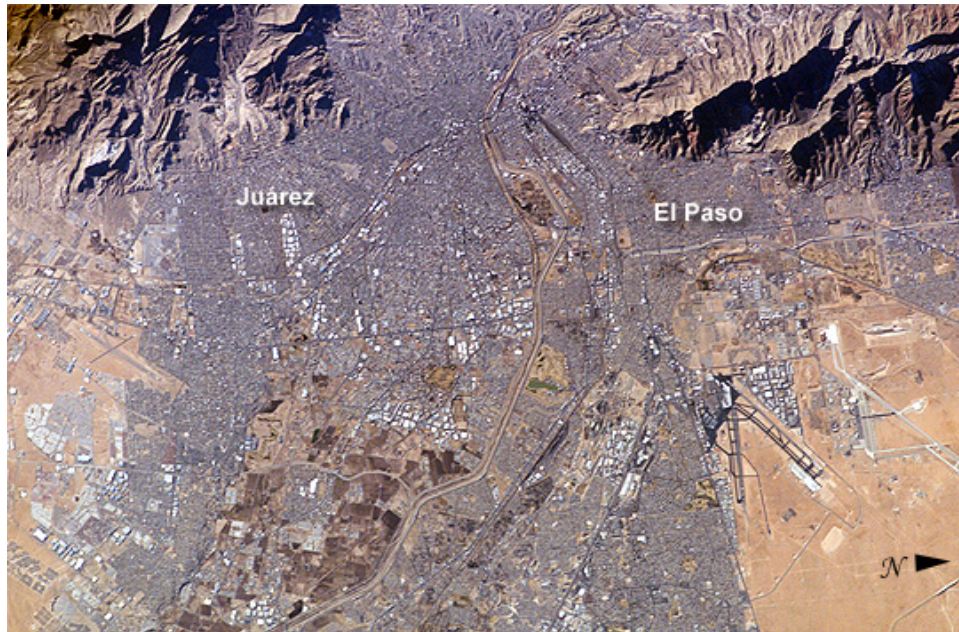
⁵³ Morales, Grineski, and Collins, "Structural Violence and Environmental Injustice," 11–12.

Approximately one-quarter mile across the state line between El Paso, Texas, and Sunland Park, New Mexico is a large entertainment complex that houses a casino and a small amusement park. If there were to be an active shooter incident at either the casino or the amusement park, a dozen or more people could be killed, and dozens more injured. This mass casualty incident would trigger the use of multiple emergency medical resources, which would include a certain number of EPFD structural units staffed by emergency medical technicians (basic- and/or paramedic-level) and available EPFD ambulances. Units would provide emergency medical assistance and would transport victims to El Paso-area hospitals for treatment.

This scenario could also occur one-quarter mile across the U.S.-Mexico border in a Juarez mercado (market). Drug violence has the potential to wound or kill dozens. In this situation, patients that were delivered to the U.S. side of the border would receive an emergency response unit and transport to the regional trauma centers; however, the response units would not cross the border to begin triage, treatment, and transport from the Mexican side of the bridge.

The international border follows the path of the Rio Grande River and separates the communities at some points by less than one-quarter of a mile. Map 2 shows how closely the cities of El Paso, Texas, and Juarez, Mexico are integrated.

Map 2. The El Paso/Juarez Region



Source: "Juarez El Paso," NASA, <http://www.jsc.nasa.gov/images/eol/2004/elpaso.jpg>.

In each of the previous scenarios, there is potential for citizens of all three cities (El Paso, Sunland Park, and Juárez) to be impacted by the incident. And, in each of these scenarios, some border is involved that requires mutual aid agreements before resources can be provided across jurisdictional boundaries. In each of these scenarios, there will be different responses and different sharing of resources. The question is: Why? It appears obvious, at first glance, that the international border is the reason for the disparity in response; however, there are circumstances in other regions that allow for resource-sharing across the international border. This thesis examines the challenges resulting from this disparity among response plans in cross-border areas. It then asks if that disparity can be overcome. Before the disparity is addressed, however, it may be helpful to provide some insight into where the concept of international interoperability originated.

B. FROM BUILDING THE WALL TO BUILDING PARTNERSHIPS: THE GENESIS OF CROSS-BORDER INTEROPERABILITY

The Impact of Globalization

International interoperability agreements, in part, had their genesis in agreements focused on trade partnerships. Economically driven agreements have led to the blurring of traditional borders not only in North America, but also in Europe and the Pacific Rim. This globalization resulted in the development of agreements such as NAFTA in the Americas and the Schengen Agreement in the European Union. These agreements redefined the way the world worked in terms of international borders and set the foundation for more defined regional cooperation, during which communities could work more closely to gain a competitive advantage.

Analyzing North America and globalization, Peter Kresl notes that, in the 1970s and forward, the world “was experiencing the evolution of a new form of international relations that was more geoeconomics than geopolitics. New forms of international and transnational engagement were developing.”⁵⁴ These new engagements were challenging national boundaries and alliances; citizens were now turning from “citizenship to consumership.”⁵⁵ This changing marketplace blurred the lines of geographic borders, and internationalization to flourish.

In the Western hemisphere, specifically in North America, economic partnerships were developed to help establish a competitive edge against overseas markets. Kimberly Amadeo studied the history of NAFTA, reporting:

It was envisioned to reduce trading costs, increase business investment, and help North America be more competitive in the global marketplace. NAFTA has eliminated trade barriers, increased investment opportunities, and established procedures for resolution of trade disputes. Most important, it has increased the competitiveness of the three countries involved—Canada, the U.S.

⁵⁴ Peter K. Kresl and Gary Gappert, “North American Cities and the Global Economy: Challenges and Opportunities,” *Urban Affairs Annual Review* 44 (1995): 287, <https://us.sagepub.com/en-us/nam/north-american-cities-and-the-global-economy/book4967>.

⁵⁵ Kresl and Gappert, “North American Cities,” 289.

and Mexico—on the global marketplace. That has made it the world's largest free trade area.⁵⁶

While not without its detractors, NAFTA has had a major impact in countries' ability to work across national borders for mutual economic gain.

On the Canadian border, initiatives developed in the early 1970s helped foster regional international collaboration. According to Julie Demers:

In the early 1970s, an annual Conference of New England Governors and Eastern Canadian Premiers—11 governments in all—was formed for the purpose of discussing cross-border issues of mutual interest and strengthening of existing political ties....Trade, environmental, and energy related issues have always been a common interest for the governments of northeastern North America.⁵⁷

The U.S.-Canadian collaboration sparked standing committees and multiple agreements regarding trade, environment, and energy-related issues.

While there are forces within the Canadian system that resist being tied too closely to America, Stephanie Golob asserts that it is difficult to deny “the reality of a border, as a semi-permeable membrane that [we] know allows (and encourages) bidirectional flows of goods, services, people, technology, and ideas on a scale perhaps unmatched except by its mirror image along the U.S.'s southern border.”⁵⁸ This open sharing requires the establishment of agreements to ensure that participants in the network are protected by fair practices and rules of engagement. Once again, the economic- and globalization-driven agreements lay the foundation for future regional interoperability agreements.

On the southern border, Mexico has progressively become more engaged in the global market and has formalized its relationships with the United States and other partners. Gabe Aguilera observes that “the country continues on a

⁵⁶ Kimberly Amadeo, “History of NAFTA,” about.com, last updated February 8, 2016, http://useconomy.about.com/od/tradepolicy/p/NAFTA_History.htm.

⁵⁷ Demers, “Cross-Border Cooperation,” 48.

⁵⁸ Stephanie Golob, “North America beyond NAFTA? Sovereignty, Identity, and Security in Canda-U.S. Relations,” *American Public Policy* 52 (December 2002):1.

trajectory of steady and modest economic growth thanks to economic openness and macroeconomic stabilization. Mexico joined the General Agreement on tariffs and Trade in 1987 and [NAFTA] in 1993. It threw open its doors to foreign direct investment after decades of protection and heavy regulation.”⁵⁹ Political and economic change made the United States and other nations more willing to partner with the Mexican government. This focus on mutually beneficial relationships extends beyond economic and political issues.

A U.S. bilateral relations fact sheet summarized some of these identified benefits: “The scope of U.S.-Mexican relations is broad and goes beyond diplomatic and official contacts. It entails extensive commercial, cultural, and educational ties, with over 1.25 billion’ worth of two-way trade and roughly one million legal border crossings each day.”⁶⁰ This degree of interaction, especially at the local level, tied communities together and allowed for local partnerships to flourish. Trade with Mexico used to center around Mexico City, Guadalajara, and Monterrey; however, the focal points of trade began to shift away from the government centers and toward the borders. Horacio Aldrete states that there is a “decentralization of industrial and commercial activity to the country’s U.S. border. Today, Tijuana, Juarez, Mexicali, Matamoros, Nuevo Laredo, and Reynosa are important alternative industrial and commercial centers.”⁶¹ Trade partnerships strengthened the border communities and provided added incentives for ensuring its security and vibrancy. This entailed the development of other formal partnership agreements, including those providing for some level of interoperability.

⁵⁹ Gabriel Aguilera, “Mexico’s Great Transformation and U.S.-Mexican Relations,” *ReVista* (Fall 2013): 92, <http://revista.drclas.harvard.edu/book/mexico%E2%80%99s-great-transformation-and-us-mexican-relations>.

⁶⁰ “U.S. Relations with Mexico: Fact Sheet,” U.S. Department of State, May 8, 2015, <http://www.state.gov/r/pa/ei/bgn/35749.htm>.

⁶¹ Aldrete, “Increased Security,” 76.

C. PARTNERSHIPS FORGED BY TERROR CONCERNS AND NATURAL DISASTERS

1. Terror/Security-Related Concerns

As a result of globalization, security concerns shifted from maintaining national defense—emphasizing strong borders and exerting a powerful presence—to promoting national interests. Stephanie Golob writes that “after the end of the Cold War and into the ‘age of globalization’ dawning in the 1990s, both countries (U.S. and Canada) began to rethink the nature of security policy which was all the more detached from traditional, territorial notion of self-defense.”⁶² The trade momentum of North American globalization took a sharp decline after the events of September 11, 2001; however, new international security emphasis began to emerge. Golob continues, “The Bush administration underscored the mutuality of the threat to both the U.S. and its neighbor, pointing beyond shared geography to imply a shared stake in defeating a force anathema to shared values, analogous to the West’s fight against Communist aggression in the Cold War.”⁶³

The emphasis on trade was replaced by an emphasis on security; if mutually acceptable security terms could not be reached, this had the potential to unravel decades’ worth of progress. Steven Globerman further explains:

Immediately after the 9/11 attacks, the United States closed its airports, seaports, and land border crossings with both Canada and Mexico...While the terrorist attacks themselves had been launched at the United States, the economic and political shockwaves of those attacks swept through Canada, as the world’s largest bilateral trading relationship effectively shut down.⁶⁴

Free trade was slowed in favor of national security.

⁶² Golob, “North America beyond NAFTA,” 4.

⁶³ Ibid.

⁶⁴ Steven Globerman and Paul Storer, *The Impact of 9/11 on Canada-U.S. Trade* (Toronto: University of Toronto Press, 2008), 1.

There were, and still are, concerns over keeping borders secure. But there was, and is, an equal, if not greater, concern for keeping borders semi-permeable to allow for the free flow of people and goods. To offset the negative impacts of 9/11 on the U.S.-Canada trade partnership, the two governments developed a thirty-point plan titled the “Smart Border Declaration.” Two key measures defined by that declaration were the Free and Secure Trade (FAST) plan, and the Customs-Trade Partnership against Terrorism (C-TPAT).⁶⁵ The FAST allows for “expedited border crossings for pre-approved, low-risk commercial shipments across the Canada-U.S. border...C-TPAT is a joint government-business initiative to strengthen overall border and supply chain security.”⁶⁶ The balance between security and trade partnerships continues to play out as globalization efforts move forward. To help ensure that mutually beneficial international relations continue, formal security and trade agreements were developed. Interoperability agreements are a natural progression in this process.

2. Disaster Diplomacy: Partnerships in Natural Disasters

The globalization push did not eliminate the formal boundaries between international trade partners; however, it did soften them to the point where one could readily work across regional borders in economic, security, and humanitarian efforts. Border regions feel the human impact of natural disasters, and international partners come to the assistance of their neighbors. In an article on “disaster diplomacy,” Ilan Kelman defines aid-based relationships as falling into one of three categories. The first category is “mutual aid, which indicates that states in conflict face a common threat or have been affected by similar types of—or even the same—event and thus cooperate with each other.”⁶⁷ This aid is

⁶⁵ Globerman and Storer, *The Impact of 9/11 on Canada- U.S. Trade*.

⁶⁶ Ibid.

⁶⁷ Ilan Kelman, “Hurricane Katrina Disaster Diplomacy,” *Disasters* 31, no. 3, (2007): 290, doi: 10.1111/j.1467-7717.2007.01010.x.

often, but not always, based on formalized agreements that were developed between regional partners as part of pre-planning efforts.

Kelman also provides a summary of the relationship between the United States and Mexico, among other nations, and how issues were overcome, or at least put aside, when providing aid for disaster relief. He states that “Mexico-U.S. relations have been improving over the long-term, but significant diplomatic conflicts remain over border control related to immigration, drugs, pollution, and terrorism.”⁶⁸ In spite of this tension, Mexico provided 1 million U.S. dollars, water, food, medical supplies, vehicles, and equipment after Hurricane Katrina. This aid was delivered by the Mexican Army, which crossed into U.S. territory as part of relief efforts.⁶⁹ The Mexican Army delivering food and assisting in food kitchens on American soil? Yes. This is the result of developing international partnerships. As global citizens, we can find common ground and sympathize with our fellow citizens’ tragedies, with or without formal agreements.

The Canadians also provided relief to their U.S. partners during Hurricane Katrina: “Two days after Katrina ripped through the Gulf states, Canada offered whatever assistance it could provide. Despite delays from Washington, the Canadian Forces began loading up warships and a Canadian coast guard vessel with whatever officials expected would be needed, including medical supplies, blankets, baby diapers, tents and food.”⁷⁰ The Canadians also provided assistance to the United States during the recovery efforts of both the 9/11 attacks and Hurricane Sandy. This reflected the Canadian desire to model the good neighbor policy. Prime Minister Paul Martin explains this in his discharge to those being sent to aid the U.S. recovery efforts: “Canada was built by neighbours helping neighbours in times of crisis. But that doesn’t apply only

⁶⁸ Kelman, “Hurricane Katrina,” 296.

⁶⁹ Ibid., 297.

⁷⁰ Allan Woods, “Good Neighbour Canada Dispatches Aid to Gulf Coast,” *Edmonton Journal*, September 7, 2005, A4.

within our borders. Neighbours helping neighbours applies every bit as much outside of our borders. That is your mission.”⁷¹

These responses to emergency events were the result of not only the “good neighbour policy,” but were also the by-products of emergency management agreements developed prior to the events. The impact of globalization and the development of regional/international partnerships resulted in formal compacts that promised assistance to a neighbor when a significant event occurred. Examples of pre-9/11 international cooperation include the International Emergency Assistance Memorandum of Understanding “developed following the 1998 ice storm that hit southern Quebec. Quebec, New Brunswick, Massachusetts, Nova Scotia, Prince Edward Island, Maine, and New Hampshire are all parties to this agreement that provides for mutual assistance in managing emergency situations that threaten public safety.”⁷²

This response to natural disasters and other such events, while impacting the push for international interoperability, does not appear to be the driving force behind the development of international agreements. These types of agreements can be attributed more to the trend toward globalization on an economic and environmental scale. Even though they are the result of a global view, these international agreements depend heavily on local implementation to be successful. This often necessitated local entities establishing their own agreements between specific regional partners. This type of collaboration would ultimately be the foundation for what are termed sister city agreements.

⁷¹ Woods, “Good Neighbour Canada,” A4.

⁷² Demers, “Cross-Border Cooperation,” 49.

D. DEVELOPING METROZONES: AN OVERVIEW OF LOCAL COLLABORATION IN A GLOBAL ENVIRONMENT

1. Border-Crossing Cities

Peter Kresl argues that this shift toward internationalization was not just in consumer relationships, but also in local governmental relations: "The end of the Cold War and the rise of the global economic competition were creating a type of free market of governments, not only of national governments but also of regional and local governments."⁷³ Local governments were partnering with external neighbors for mutual benefit, in spite of defined borders. The expression "all politics are local" can be applied in this context to the economics of cities in proximity to each other, regardless of international boundaries. Political pressures result in a need to demonstrate local benefits in cross-border partnerships. The desired benefits of these local partnerships are often expressed in formal agreements, which build a foundation of trust on which future agreements are developed.

The emphasis on establishing local agreements is prudent. It takes advantage of previously existing informal or semi-formal relationships to establish more formal ones. Many of the border cities impacted by the globalization of trade, and other internationally focused issues, have a shared history that pre-dates the globalization push. The new world order requires that partnerships formed informally now be formalized to help in the name of trade and security. NAFTA may be a tri-national accord, but its foundation runs through the streets of El Paso/Juarez, Laredo/Nuevo Laredo, and San Diego/Tijuana. Local impacts require local agreements.

Jan Buursink describes border-crossing cities as "pairs of cities that make border-crossing contacts, irrespective of mutual differences, but inspired by common interests and attractive opportunities."⁷⁴ She goes on to emphasize that

⁷³ Kresl and Gappert, "North American Cities," 77.

⁷⁴ Jan Buursink, "The Binational Reality of Border-Crossing Cities," *Geojournal* 54, no.1 (2001):17.

a distinct feature of border-crossing cities is that their “initiatives in particular sprout from public and semi-public bodies, representatives of which meet each other to prepare common projects.”⁷⁵ This emphasis on local bodies meeting to focus on common projects sets the idea of sister city initiatives apart from the general-border initiatives spearheaded at higher government levels. Local community partners working together to address issues that impact them both, regardless a defined border, represent globalization in action at the grass roots level.

2. International Metro-Zones: A Brief Overview

According to Census.gov, “The general concept of a metropolitan area (MA) is that of a core area containing a large population nucleus, together with adjacent communities that have a high degree of economic and social integration with that core.”⁷⁶ Strong economic ties along with social and/or cultural connections are critical components of border-crossing cities developing into metropolitan zones. Many communities may have social ties, but do not have the economic drivers and population to be classified as metro-zones. The question in this thesis focuses on the interoperability challenges in international metro-zones. In order to evaluate those challenges, a brief history of the economic and social integration in the three largest pairs of international cities along the U.S. border is provided. The three include Detroit/Windsor, San Diego/Tijuana, and El Paso/Juarez.

3. Detroit/Windsor

Detroit, Michigan, and Windsor, Ontario, developed their partnership out of a shared economic focus and the fact that they are physically connected by a tunnel that travels below the Detroit River. The history of the economic relationship dates back to the late 1800s, when the Detroit-Windsor tunnel was

⁷⁵ Burrsink, “The Binational Reality,” 17.

⁷⁶ U.S. Census Bureau, “Metropolitan Areas,” in *Geographic Areas Reference Manual* (Washington, DC: U.S. Census Bureau, 2015), <https://www.census.gov/geo/reference/garm.html>.

developed. The original tunnel debate in the 1870s was focused on whose trade routes would be least impacted by constructing a permanent passage between the two cities. The railroad industry wanted a bridge, on which they could place tracks and have the trains cross aboveground. The ship industry wanted a below-ground tunnel, fearing that ships' tall masts would create hazardous passage for a bridge.⁷⁷ The underground tunnel system was the ultimate choice and the connection between the United States and Canada was born. It is now the second busiest U.S.-Canada border crossing.⁷⁸

Detroit is the second-largest border city in the United States, behind San Diego, with a population of approximately 720,000, and is directly connected to its sister city of Windsor, which has a population of approximately 211,000.⁷⁹ According to a report by the Southeast Michigan Council of Governments, trade between the U.S. and Canada in 2008 averaged \$1.5 billion per day with more than 200 million people and \$500 billion in goods moving across the border annually.⁸⁰ This report also indicates that Canada was Michigan's most important trading partner, with trade between them exceeding \$67.4 billion. The majority of this trade is manufacturing and transportation equipment, which accounts for 54 percent of exports to Canada.⁸¹ Other economic drivers in this international metro-zone include tourism, with over 2.7 million visits between Michigan and Canada, and retail, with shopping representing 27 percent of tourist spending.⁸² The impact of trade globalization and the resultant impact on the development of

⁷⁷ "Tunnel History," Detroit-Windsor Tunnel, accessed October 30, 2015, <http://www.dwtunnel.com/AboutUs.aspx>.

⁷⁸ "Tunnel History," Detroit-Windsor Tunnel

⁷⁹ Lisa Halverstadt, "A Tale of Two Binational Cities," *Voice of San Diego*, January 3, 2013, <http://www.voiceofsandiego.org/share/a-tale-of-two-binational-cities/>.

⁸⁰ SEMGOG, *Economic Impact of the Border: Detroit/Windsor* (Detroit, MI: Detroit Regional Chamber, 2009), <http://www.semcog.org/desktopmodules/SEMCOG.Publications/GetFile.ashx?filename=EconomicImpactOfTheBorderDetroitWindsorSeptember2009.pdf>.

⁸¹ SEMGOG, *Economic Impact of the Border*.

⁸² *Ibid.*

local, binational economic drivers was at one time evident in the Detroit–Windsor metro-zone.

Today, Detroit-Windsor is home to a struggling automotive industry. Jen Nelles reports that the cities “may be physically separated by the Detroit River and an international border but their fortunes are very much intertwined. The city-regions that center on these two cities on either side of the border are both heavily dependent on the automotive sector and their urban experience has mirrored the steady decline of the industry.”⁸³ Changes in the automotive industry resulted in manufacturing moving away from Detroit center to its suburban regions. This has resulted in a U.S. high unemployment rate of 14.8 percent in Detroit (as determined in 2010) and a 12.7 percent unemployment rate in Windsor-Essex.⁸⁴ “In this context it is not surprising that Windsor has earned the nickname ‘Canada’s Detroit.’”⁸⁵ The interconnected nature of this international metro-zone region should provide impetus for cross-border municipal cooperation, but that does not appear to be the case. Nelles further argues that “the leadership of these twin broken cities should have much to discuss about common challenges and how each community could respond to industrial revitalization and metropolitan renewal. Yet [this study] finds little communication between the two regions, much less cooperation.”⁸⁶ The questions when considering the history of the area, in the context of this thesis, are: Why is there such little cooperation and collaboration among these neighbors, and how does that impact their interoperability?

⁸³ Jen Nelles, “Cooperation in Crisis? An Analysis of Cross-Border Intermunicipal Relations in the Detroit-Windsor Region,” *Articulo: Journal of Urban Research* 6 (2011), <https://articulo.revues.org/2097>.

⁸⁴ Nelles, “Cooperation in Crisis.”

⁸⁵ Ibid.

⁸⁶ Ibid.

4. San Diego/Tijuana

According to Glen Sparrow:

The San Diego-Tijuana metropolitan region has a history of being a point of transfer and exchange of national characteristics due to economic transfers, tourism, and the requirements relative to the supply and demand needs of neighbors...However, even given emerging and strong economic linkages the two cities are, following over 100 years as neighbors, still learning to coexist and complement each other.⁸⁷

In 1848, the Treaty of Hidalgo established the current boundaries between the United States and Mexico, including those of San Diego and Tijuana. Sparrow further discusses how the storied history of the region includes “a steady move toward interdependence driven primarily by economic forces.”⁸⁸ An uneasy economic partnership, Sparrow explains, had developed over time as the border—forged in 1848—forced a third-world economy to meet a first-world economy, with the first-world economy taking full advantage of its partner. The economic drivers along the border resulted in the Bracero program, in which U.S. industry would hire cheap Mexican labor during World War II and then return hundreds of thousands of Mexican workers back across the border. Mexico’s solution to this problem led to the maquiladora program, which is a manufacturing program allowing raw materials and machinery to be imported into Mexico, and the finished products exported back to the United States.⁸⁹ The lack of conflict along this border and the economic partnerships, however unequal, has resulted in a growing interdependence that existed before NAFTA and other formal agreements were signed.

Today, San Diego is a major technology center, with a population of approximately 1.4 million residents. It is the home to telecommunications, biotechnology, electronics, and other industries, as well as a major tourist mecca.

⁸⁷ Glen Sparrow, “San Diego-Tijuana: Not Quite a Binational City or Region,” *Geojournal* 54, no. 1 (2001): 73.

⁸⁸ Sparrow, “San Diego-Tijuana,” 76.

⁸⁹ *Ibid.*, 77.

Trade is also a significant driver in the region; international trade in San Diego increased 27 percent, over the course of one year, to \$56.5 billion, with Mexico being the destination for 97 percent of exports and 82 percent of imports.⁹⁰ “As it has for much of the past two decades, the big driver behind all this trade is the maquiladora industry, which uses Mexico’s cheap labor to assemble goods, and then send them back to this country.”⁹¹ This volume of trade, along with the regional tourism, makes Tijuana a critical partner in the economic growth of this international metro-zone.

The San Diego Regional Economic Development Council’s 2014 Economic Outlook reported several important statistics about the city. San Diego’s unemployment rate is 6.8 percent, which is lower than California’s state rate of 8.5 percent.⁹² San Diego is the 16th-largest metropolitan economy in the United States and is one of the nation’s leaders in exports, at \$17.2 billion in goods and services in 2012. There are three main categories of economic drivers for San Diego: tourism, innovation, and the military. The innovation component of the economy, which includes technology and venture capital, establishes San Diego as a truly global market. The tech sector has allowed San Diego to establish trade partnerships with multiple countries besides Mexico; however, Mexico does remain the biggest trade partner.

The shared history, culture, and economy in this metro-zone highlights the critical need for local governments in San Diego and Tijuana to work collaboratively, establishing agreements focused on sustaining the region’s economic growth. Yet, in spite of this history, Sparrow concludes “that the relationship between these cities is driven by factors of economics, not friendship

⁹⁰ Mike Allen, “Mexico Is Top Trading Partner, Driven by Maquiladoras,” *Mexport*, February 8, 2014, <http://www.mexport.org/international-trade-grows-27-in-region/>.

⁹¹ Allen, “Mexico Is Top Trading Partner.”

⁹² San Diego Regional EDC, “2014 Economic Outlook.”

or trust.”⁹³ Can interoperability agreements, which state that partners will help each other during an emergency situation, be developed without trust?

5. El Paso/Juarez

El Paso, Texas, and Ciudad Juarez, Mexico, also have a storied history that goes back over 400 years. John Crewdson documents that the discovery of El Paso del Norte occurred nearly four decades before the Mayflower reached Plymouth Rock. When the Treaty of Hidalgo made the Rio Grande River the boundary between the United States and Mexico, this little border town found itself split between two countries.⁹⁴ The El Paso/Juarez region is isolated from other parts of either nation by hundreds of miles. This isolation has helped promote a stronger interdependence between the two communities: “Tens of thousands of people go back and forth across the border every day, and the cities share the same history, the same food, music, culture and language, even the same pollution.”⁹⁵ Crewdson quotes the American consul in Juarez (Franklyn Stevens), who said that “all of the 31 pairs of cities along the 2,000 mile Mexican-American border are interdependent, but none quite so much as El Paso and Juarez. Relations between the two are warmer and closer than any other border cities in the world.”⁹⁶

According to the El Paso Department of Economic Development, the El Paso region, which comprises three states and two nations, has a population of approximately 2.5 million; this includes 1.4 million in Juarez, 839,000 in the El Paso Metropolitan Statistical Area (MSA), and 260,000 in neighboring Dona Ana and Otero County, New Mexico.⁹⁷ The region boasts its international connectivity, indicating that its trade routes are accessible to more than 110

⁹³ Sparrow, “San Diego-Tijuana,” 73.

⁹⁴ Crewdson, “In Sister Cities of El Paso and Juarez.”

⁹⁵ Ibid.

⁹⁶ Ibid.

⁹⁷ “Economic and International Development,” City of El Paso, Texas, accessed April 3, 2015, <http://www.elpasotexas.gov/economic-development>.

million North American consumers within 24 hours by truck.⁹⁸ The El Paso–Juarez trade corridor is ranked number two among foreign trade zones. It “is the largest metro area along the Texas/Mexico border...represents one of the largest manufacturing centers in North America, and is recognized as globally competitive...largely due to possessing the largest bilingual and bi-cultural workforce in the Western Hemisphere.”⁹⁹ In 2014, more than 4 million passenger vehicles, 4.1 million pedestrians, and 375,000 commercial vehicles crossed into Ciudad Juarez from international ports of entry.¹⁰⁰

A report by the Borderplex Alliance asserts that Ciudad Juarez pioneered the “twin plant maquila industry in 1965 and launched over 40 industrial parks. The maquila industry allows special fiscal advantages for manufacturing facilities with non-Mexican ownership.”¹⁰¹ This report also indicates that the El Paso Customs Trade District ranks as the 13th-largest trade district in the United States; Mexico is the district’s largest import and export partner, with \$46.5 billion imported and \$39.6 exported in 2013. The Maquiladora industry is linked to approximately 14,000 El Paso-area jobs.¹⁰² These statistics indicate El Paso and Juarez’s mutual dependence for economic growth. The increased emphasis on trade that resulted from the growth of the maquiladora industry and the passage of NAFTA has helped cement this metro-zone, not only as a global trading partner, but as an international sister city: “The border marks some important differences, dividing as it does the third world from the first world. Juarez is shorter of almost everything than El Paso: sewers, houses, automobiles, electric lights, money, calories per person, longevity. The only thing it has more of is people, nearly twice as many.”¹⁰³ In spite of the history and economic

⁹⁸ “Economic and International Development,” City of El Paso.

⁹⁹ Ibid.

¹⁰⁰ “2014 Bridges Traffic Volume Archives,” City of El Paso.

¹⁰¹ Borderplex Alliance, *North American Borderplex Regional Profile*.

¹⁰² Ibid.

¹⁰³ Ibid.

connectedness, these differences may be obstacles in developing the types of interoperability agreements discussed in this thesis.

When considering the move toward globalization, and the historical foundations for sister city/border-crossing metro-zones, the need for local governments to collaborate is apparent. With the development of trade agreements to ensure mutually beneficial growth, it would be a natural progression to develop mutual aid/interoperability compacts. These aid and interoperability agreements build off the foundation of the trade issues, but also are keyed on the level of local interdependence. They are intended to address the potential for a significant event—economic, natural disaster, or other—to impact both international partners negatively. The agreements ready the necessary tools to help protect the economic driver by ensuring that shared impact is mitigated by shared resources.

In Chapter IV, this study moves forward to evaluate some existing interoperability agreements, including those found in the border metro-zones, for commonalities and difficulties in development and implementation.

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IV. EVALUATING EXISTING INTEROPERABILITY AGREEMENTS

A. EMERGENCY MANAGEMENT ASSISTANCE COMPACT AND AFFILIATED AGREEMENTS: A CANADIAN PERSPECTIVE

1. History of Interoperability on the Northern Border

Cooperation between Canada and the United States has been formalized in many emergency management agreements. The proximity of several U.S. communities to the Canadian border has provided the opportunity to develop partnerships among the local governments. As the U.S. emergency preparedness framework describes, all disasters and emergencies are local. This tenet of the nation's disaster plan emphasizes the need for locals to build plans and agreements to meet their immediate needs in an emergency event: "Jurisdictions located along the borders with Canada and Mexico may also find it necessary to enter into emergency assistance agreements, allowing the cross-border sharing of additional critical resources (personnel and equipment) that can quickly help protect property and save lives."¹⁰⁴

These agreements are supplemental to, and outside of, the normal federal response framework, but are supported by FEMA and other government entities. There is a clear understanding that in "some circumstances it may be necessary for states along the northern border and outside of the federal response process to seek assistance directly from their Canadian provincial counterparts."¹⁰⁵ As a result of this understanding, local entities have collaborated with their international partners in areas of potential mutual impact: "Mutual aid exists today along the [northern] border at the local level between cities such as Port Huron, Michigan, and Sarnia, Ontario, in Canada and many others. Many of these have

¹⁰⁴ *The State of Northern Border Preparedness: A Review of Federal, State, and Local Coordination*, statement by Andrew Velasquez, III before U.S. House Committee on Homeland Security's Subcommittee on Emergency Preparedness, Response, and Communications, Detroit, Michigan, October 28, 2011, 2, <https://www.dhs.gov/news/2011/10/27/written-statement-region-v-administrator-andrew-velasquez-iii-state-northern-border>.

¹⁰⁵ *The State of Northern Border Preparedness*, statement by Velasquez, 3.

a long history dating back to the 1960s.”¹⁰⁶ This history pre-dates the development of the Emergency Management Assistance Compact (EMAC) and demonstrates that regional international interoperability has been a point of consideration with our Canadian neighbors for decades.

Many of these current agreements are modeled after the EMAC; however, they are not necessarily a component of the formal EMAC agreements:

While EMAC provides a comprehensive system through which states can assist each other during emergencies, it does not provide a mechanism that allows for the shipment or receipt of resources across U.S. borders. Recognizing this, emergency management stakeholders in Border States, working in concert with their international partners, have crafted several agreements to enable efficient resource sharing. Most of these agreements use EMAC as a model.¹⁰⁷

The NEMAC Working Group further explains, “Since 2006 the idea that there should be a legal means through which resources could be shared across the international border between Canada and the United States has led to the development of the State and Province Emergency Management Assistance Memorandum of Agreement (SPEMAMA).”¹⁰⁸

These agreements may not have seen widespread use in real-time events; however, they are in place and have assured collaboration among local/regional partners in preparation for their implementation. Under the umbrella of these agreements, international training efforts have been conducted: “In June 2012, the State of Washington and British Columbia joined several cities

¹⁰⁶ Ibid., 3.

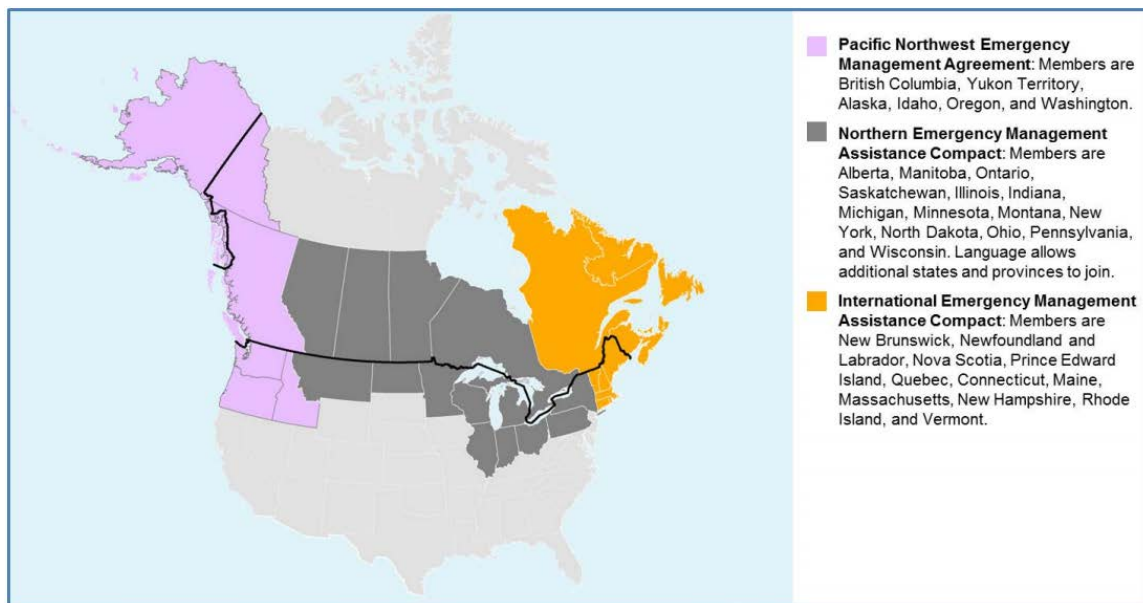
¹⁰⁷ EMAC and NEMA, *The Emergency Management Assistance Compact: A History and Analysis of the Evolution of National Mutual Aid Policy and Operations*, (Lexington, KY: National Emergency Management Association, September 2014), 48, <http://www.emacweb.org/index.php/mutualaidresources/emac-library/5/285-emac-a-history-and-analysis-of-the-evolution-of-national-mutual-aid-policy-and-operations/file>.

¹⁰⁸ NEMAC, *Northern Emergency Management Assistance Compact Operations Manual*, October 2014, 5. http://www.nemacweb.org/wp-content/uploads/2015/08/Operations_Manual_Main_2014.pdf.

and the private sector in the first-ever cross-border exercise, using a 7.1 magnitude earthquake as the scenario.”¹⁰⁹

Ultimately, three main compacts included regionally focused cross-border cooperation with Canada as key components. The geographic boundaries for these regional plans are shown in Map 3. These were the International Emergency Management Assistance Compact (IEMAC), the Pacific Northwest Emergency Management Agreement (PNEMA), and the Northern Emergency Management Assistance Compact. Each of these agreements is overseen by a regional emergency management advisory committee. These agreements are examined in the following sections to identify their key components, similarities, and differences.

Map 3. Three U.S./Canada Cross-Border Compact Regions



Source: EMAC and NEMA, *The Emergency Management Assistance Compact: A History and Analysis of the Evolution of National Mutual Aid Policy and Operations* (Lexington, KY: National Emergency Management Association, September 2014), 49, <http://www.emacweb.org/index.php/mutualaidresources/emac-library/5/285-emac-a-history-and-analysis-of-the-evolution-of-national-mutual-aid-policy-and-operations/file>.

¹⁰⁹ EMAC and NEMA, *The Emergency Management Assistance Compact*, 50.

2. IEMAC

The first international agreement that tied in training, response, and funding components “occurred in 1975 between the State of Maine and the Province of New Brunswick, Canada. This agreement was later updated and eventually subsumed as part of the International Emergency Management Assistance Compact.”¹¹⁰ The basic intent of this agreement is to “provide for the possibility of mutual assistance among the jurisdictions entering into this compact in managing any emergency or disaster when the affected jurisdiction or jurisdictions ask for assistance, whether arising from a natural disaster, technological hazard, man-made disaster or civil emergency aspects of resource shortages.”¹¹¹ This agreement “resolves two key issues up front: liability and reimbursement. The Requesting jurisdiction (1) agrees to assume liability for out-of-jurisdiction workers deployed under EMAC and (2) agrees to reimburse Assisting jurisdictions for all deployment related costs if the Assisting jurisdictions require reimbursement.”¹¹²

The agreement provides for joint training and exercising and “includes the use of emergency forces by mutual agreement among party jurisdictions.”¹¹³ The jurisdictions request the assistance of their partner entities, acknowledging that “few, if any, individual jurisdictions have all the resources they need in all types of emergencies or the capability of delivering resources to areas where emergencies exist.”¹¹⁴ The assistance is then coordinated by an advance team (A-Team), which acts as the intermediary/liaison between the requesting jurisdiction’s emergency operations center and the other participating member organizations to implement the articles of the agreement. The A-Team also

¹¹⁰ Ibid., 48.

¹¹¹ International Emergency Management Group, *International Emergency Management Assistance Compact Operations Manual*, (IEMAC and PEIAGU, June 2015), 42, <http://www.iemg-gigu-web.org/PDF/GOM-e.pdf>.

¹¹² International Emergency Management Group, *International Emergency Management Assistance Compact Operations Manual*, 1.

¹¹³ Ibid., 42.

¹¹⁴ Ibid.

coordinates federal assistance, either U.S. Department of Homeland Security/FEMA or Public Safety Canada, when needed.¹¹⁵

The work that went into developing this legal agreement ensures that all aspects of emergency response operations were covered by the final document. This included topics such as liability (Article VI), licensing and permits (Article V), workers' compensation and death benefits (Article VIII), and reimbursement (Article IX).¹¹⁶ The participating entities in IEMAC from Canada include New Brunswick, Newfoundland Labrador, Nova Scotia, Prince Edward Island, and Quebec. The American jurisdictions include Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, and Vermont.¹¹⁷

3. PNEMA

The Pacific Northwest Emergency Management Agreement was formalized in 1998 between the state governments of Alaska, Idaho, Oregon, and Washington, the Province of British Columbia, and the Yukon Government: "PNEMA is also modeled after EMAC in both law and practice. Two differences between PNEMA and EMAC are that PNEMA does not require a governor's declaration of emergency, nor does it include movement of National Guard resources."¹¹⁸

According to PNEMA's implementation procedures, "the purpose of this agreement is to provide for the possibility of mutual assistance among signatories entering into this arrangement in managing any emergency or disaster when affected signatory or signatories ask for assistance, whether arising from a natural disaster, accidental or intentional events or the civil emergency aspects of resource shortages."¹¹⁹ The implementation plan further

¹¹⁵ Ibid., 52.

¹¹⁶ Ibid., 44–45.

¹¹⁷ Ibid., 50.

¹¹⁸ *Pacific Northwest Emergency Management Arrangement*, 2005 (Revision), Annex B, 1, <http://www.pnwbha.org/reports/PNEMA-annex-a-and-b.PDF>.

¹¹⁹ *Pacific Northwest Emergency Management Arrangement*, 1.

explains that planning efforts, including training and exercises, are tools to prepare for the mutual cooperation. This cooperation may include the use of emergency forces, including but not limited to police/security; fire-rescue services, to include hazmat and urban search and rescue; emergency medical services; and emergency management services, upon mutual agreement by signatories.¹²⁰ This mutual agreement indicates that resource-sharing is not an automatic guarantee. The entity of which resources are requested can provide those resources without violating the agreement, or can choose to withhold their resources in order to ensure that the needs of their jurisdiction are met: “It is understood that the signatory rendering aid may withhold or recall resources to the extent necessary to provide reasonable protection for itself.”¹²¹

The formal agreement between PNEMA signatories was written to include individual licensure across jurisdictional boundaries. This provides those with a medical, firefighting, or police certification from one jurisdiction to exercise their duties and obligations under that certification for, and under the authority of, the jurisdiction requesting aid. It also covers the liability that arises out of acting as an “agent of the requesting signatory for tort liability and immunity purposes.”¹²² In addition to tort liability, the agreement addresses the concerns of workers’ compensation and death benefits. This ensures that persons injured outside of their normal jurisdiction are covered by “the same terms as if the injury or death were sustained within their own jurisdiction.”¹²³

Reimbursement costs are also addressed in order to ensure that jurisdictions that do not wish to loan or donate their equipment or services as part of the agreement have a cost recovery mechanism available. In addition to reimbursement costs, the agreement safeguards jurisdictions from being charged fees while providing assistance to another signatory:

¹²⁰ Ibid., 2.

¹²¹ Ibid., 4.

¹²² Ibid., 5.

¹²³ *Pacific Northwest Emergency Management Arrangement*, Annex B, 6.

Each signatory will use discretionary power as far as possible to avoid levy of any tax, tariff, business license or user fees on the services, equipment and supplies of any other signatory which is engaged in civil emergency activities in the territory of another signatory, and will use its best efforts to encourage local governments or other jurisdictions within its territory to do likewise.¹²⁴

Since this is a regional agreement that requires local jurisdictions to submit requests through the approving authority, it can be a little bureaucratic. In order to overcome that potential, and to allow locals to offer aid as quickly as possible, the arrangement “does not preclude any signatory from entering into supplementary agreements with another signatory...Supplementary agreements may include, but are not limited to, provisions for evacuation...and the exchange of medical, fire, public utility...personnel, equipment and supplies.”¹²⁵ These supplementary agreements are outside of the scope of PNEMA and are therefore not subject to its reimbursement rules—this is left up to the jurisdictions that enter into the added agreements.

4. NEMAC

The Northern Emergency Management Assistance Compact was developed out of the State and Province Emergency Management Assistance Memorandum of Agreement, known as The State Province Agreement (SPEMAMA), ratified by Congressional Joint Resolution (S.J. RES 44) in early 2013: “This legislation allowed jurisdictions, to include any or all of the states of Illinois, Indiana, Ohio, Michigan, Minnesota, Montana, New York, North Dakota, Pennsylvania, and Wisconsin, to participate in cross-border mutual assistance for preparedness and response with any or all of the Canadian provinces of Alberta, Manitoba, Ontario and Saskatchewan.”¹²⁶ In July 2013, affiliated parties adopted

¹²⁴ Ibid., 3.

¹²⁵ Ibid., 6.

¹²⁶ “About NEMAC,” November 11, 2014, <http://www.nemacweb.org/about-nemac/about-nemac/>.

the State Province Agreement, which was formalized into the agreement known as NEMAC with a governing organization, bylaws, and operational manual.¹²⁷

As with the other regional agreements along the Canadian border, the principle that “even when federal assistance is merited, cross border mutual aid assistance may be more readily available, less expensive, and/or operationally expedient” is foundational to NEMAC.¹²⁸ NEMAC’s operations manual provides the operational guidance for member jurisdictions upon activation of the SPEMAMA: “NEMAC establishes procedures whereby a disaster-impacted jurisdiction can request and receive assistance from another Party Jurisdiction quickly and efficiently.”¹²⁹ NEMAC also uses A-Teams to help the requesting jurisdiction manage the incident and comply with the agreement’s rules: “The purpose of the NEMAC A-Team is to assist the Requesting Jurisdiction, if unable to do so, in coordinating the provision of assistance among Party Jurisdictions under the Compact. The A-Team does not have the authority to prioritize, allocate resources, or obligate jurisdiction funds.”¹³⁰

There are two types of A-Teams under NEMAC—internal teams and external teams. The internal A-Team comprises members of the requesting jurisdiction, who ensure that the procedural guidance for activating mutual aid under the compact are followed. The external A-Team deploys upon the party jurisdiction’s request and coordinates with their representatives to activate mutual aid: “Depending on the situation the external A-Team may be able to provide the necessary support from their home jurisdiction rather than deploying to the Requesting Jurisdiction.”¹³¹ Generally, the A-Team will report to and coordinate with the jurisdiction’s emergency management staff in the Emergency Operations Center.

¹²⁷ “About NEMAC.”

¹²⁸ Ibid.

¹²⁹ NEMAC, *Northern Emergency Management Assistance Compact Operations Manual*, 5.

¹³⁰ Ibid., 9.

¹³¹ Ibid., 13.

NEMAC's operations manual is very detailed and works to ensure that critical issues are not subject to interpretation. As with the other Canadian border regional agreements, NEMAC "resolves two key issues upfront: liability and reimbursement."¹³² Also similar to other EMAC-based agreements, it does not enable use of the National Guard and does not require an emergency decree or declaration. The key categories in the operations manual include standard operating procedures for preparation, preparedness, activation, mobilization, and demobilization. The manual's reimbursement section is very detailed and includes specific lists of items categorized as reimbursable or not reimbursable. Guidance on training and exercises is also incorporated into the manual. The manual's level of detail exceeds its counterparts' manuals; however, the categories and many of the provisions appear to include standard boilerplate language.

5. Summary of Canadian Border Model

The international mutual aid agreements that incorporate Canadian provinces into the compacts are all regionally based. They authorize the collaboration of cross-border (state and national) resources to mitigate any significant event. They do not require disaster declarations in order to invoke the provisions of the agreement; they simply require that two of the agreements' signatories be willing to join together to address the issue that caused the request for mutual aid. They each address reimbursement and liability issues, which are some of the most difficult items to manage in any cross-jurisdictional agreement. Lastly, they each address the need for staff training in order to better prepare to implement the agreement.

Consistency, with only slight variations in implementation components, is the hallmark of the EMAC-based agreements on our northern border.

¹³² Ibid., 5.

B. SISTER CITY AGREEMENTS: A MEXICAN PERSPECTIVE

1. History of the Sister City Model

The agreements on the southern border were developed differently than their northern-border counterparts. Many of the interoperability agreements had their foundation in environmental protection. The 1983 La Paz Agreement was one of the first formal agreements between the United States and Mexico focusing on environmental cooperation. Article 1 reads:

The United States of America and the United Mexican States...agree to cooperate in the field of environmental protection in the border area on the basis of equality, reciprocity and mutual benefit. The objectives of the present Agreement are to establish the basis for cooperation between the Parties for the protection, improvement and conservation of the environment and the problems which affect it, as well as to agree on necessary measures to prevent and control pollution in the border area, and to provide the framework for development of a system of notification for emergency situations.¹³³

The agreement referenced the water treaty that was established between the two countries in 1944 and expressed the formal intent to continue the cooperation needed to protect the water resources along the shared border.

To further the goals of the La Paz Agreement and follow up on NAFTA, U.S. and Mexican governments worked to establish a Border Environment Cooperation Commission (BECC) and a North American Development Bank (NADB). Article I, Section 1 of the BECC Charter reads:

The purpose of the Commission (BECC) shall be to help preserve, protect and enhance the environment of the border region in order to advance the well-being of the people of the United States and Mexico. In carrying out this purpose, the Commission shall cooperate as appropriate with the NADB and other national and international institutions, and with private sources supplying

¹³³ *La Paz Agreement* 80 Stat. 271, 1 U.S.C. 113 (August 1983), 1, <http://www.epa.gov/sites/production/files/2015-09/documents/lapazagreement.pdf>.

investment capital for environmental infrastructure projects in the border region.¹³⁴

This agreement helped further cooperation by providing grant and private-funding opportunities for projects meeting the goals of this international initiative.

Other agreements were developed as a result of the partnerships established in the La Paz and BECC agreements. These supplemental programs were developed to implement the priorities set forth in La Paz and included the Integrated Border Environmental Plan (IBEP), Border XXI Program, and Border 2012: “IBEP was established in 1992 to address the most serious environmental problems in the border region.”¹³⁵ Its stated goals were to continue monitoring pollution-control activities, strengthen environmental regulatory activities, mobilize additional resources for pollution control, and supplement pollution control programs.¹³⁶

The Border XXI Program was initiated in 1996 as a five-year effort focused on collaboration between governmental entities responsible for the environment: “Border XXI brought in additional federal partners to achieve its environmental goals, and welcomed the states and U.S. tribes into the workgroups (established under La Paz).”¹³⁷ The program also developed three additional working groups and was the first plan of its kind for the “development of sister city emergency response agreements for six border cities.”¹³⁸ This program helped promote environmental issues as a key component of U.S.-Mexico relations and led to the

¹³⁴ *Agreement between the Government of the United States of America and the Government of the United Mexican States Concerning the Establishment of a Border Environment Cooperation Commission and a North American Development Bank*, Article I, November 1993 [revised August 2004], 2, http://www.nadbank.org/pdfs/publications/Charter_2004_Eng.pdf.

¹³⁵ Environmental Protection Agency, *Border 2020: U.S.-Mexico Environmental Program* (EPA-160-R-12-001) (Washington, DC: Environmental Protection Agency, August 2012), 12, <http://www2.epa.gov/sites/production/files/documents/border2020summary.pdf>.

¹³⁶ Environmental Protection Agency, *Border 2020*, 12.

¹³⁷ *Ibid.*, 13.

¹³⁸ *Ibid.*

development of the U.S.-Mexico Environmental Program: Border 2012, known as Border 2012.

The Border 2012 program was formalized in April 2003 and emphasized “a bottom-up approach, anticipating that local decision making, priority setting, and project implementation would best address environmental issues in the border region.”¹³⁹ This 10-year plan (2003 to 2012) was designed to “protect public health and the environment in the U.S.-Mexico border region consistent with the principles of sustainable development through partnerships among Federal, state, local and tribal governments.”¹⁴⁰ As a part of the Border 2012 program, semi-annual reports detail border contingency planning activities such as “developing Sister City Plans, response exercises, training courses, and responses to actual hazardous material and environmental incidents.”¹⁴¹ Border 2012 was determined to be a successful endeavor and was renewed as the Border 2020 plan, which “continues the successful elements of previous binational environmental programs...including adopting a bottom-up approach for setting priorities and making decisions through partnerships with local, state, U.S. tribal governments and Mexico’s indigenous communities.”¹⁴² This bottom-up approach meant continuing the sister city agreements initiative. Those sister city agreements, which are the focus of the next section of this paper, now hold the implementation keys to the federal push toward cross-border cooperation with Mexico.

2. Sister City Agreements: Local Plans as Part of the Federal Response Framework

The first sister city emergency plan was signed in 1997, under the Border XXI framework, between Brownsville, Texas, and Matamoros, Tamaulipas,

¹³⁹ Environmental Protection Agency, *Semiannual Report*, 4.

¹⁴⁰ *Ibid.*, 3.

¹⁴¹ *Ibid.*, 4.

¹⁴² Environmental Protection Agency, *Border 2020*, 2.

Mexico.¹⁴³ There are currently fourteen sister cities that have developed, or are in the process of developing, their cross-border contingency/sister city emergency plans. Map 4 shows the territory that encompasses the U.S.-Mexico border and highlights the areas that have been identified as sister cities under the Border 2012 and Border 2020 plans. In contrast to the EMAC/Canadian border agreements, which relied on regional planning efforts, the planning efforts on the Mexican border rely on local agreements as the initiating component of the federal response plan. These local planning efforts provide variation in the agreements, which were not as evident in the Canadian border regional plans. This section reviews the contents of the established sister city agreements in order to identify commonalities and differences.

Map 4. U.S.-Mexico Border Sister Cities



Source: "U.S.-Mexico Border 2020 Program," Environmental Protection Agency, last updated January 21, 2016, <http://www2.epa.gov/border2020>.

¹⁴³ Environmental Protection Agency, *Semiannual Report*, 4.

Even though the agreements are developed locally, two basic templates provide some formatting consistency for the agreements. The documents are either found as “Cross Border Contingency Plans” or “Binational Prevention and Emergency Response Plans.” Regardless of which template is used, the fourteen agreements share common outlines. They all begin by acknowledging their foundation in the 1988 Joint U.S.-Mexico Contingency Plan for Accidental Releases of Hazardous Substances along the Border. This Joint Contingency Plan (JCP) “provides a framework for cooperation between Mexico and the United States in response to an accidental chemical release incident that may pose a significant threat to either country, or that affects one country to such an extent that assistance is necessary.”¹⁴⁴ The JCP also sets forth the framework for the sister city plans.

Each plan gives a summary of its cities’ demographics, including some historical and cultural background, populations, geography, and hazard analyses. This provides an overview of the hazards and capabilities of the affected response agencies and sets the foundation for the type of assistance that can be offered between the parties. The agreement for Calexico, California and Mexicali, Mexico lists the specific hazardous material response resource capability of each entity. For example, “The Mexicali Fire Administration is the main response entity in the City of Mexicali. There is an Emergency Response Center in the city, along with 23 fire stations. The local fire authority consists of 229 staff members, 24 are assigned to the Hazardous Materials Division.”¹⁴⁵ This documents reciprocal assistance, allowing Mexican resources to enter the United States to help mitigate an emergency incident.

The binational agreements include statutes, regulations, pre-existing agreements, and other contingency plans to document their legal foundation. The individual or entities with the authority to declare emergencies and request the

¹⁴⁴ *Cross Border Contingency Plan U.S./Mexico Sister Cities Brownsville/Matamoros*, May 2002, 1.

¹⁴⁵ *Binational Prevention and Emergency Response Plan between the County of Imperial, California, and the City of Mexicali, Baja California*, May 2005, 45.

binational assistance are defined. In the majority of agreements, the authority to invoke the mutual aid response lies with the fire chief on the U.S. side of the border and either the fire chief or director of civil protection for the Mexican entity. In the event that binational resources are needed, a direct request to the partner entity will be submitted. If the incident management will exceed local sister city capabilities, state resources can be requested. This request will go through the state on-scene coordinator from the State Office of Emergency Management or the State Civil Protection System coordinator in Mexico: "If it appears that the incident will reach a level at which local and state resources will be insufficient to bring the event to a successful conclusion, the Federal On-Scene Coordinator in conjunction with the Regional Response Team (RRT) will initiate a Joint Response Team response (JRT), and implement the federal Joint Contingency Plan (JCP)."¹⁴⁶

Not all of the agreements allow local resources to deploy across the international border. Of the fourteen city pairs, three (San Diego, California; Calexico, California; and El Paso, Texas) specifically prohibit the deployment of personnel and response units into their sister city's jurisdiction. Both California entity agreements list some of the challenges that result from restricting the resource deployment. San Diego's agreement reads:

Although the binational plan established important protocols for ongoing coordination and cooperation, there remain issues that may require state or federal legislation to resolve, and other issues that may remain outstanding. Some of these challenges are:

- a) Emergency response equipment is not covered by U.S. insurance policies once the vehicles and equipment cross the international border in either direction.
- b) Good Samaritan laws do not protect U.S. emergency responders from a personal liability lawsuit in Mexico.

¹⁴⁶ *Binational Prevention and Emergency Response Plan between the County of Imperial, California, and the City of Mexicali, Baja California*, 49.

c) There does not now exist an accepted standard communication frequency to coordinate incident response within the border area.¹⁴⁷

These limitations are not the only concerns that prevent response resources from deploying across the border; however, they are the concerns that must be addressed by the regional working groups in order to move forward. In the case of El Paso, Texas, there are no stated reasons for prohibiting resource deployment across the international boundary. In the El Paso/Juarez agreement, there are other signatories, who include the City of Sunland Park, New Mexico and the Ysleta del Sur Pueblo. None of these U.S. entities will send resources across the border: “Emergency personnel of the signatory municipalities and the Pueblo are presently unable to cross the U.S.-Mexico border to respond to an incident.”¹⁴⁸

Variations in the agreements can be seen between the U.S. states, with California not allowing cross-border resource deployment and Arizona providing significant response details, to include listing of sister city response resources. The state of Texas has the most sister city agreements, with only one entity not allowing resource deployment. There is, however, one common component found in every agreement that provides for cross-border resource deployment, though the level of specificity varies by state. That component is the procedure for complying with Customs and Border Protection and Immigration and Naturalization Service rules. In the San Luis (Yuma County) agreement, Appendix D and Appendix E outline the procedure approved by the Customs and Border Protection Agency and ICE for re-entry into the United States following an emergency incident mutual-aid response. A “Standard Operating Procedure regarding Entry Procedures for [U.S.] Emergency Response Vehicles Returning from Mexico” was established by the Assistant Director of the San Luis Port of

¹⁴⁷ *Binational Hazardous Materials Prevention and Emergency Response Plan*, 10.

¹⁴⁸ *Binational Hazardous Materials Emergency Plan Modification among City of El Paso, Texas, Sunland Park, New Mexico, Municipality of Juarez, Chihuahua, and Ysleta del Sur Pueblo*, 10.

Entry. This procedure states, for example, that “when an Emergency Response Vehicle (ambulance, fire truck, ladder trucks, etc.) has been temporarily exported out the United States into Mexico for the purpose of participating in a civic event, the Emergency Response Agency will ensure that only the equipment taken into Mexico for participation is being returned.”¹⁴⁹

Tables 1 and 2 provide a summary of the fourteen sister city agreements indicating regional population, responsible party for requesting mutual aid, and the allowance/prohibition of cross-border resource-sharing. This summary provides a quick glance at which entities have worked through issues allowing hazardous materials and other emergency response between sister cities. This information may allow further analysis of remaining challenges for entities that do not allow full cross-border interoperability.

Table 1. Sister City Agreement Year and Population Data

Sister City Pair	Year Est.	Regional Population (US/Mex)
San Diego/Tijuana	2003	4.5 million (3.0/1.5)
Calexico (Imperial County)/Mexicali	2005	907,263 (142,361/764,902)
San Luis (Yuma County)/San Luis	2000	211,090 (11,090/200,000) (135,000 Yuma County)
Nogales/Nogales	2000	363,491 (38,000/325,491)
Naco, Cochise County/Naco	2002	8,833 (833/8,000)/ cochise county 117,755
Douglas/Agua Prieta	2001	117,250 (17,250/100,000)
Columbus/Puerto Palomas	2002	105,994 (1765/104,229)
El Paso/Ciudad Juarez** last to sign	2007	2.1 million (650,121/1,400,890)
Presidio/Ojinaga	2004	71,793 (11, 793/60,000)
Del Rio/Ciudad Acuna	2001	217,000 (42,000/175,000)
Eagle Pass/Piedras Negras	1998	277,000 (27,000/250,000)
Laredo/Nuevo Laredo	1998	633,000 (183,000/450,000)
McAllen MSA /Reynosa	2000	912,625 (462,625/450,000) McAllen proper 165,000
Brownsville/Matamoros	1997	558,500 (140,000/418,500)

Data points derived from the respective sister city agreements during comparison. Adapted from “Cross Border Contingency Plans for U.S.-Mexico Sister Cities,” Environmental Protection Agency, last updated January 28, 2016, <http://www.epa.gov/border2020/cross-border-contingency-plans-us-mexico-sister-cities>.

¹⁴⁹ *Binational Prevention and Emergency Response Plan between San Luis, Arizona and San Luis Rio Colorado, Sonora*, February 2000, D-4.

Table 2. Sister City Training and Deployment Summary

Sister City Pair	Info Sharing	Trng./Exercise	Resource Deployment
San Diego/Tijuana	yes	yes	NO personnel, but share equipment
Calexico (Imperial County)	yes	yes	NO -hazmat team will not cross
San Luis (Yuma County)	yes	yes, annually	YES, fire chief or civil protection head
Nogales/Nogales	yes	yes, annually	YES, fire chief
Naco, Cochise County/Naco	yes	yes	YES, County Administrator directs City Sheriff
Douglas/Agua Prieta	yes	yes, annually	YES, fire chief
Columbus/Puerto Palomares	yes	yes, every 2 yrs	YES, fire chief
El Paso/Ciudad Juarez**	yes	yes,	NO personnel or resources
Presidio/Ojinaga	yes	yes, every 2 yrs	YES, fire chief
Del Rio/Ciudad Acuña	yes	yes, every 2 yrs	YES, fire chief
Eagle Pass/Piedras Negras	yes	yes, annually	YES, fire chief
Laredo/Nuevo Laredo	yes	yes, annually	YES, fire chief
McAllen/Reynosa	yes	yes, annually	YES, fire chief
Brownsville/Matamoros	yes	yes, annually	YES, police chief or fire chief

Data points derived from the respective sister city agreements during comparison. Adapted from "Cross Border Contingency Plans for U.S.-Mexico Sister Cities," Environmental Protection Agency, last updated January 28, 2016, <http://www.epa.gov/border2020/cross-border-contingency-plans-us-mexico-sister-cities>.

The existing sister city agreements along the U.S.-Mexico border are focused on hazardous materials response; however, they are also written to incorporate other emergencies. How fully the mutual aid plan is implemented appears to be a local decision. Entities that allow for cross-border cooperation have put in effort to ensure legal and logistical concerns over international interoperability are addressed in the agreement. Those that do not incorporate cross-border resource deployment provide either a partial list of challenges to address before further consideration, or they provide no specific reasoning.

With the exception of the California agreements, the state templates all have provisions for allowing international interoperability. Arizona, New Mexico, and Texas (with the exception of El Paso) have written plans to address customs and ICE regulations. Another factor common between El Paso and San Diego is relative size of their regions in comparison to the rest of the sister city pairs. The majority of the pairs include a U.S. city that is dwarfed in size by its Mexican counterpart. The smaller cities are more reliant on aid (from any source) in order to mitigate a local/regional emergency event. This local need lends itself to working with their closest neighbor, regardless of the border issues. Only four of

the fourteen groups approach or exceed 1 million in population—San Diego, El Paso, Calexico, and McAllen. The larger population, however, does not automatically negate the potential for cross-border resource sharing. McAllen has just fewer than 1 million in combined population, yet it has international resource-sharing written into its sister city agreement.

What other challenges may larger metro-zones face that have not been addressed in other sister city agreements? These possible challenges hindering an entity's ability, or willingness, to participate fully in binational interoperability agreements are explored in Chapter V.

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V. LIMITATIONS OF FULL INTEROPERABILITY

The resource-sharing limitations across the international border found in the San Diego/Tijuana and the Calexico/Mexicali sister city agreements provided a glimpse of issues that prevent full interoperability among international neighbors. In addition to insurance coverage challenges for response vehicles, civil lawsuit protection for responders, and communications infrastructure, other challenges not enumerated in the agreements may play a role in limiting cross-border emergency responses. In San Diego, the plan developers acknowledged that, even though the “binational plan established important protocols for ongoing coordination and cooperation, there remain issues that may require state or federal legislation to resolve, and other issues that may remain outstanding.”¹⁵⁰

When addressing remaining challenges to full international interoperability in cities like El Paso/Juarez and San Diego/Tijuana, it is important to note how these particular places differ from the other communities. One significant difference is the size of the regional population. Both El Paso/Juarez and San Diego/Tijuana have at least 2 million people in the region. The next largest regions are McAllen MSA/Reynosa and Calexico/Mexicali, with approximately 900,000 each. Of these four city pairs, only McAllen MSA has cross-border resource sharing.

This population difference can be broken down even further by comparing city sizes on each side of the border. In the majority of sister city areas, the Mexican city has a much larger population (and in some instances has more resources) than its U.S. counterpart. The notable exceptions include, first, San Diego, which has double the population of Tijuana and a significant regional emergency response capability. Tijuana also has a fire department with personnel and resources to handle fire and hazardous materials incidents. El Paso, with a population of approximately 650,000, is just under half the size of

¹⁵⁰ *Binational Hazardous Materials Prevention and Emergency Response Plan*, 9.

Juarez, but has significantly more response resources; however, Juarez does have a minimal fire and hazardous materials response component. McAllen MSA is almost equal in population to Reynosa; however, McAllen proper only has a population of approximately 160,000 (see Table 1). This makes McAllen about one-third the population of Reynosa, with McAllen having the larger emergency response contingent in a department of 166 firefighters.

The larger communities have more emergency response resources. There are also opportunities for reciprocity with the Mexican counterparts in Tijuana and Ciudad Juarez, as they have fairly large departments by Mexican standards, including minimally equipped hazardous materials teams. This potential for reciprocity helps overcome the impression that the agreement is only beneficial to one party. There are operational, training, and logistical issues that also must be addressed for interoperability to ever be fully achieved, but the existence of resources provides, at a minimum, the opportunity to develop a binational response team. The potential for a cross-border response partnership exists, but this is not the inclination in El Paso and San Diego.

A. LEGAL/LIABILITY ISSUES

Part of the resistance to cross-border resource-sharing is based on legal concerns. As mentioned specifically in the San Diego agreement, there are concerns about individual liability for acts done in a foreign country; because a firefighter or emergency medical technician who provides aid in Mexico may not be provided immunity in the course of response duties, the departmental and city authorities are inclined to err on the side of caution. The provision in the San Diego agreement states that “governmental immunities that extend to U.S. emergency responders in the United States do not extend across the international border into Mexico and do not protect U.S. emergency responders from a personal liability lawsuit in Mexico.”¹⁵¹ If workers are not protected, then it

¹⁵¹ *Binational Prevention and Emergency Response Plan between San Diego, California and Tijuana Mexico*, 2.

is unwise to risk tort liability. This lawsuit protection issue was not identified specifically in other sister city agreements; however, liability in general is placed on the responder's home jurisdiction. While smaller entities allow the liability to be transferred in general, San Diego identifies the need for specific protection of their response personnel to be incorporated into the agreement. As this is not something that can be guaranteed, San Diego considers it a deal-breaker for cross-border response agreements.

The San Diego agreement expresses a similar concern regarding insurance liability for response vehicles. Even though San Diego is self-insured, they specifically list insurance for vehicles against damage while operating in Mexico as a reason for not allowing those resources to cross the border.¹⁵² This concern is also found in other agreements, such as the plan between Cochise County, Arizona and Sonora, Mexico. The Cochise agreement expresses concerns over insurance liability for vehicles crossing into Mexico; however, the agreement still does not prohibit cross-border resource deployment. In response to this concern, the Cochise agreement recommends creating umbrella coverage for responders and vehicles sponsored by the respective state and federal governments.¹⁵³ Another difference between Cochise and San Diego is that, in the Cochise document, both parties have agreed to facilitate the resources crossing the borders and have commitments that the requesting entity will be responsible for the security and care of the supporting entity's equipment and resources.¹⁵⁴ Another example of liability language variations can be seen in the El Paso agreement. Liability issues in other documents are not addressed here because of the blanket prohibition against sending resources across the border.

¹⁵² Ibid., 2.

¹⁵³ *Binational Prevention and Emergency Response Plan Between Nogales, Arizona And Nogales, Sonora*, July 2005 [revised], 5, <http://www.epa.gov/sites/production/files/2014-09/documents/ambos-nogales-sister-city-plan.pdf>.

¹⁵⁴ *Binational Prevention and Emergency Response Plan Between Nogales, Arizona And Nogales, Sonora*, 3.

In a similar study focused on cross-border hazardous materials response, Michael Calderazzo surveyed responders in El Paso and Juarez. His analysis indicated that criminal violence, health insurance, and life insurance were among the highest-ranked concerns from actual responders.¹⁵⁵ He further reported that the strong majority of responders would be willing to cross the border to assist in mitigating a hazardous materials spill, even if it did not have the potential to impact their own community.¹⁵⁶ Other sister city agreements address health insurance concerns by dictating that workers' compensation protection is treated as if the responder were in his or her home jurisdiction.

B. POLITICAL ISSUES

The expression "all politics are local" applies to the discussion of international interoperability agreements. There may be an impetus for international collaboration in the federal frameworks, but the implementation is highly contingent upon local efforts. As such, the local efforts are subject to pressures from local politicians, who are influenced by local electorates. This political pressure is felt in economic decisions as local councils have to approve budgets for response departments. Local issues are also critical, as city councils normally have approval authority over agreements developed within their jurisdictions. This has the potential to impact the agreements negatively. An example of this is seen in the El Paso agreement.

The current restriction on border crossing with El Paso resources is not an historic prohibition. As late as the 1970s, the El Paso Fire Department was allowed to cross into Juarez to assist in mitigating emergency events.¹⁵⁷ The change in rules appears to have been due to a dispute between the City of El Paso and the County of El Paso. The *El Paso Herald Post* reported that the city

¹⁵⁵ Michael Calderazzo, *The Present Status of Cross-Border Hazardous Materials Response in the El Paso, TX and Ciudad Juarez, Chihuahua, MX Region* (Emmitsburg, MD: National Fire Academy, April 2011), 32–33.

¹⁵⁶ Calderazzo, *The Present Status of Cross-Border Hazardous Materials*, 32–33.

¹⁵⁷ *Ibid.*, 23.

and county were attempting to come to an agreement on the county jail and other services that the city would provide outside of the city limits: “Adding salt to the wound was the council’s decision that the El Paso Fire Department need no longer respond to calls one inch past the city limits.”¹⁵⁸ Prior to this decision, the El Paso Fire Department would respond outside the city limits, to include responses into Ciudad Juarez. Following this decision, at least temporarily, resources would not be sent outside the city limits. The restriction applies to the international border to this day. Local politics impacted regional and international response efforts.

John Tuman and Grant Neeley conducted a study on the attitudes of municipal managers toward the benefits of international cooperation along the U.S.-Mexico border. They found it was not just the U.S. managers who resisted developing cooperative agreements with their Mexican neighbors—it is also the Mexican officials: “Mexican officials often feel that U.S. administrators exhibit a paternalistic attitude toward Mexico.”¹⁵⁹ This provides a resistance to even the appearance that the Mexican city needs assistance from its U.S. neighbor. This results in resistance to communicate, especially regarding weaknesses or needs. Tuman’s study indicated that lack of communication between international partners is a significant issue in binational cooperation: “As noted, the results indicated that communication barriers have an impact on perceptions of the benefits of cooperation. We also found that 48% of Texas municipal managers had never phoned their counterparts in Mexico, whereas 88% had never sent an email.”¹⁶⁰

The Mexican side of the interoperability equation may also be complicated by their political processes. Mexico has strong central control; many local

¹⁵⁸ Jane Pemberton, “County, City Tight over Jail Future,” *El Paso Herald Post*, September 3, 1976, 1, <https://www.newspapers.com/image/68532966>.

¹⁵⁹ John P. Tuman and Grant W. Neeley, “Explaining Attitudes toward Binational Cooperation among Texas Municipal Managers in the U.S.-Mexico Border Area,” *Public Performance & Management Review* 37, no. 1, (September 2003): 90.

¹⁶⁰ Tuman and Neeley, “Explaining Attitudes,” 95.

decisions must be routed through various entities before they are implemented. Public managers are appointed by mayoral administrations, which were constitutionally prohibited from being in office more than one term. This made Mexican municipal administrators more inclined to focus on short-term projects, rather than the long-term commitments full interoperability may require. This contrasts with the U.S. municipal administrators, which may serve for prolonged periods of time based on election results and civil service rules. Their potential longevity makes them more inclined to pursue long-term projects. These two different systems may pose another limiting factor to the development of fully functional interoperability agreements.

C. THE PRESENCE OF MILITARY INSTALLATIONS

Another potential factor limiting the ability to enter into mutually beneficial interoperability agreements is the presence of military bases. Their presence places an additional restriction on emergency managers. This adds to the number of parties that must be considered when attempting to establish interoperability plans for large-scale events. When there are more than just local/regional emergency response entities involved in the planning committees, the ability to make arrangements for crossing the border for incident mitigation becomes problematic. Federal entities, in addition to border-crossing authorities, must be considered when preparing for significant events in the region.

In the El Paso/Juarez region, Fort Bliss plays a significant role in the emergency management planning process. Representatives from Fort Bliss' Emergency Preparedness section have a seat in the El Paso City/County Emergency Operations Center. The opposite is also true, as members of the City/County Office of Emergency Management have a seat on the Fort Bliss Emergency Preparedness team. Major exercises involving both natural and manmade events are pre-planned and executed under joint operating plans. There is an understanding that if any significant event were to occur, the first priority will be to secure the base. Once the national defense resources are

secured, then the commanding general can authorize certain actions to assist the city/county. As part of this response, the City of El Paso and Fort Bliss have entered into both mutual-aid and automatic-aid agreements.

Where this relationship impacts the ability to enter into fully interoperable binational response agreements is found in the steps that are taken to secure the national defense resources. Planning efforts consider, though it is not explicitly written, that, in a major event, the ports of entry must be secured until the security of the base can be confirmed. Oscar Morales, in his study on environmental injustice in Juarez, reports on pre-planning discussions regarding a HF plant emergency. He explains that the threat posed by the Solvay plant in Juarez is extremely challenging and warrants special consideration. One of the discussion points for Fort Bliss during planning operations is that, in event of a chemical accident at Solvay, the border would have to be shut down.¹⁶¹ This plan has never been implemented in a live event, and it is questionable if it would be implemented either in the El Paso region due to Fort Bliss, or at any other U.S.-Mexico port of entry near a military installation. The potential to shut down the border during an emergency event, however, definitely presents a challenge to international interoperability efforts. A significant event that impacts both sides of the border merits a binational response plan, but locking down the ports of entry during such an event makes executing this response agreement impossible.

D. OPTICS/PUBLIC PERCEPTION

There are also concerns for how the public views border issues. This public perception may play a role in limiting the willingness to establish fully interoperable agreements. In the larger metro-zone communities, where the benefits of interoperability are seen as a one-sided affair, concerns over border issues can impact the municipal governments' will to enter into agreements that counter public sentiment. This sentiment runs from concerns over security—

¹⁶¹ Morales, "Structural Violence and Environmental Injustice" 13.

including fears of terrorist cells crossing the border—to a desire to curb illegal immigration, and can create public pressure for change. Because the current trend is to “build the walls higher and stronger,” efforts to break down the walls that separate sister cities face public pushback.

When addressing security and politics on the U.S.-Mexico border, Peter Andreas notes that “ultimately, the greatest obstacle to a meaningful policy shift in this direction is an old and familiar one: U.S. domestic politics, driven by opportunistic politicians and easily manipulated societal anxieties and nativist fears.”¹⁶² This political discussion on how to best manage border security issues has the potential to impact the development of local cross-border agreements. If local politicians and city managers heed to public border protection sentiment, they may be less inclined to enter into resource-sharing agreements with their international partners. Because border security rhetoric promotes tightening borders, it naturally counters the efforts to make them permeable, from both a trade and an emergency response-planning standpoint. Andreas further states, “the fact that the U.S.-Mexico border is the single busiest land border in the world makes the limitations of relying on the border as the center of policing even more apparent.”¹⁶³ How can we make the busiest land border the focus of security efforts and still maintain the flow of people and goods that are an economic driver? How can concerns over clamping down illegal entry into the country be squared with the need to increase international trade efforts? It appears the two cannot be reconciled. Gains on one side of the equation result in losses on the other.

The concerns over illegal immigration take on a new twist when terrorism is added to the conversation. Stories, such as those reported in the *Washington Times*, indicate that ISIS cells are located across the border from El Paso in

¹⁶² Andreas, “Politics on Edge,” 68.

¹⁶³ *Ibid.*, 67.

Juarez and Anapra.¹⁶⁴ These reports inflame the fear that ISIS threats pose to the United States and increase the demand for border security. Congressman Beto O'Rourke responded to these reports by stating, "Stories like these are good at scaring people and getting attention for those who spread them, but they are terrible for the country's image of the border, for El Paso's ability to recruit talent and for our region's opportunity to capitalize on the benefits of being the largest binational community in the world."¹⁶⁵

The illegal immigration debate also extends into the economic realm. Illegal immigration is associated with violent aspects of drug and human smuggling, and, the debate does not stop there. The public perception is that illegal immigrants are also an economic burden. They take jobs away from American workers and they take resources, in the form of public benefits, away from American citizens. This perception further bolsters the argument against sending resources into Mexico. The premise that tax payers should not have to carry the economic burden for Mexican citizens and Mexican incidents acts as a deterrent to full cooperation between local entities and their Mexican partners.

This argument is reinforced by media coverage and the economic incentive to generate a news story. Commenting on the media's role in the debate, Regina Branton explains, "Although in recent years, national surveys indicate that illegal immigration was not ranked highly among the nation's most important problems, it has for a long time been a central policy concern to citizens living in communities near the border."¹⁶⁶ Branton's study indicated that the increased concern over illegal immigration at the borders was due to the local media's coverage of the issue: "Because it is such a sensational, largely negative, and salient local issue, we argue that the economic incentives of news

¹⁶⁴ Jessica Chasmar, "Islamic State Operating Just 8 Miles from the U.S. Border," *Washington Times*, Tuesday April 14, 2015, <http://www.washingtontimes.com>.

¹⁶⁵ Alfredo Corchado, "Ciudad Juarez Neighborhood Scoffs at Report of Islamic State Terror Cell in its Midst," *Dallas Morning News*, April 18, 2015, www.dallasnews.com.

¹⁶⁶ Regina Branton and Johanna Dunaway, "Spatial Proximity to the U.S.-Mexico Border and Newspaper Coverage of Immigration Issues," *Political Research Quarterly* 62, no. 2, (June 2009): 291.

organizations close to the border will prompt them to cover the illegal aspect of immigration more frequently.”¹⁶⁷ The more often this issue is in the public debate, the more pressure local administrators may feel to address it, and the more resistance they feel to establishing agreements that promote open borders and resource-sharing in their communities.

E. ROLE OF VIOLENCE

One significant factor that may continue to hinder fully interoperable agreements along the southern border is the presence of drug-related violence. The height of the cartel-related violence resulted in many sister city communities being exposed to threats. These threats provide a significant challenge to considerations for cross-border response. How much of a challenge depends upon the history of the violence in the regions and the potential for that violence to impact emergency responders.

The U.S. government has worked with their Mexican counterparts to try to control drug cartel violence. This collaboration has resulted in suspected targeting of U.S. officials by the various drug cartels. In 2011, prior to the height of the cartel violence in Ciudad Juarez, two ICE agents were shot in Mexico between Monterrey and Nuevo Leon. Ramon Bracamontes reported that “the shooting appears to be a targeted hit on a U.S. agent done by the Zetas.”¹⁶⁸ These attacks are not uncommon as the U.S. partners with Mexico to help quell the cartel violence and bring changes to the Mexican criminal justice system. The concern is that this targeting of U.S. federal agents will begin to transition to other U.S. representatives. This potential is evidenced by the murder of a U.S. ambassador’s wife less than one-half mile from the port of entry into downtown El Paso. In addition to this alleged targeting, there are numerous reports of innocent victims, including “two El Paso high school students who were shot and killed in

¹⁶⁷ Branton and Dunaway, “Spatial Proximity,” 292.

¹⁶⁸ Bracamontes. “US Still Stands with Mexico Against Drug Cartels.”

Juarez when they were at a used-car dealership.”¹⁶⁹ While the level of violence has dropped significantly in Juarez, these deaths warrant concern over sending emergency response resources across the border.

One study on the violence in Ciudad Juarez contributes the drop in violence not to governmental initiatives, but to an end of the war between drug cartels: “The drug war was waged to gain unilateral control over the narcotics traffic in Juarez, one of the most prolific drug routes along the Mexico–U.S. border. Therefore, the ultimate beneficiaries of the increased peace and prosperity are not the residents or politicians of Juarez, but the Sinaloa Cartel and its leader Joaquin ‘El Chapo’ Guzman.”¹⁷⁰ The reduction in violence is not guaranteed to continue. Any challenges to the business of the Sinaloa Cartel, under Guzman’s guidance, may re-escalate the violence that earned Juarez the title of “most deadly city in the world” in 2009. Warren Curry states the following regarding drug violence:

Although El Chapo would rather allocate his resources and personnel towards more efficient revenue producing activities, the geographical dominance required to effectively route drugs is significant. Within a city such as Ciudad Juarez, the Sinaloa Cartel must at times violently overcome other national drug cartels and local gangs vying for the same lucrative drug routes to the U.S.¹⁷¹

If necessary to maintain their kingdom, the Sinaloa Cartel has the potential to re-ignite violence, which rivals ISIS and other terrorist groups. This potential likely affects the City of El Paso’s desire to send resources across the border.

This violence is not exclusive to the El Paso/Juarez region. San Diego and Tijuana have also experienced disconcerting levels of violence. Violence in the Tijuana region is nothing new, but neither is violence in the United States. The murder rate in Tijuana, for instance, is significantly lower than the rate in Washington, D.C. What is distinguishing in Mexico is the type of violence being

¹⁶⁹ Ibid.

¹⁷⁰ Curry, “Ciudad Juarez,” 5.

¹⁷¹ Ibid., 6.

perpetrated. A 2007 report stated that, “Violence, killings, and kidnappings have reached frightening new heights in Tijuana over the past 24 months. Thirty victims were police officers, including three found decapitated.”¹⁷² Targeting police officers and the kidnapping for ransom were prevalent during the height of Tijuana’s drug-related violence. President Felipe Calderon sent federal military police into both Tijuana and Juarez to help curb the violence. Part of the reasoning for using federal police was to help combat the corruption that had crept into the local police forces as they were influenced and/or threatened by the drug cartel violence: “To speak of violence on the border is to conjure up images of a presumed lawlessness associated, for example, with drug trafficking in Tijuana, human smuggling in Nogales or the killing of women in Ciudad Juarez, Chihuahua.”¹⁷³

This image of violence, and the threat of its return to 2010 levels, deters cross-border response agreements. Even though the historic violence did not spill over into San Diego or El Paso, it did have an impact on the regions. Both areas felt financial strains due to reduced tourism and trade, and both had citizens wary of being exposed to the cartels’ brutality; but neither had significant increases in violent crime during those times. As a matter of contrast, the City of El Paso was identified as the safest American city of its size at the same time its sister city, Juarez, was identified as one of the deadliest cities in the world.¹⁷⁴ During this time it would have been irresponsible to promote sending emergency response resources into Mexico. But now that cartel violence has decreased and normal tourism and trade has returned, is that prohibition still necessary, or is it possible to evaluate the role of violence in deterring cross-border interoperability?

¹⁷² William M. Welch, “Crime Wears on Tijuana, San Diego; Increase in Killings and Kidnappings Threatens to Curb Trade and Tourism Industry on both Sides of Border.” *USA Today*, February 6, 2007.

¹⁷³ Roberto Delgadillo-Hernandez, “Coloniality and Border(ed) Violence: San Diego, San Ysidro and the U-S/Mexico Border” (Ph.D. dissertation, University of California, Berkley, 2010), 8.

¹⁷⁴ Gus Lubin, “America’s Safest City Is Only 300 Feet From One of the Most Violent Cities In The World,” *Business Insider*, June 15, 2012, <http://www.businessinsider.com>.

Though not explicitly stated as reasons for restricting the ability to move resources across the border between sister city partners, the challenges discussed in this chapter may play a significant role in preventing full international interoperability. The question then becomes how to overcome them. Are there mechanisms that can be put into place that will allow for a fully interoperable relationship in these international metro-zones, or, as stated in the San Diego agreement, can some issues simply not be overcome?

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VI. POTENTIAL IMPACTS AND RECOMMENDATIONS

A. IMPACTS OF BINATIONAL INTEROPERABILITY AGREEMENTS

Building Bridges: Literally and Figuratively

In order to determine if there are mechanisms that will allow for fully interoperable relationships in international metro-zones, local communities must be able to see the value of asking this question in the first place. Local entities must understand the risk-reward benefits. The potential negative impact of a regional emergency requires consideration of how to best plan for, respond to, and mitigate the event. In a sister city region, this consideration has the potential to impact lives on both sides of the border and can improve or hinder international partnerships. The altruistic and humanitarian benefits of helping our fellow man are compelling; however, there are also risks. It is easier to stay in the status quo and accept previously defined limitations than it is challenge assumptions. In order to question preconceived notions, the benefits of doing so must be evident.

The research question in this thesis focuses on identifying limitations for fully interoperable international cross-border response agreements. These limitations, which include liability concerns, political pressures, public perception/optics, and levels of violence, among others, vary across jurisdictions and are based on local evaluations and decisions. The agreements along the U.S.-Mexico border are all local agreements between sister city partners, intended to address local responses to local events. The limitations that were overcome to develop a fully interoperable cross-border agreement, or those that remain, are identified and addressed at the municipal government level. The affected government officials may have input from those outside the municipal government realm, but these response agreements are ultimately decided by local entities.

Of the fourteen local sister city agreements along the U.S.-Mexico border, eleven include provisions for deploying resources across the international boundary. The vast majority of sister city pairs in Texas, New Mexico, and Arizona have developed agreements that overcome limitations and make provisions for cross-border response. Only San Diego and Calexico in California and El Paso in Texas have identified local issues with resource-sharing that not sufficiently overcome. McAllen, Laredo, Nogales, and others have demonstrated that the limitations that they face in their sister city regions can be addressed sufficiently to allow for cross-border response agreements. While the circumstances differ in the larger metro-zones of El Paso/Juarez and San Diego/Tijuana, these other agreements at least demonstrate that there is a potential to consider this full level of interoperability.

The fact that other entities have successfully overcome their border-related issues may warrant efforts to further evaluate those identified limitations. If the limitations can be addressed sufficiently to include international response in the local agreements is ultimately determined by each binational sister city metro-region. In order to make this determination, it is recommended that a coalition of the willing be assembled to honestly evaluate the barriers to cross-border response agreements, and to focus on improving regional binational response-planning. This coalition, in the form of a steering committee, can assess the potential to overcome previously identified limitations and evaluate the impacts that changing current provisions will have on all key stakeholders.

There are positive impacts resulting from the pursuit of international mutual aid efforts. For the mayor, as an example, these mutual aid agreements are “a tool for buying influence and impacting policy.”¹⁷⁵ The term *buying influence* may have negative connotations, but what is meant here is that these agreements leverage resources to improve the standing of a local player in a regional game. These interoperable agreements make sense from a political

¹⁷⁵ Lawrence Freedman, *Strategy-A History* (New York: Oxford University Press, 2013), 194.

standpoint because they prepare for an event that may impact the region's constituents. The event may or may not occur during the current administration, but the agreements provide political clout for those who are ultimately authorizing the agreement. This influence can then be used to make improvements in the local arena, which highlight the value of the politician's decisions and improve his or her chances of retaining, and even possibly increasing, power.

For fire chiefs, who are appointed to their position, consideration of, and support for, these agreements demonstrates their capabilities as leaders and demonstrate their concern for their communities' safety. This concern for the regional international cross-border community upholds the standards for which the fire service is known and loved. While this may be a sincere sentiment from a public servant who is committed to serving and protecting the community from the effects of fire and other emergency events, it also helps promote him or her as a forward thinker who seeks to increase the city's influence in the region. This influence helps the chief make departmental improvements to provide better service to the community and region. It also carries over to the political leaders of the city, who can now garner further political influence as leaders who support the progressive efforts of their city departments.

An example of this level of influential thinking can be seen in the El Paso Fire Department, which is an industry leader in innovation and progressive thinking. This is demonstrated by their achievement of an Insurance Services Office Class I rating and their accredited status from the Commission on Fire Accreditation International . This leadership and innovative thinking has placed the department in the forefront of many regional planning efforts. The relationship between El Paso and Juarez—due to their proximity, trade, and economic interconnectedness, their social and family ties, and their shared history— can serve as a model for partnerships on a global scale. The ability to take this regional planning influence and consider the creation of a binational response force will further demonstrate the city's progressive attitude. Building an agreement that addresses the international border in a similar fashion as the

interstate border (in Sunland Park, New Mexico) will highlight the capabilities of this model department and underscore the global importance of this sister city region.

In the case of binational sister city regions, local decisions have the potential to impact more than just local events and local citizenries; they have the potential to impact international relations. While this may seem like a grandiose statement, consider the repercussions of an entity that had the capability to assist a neighboring community with an emergency, but did not take the steps to do so, even when their involvement could save dozens of lives. While there may be legal and liability-related issues, the optics alone of standing by and watching an event negatively impact a neighbor do not play out well. The negative reactions in a sister city area that is economically and socially interconnected have the potential to derail local relationships, as well as hinder trust-building efforts among international partners.

The value of these agreements can also be seen in their coalition-building capacity. They are extensions of current efforts among community partners to improve relationships, regardless of an international border. An example of this extension is seen in the partnership between San Diego and Tijuana in establishing student-run free clinics in Tijuana. According to a report by Victoria Ojeda, students from Mexican and U.S. medical schools partnered to staff a free health clinic in Tijuana in order to meet a healthcare need in a sister city community. This partnership improves health care access near Mexico's northern border region and at the same time provides real-world training experience for regional medical students.¹⁷⁶

Another example of the impact was provided during a conference discussing NAFTA's economic impacts on the El Paso/Juarez region. Former U.S. Ambassador John Negroponte was quoted as saying:

¹⁷⁶ Victoria Ojeda et al., "Establishing a Binational Student-Run Free-Clinic in Tijuana, Mexico: A Model for US-Mexico Border States," *Journal of Immigrant and Minority Health* 16, no. 3 (February 2013): 546.

We're also interested in highlighting the economic opportunities in the United States-Mexico relationship, which has been dominated in recent years by news of narcotics and violence. I think it is a challenge to penetrate the mindset in this country, but we must keep working on it, and get people to focus on the fact that there are many, many exciting opportunities in the United States-Mexico relationship.¹⁷⁷

The cooperation that exists among the sister city pairs along the 2,000-mile border between the United States and Mexico has generated multiple local problem-solving mechanisms. A fact sheet on U.S. bilateral relations highlighted the value of sister city cooperation: "Border liaison mechanisms operate in 'sister city' pairs and have proven to be an effective means of dealing with a variety of local issues including border infrastructure, accidental violation of sovereignty by law enforcement officials, and cooperation in public health matters."¹⁷⁸ The efforts to build a local response agreement among international sister city partners fits into the national framework for improving international relations.

B. RECOMMENDATION: NOT ANOTHER COMMITTEE, BUT A WINNING COALITION

The types of interoperability agreements studied in this thesis are continuations of regional relationship-building efforts. Evaluating the existing challenges in order to consider provisions allowing cross-border resource-sharing is more than just an interoperability question; it is an opportunity to improve overall U.S.-Mexico relations. To best evaluate the local challenges and the options to overcome them, a winning coalition must be assembled. This coalition will take the form of a steering committee, but must be more than another bureaucratic mechanism. It must comprise those who are willing to evaluate the challenges with a fresh perspective. They must use a lens that considers the efforts of other entities to address their identified concerns, or to overcome similar challenges, and one that sees beyond the local impacts.

¹⁷⁷ Diana Washington Valdez, "US, Mexico leaders at UTEP Conference Call for Binational Cooperation," *El Paso Times*, August 7, 2013.

¹⁷⁸ "U.S. Relations with Mexico," U.S. Department of State.

According to Bruce De Mesquita, the success of this winning coalition is contingent upon building support at three levels: “the interchangeables,” “the influentials,” and “the essentials.”¹⁷⁹ The interchangeables, also known as the “nominal selectorate,” includes the voters.¹⁸⁰ This group has the potential to exert political pressure on the city leaders in support of, or opposition to, any type of agreement. They are the ones who are most likely to limit agreements based on public perception and/or optics. They can be very vocal in their support/opposition; however, their ability to influence the decision-making process is limited to pressuring their elected representatives. They can influence behavior in an election year, and can threaten to create recall petitions whenever they disagree with a decision that was made; but their power to influence the decisions to enter into binational interoperability agreements is limited in time and scope. While it is not essential that the public be included in the development of the agreement, it is important to present the efforts in a manner that builds public support for, or at least breaks down vocal resistance to, the agreement.

The influential players are those who play a critical role in the successful development of the interoperability agreements. The influential elements include, but are not limited to, those who will be tasked with the agreement’s actual implementation. Buy-in must be obtained from emergency responders on both sides of the border, as they will be the ones asked to cross the border to mitigate an emergency event. This group will be tasked with developing the agreement’s actual policies and procedures. Fire service, hazardous materials, and other special operations professionals and emergency managers must all have some voice in the agreement’s details. Failure to represent those who will implement the agreement’s provisions will open up the potential for unaddressed concerns and overall ineffectiveness.

¹⁷⁹ Bruce Bueno de Mesquita and Alastair Smith, *The Dictator’s Handbook: Why Bad Behavior Is Almost Always Good Politics* (New York: Perseus Books Group, 2011), 5.

¹⁸⁰ Bueno de Mesquita and Smith, *The Dictator’s Handbook*, 6.

As the subjects of this study are towns on the international border, the presence of federal resources must be considered. The representatives for federal entities are not generally subject to any direct pressures from the electorate and do not answer to the local authorities. They respond to directions from the respective federal offices. Their responsibilities for state or federal resources, such as managing the ports of entry or military installations, give them influence in the decisions of local governments. They become instrumental in determining the success of efforts to create cross-border response agreements. This is not to say that they prevent the development of such agreements, but they do have a role to play in the process. Including them will help ensure that the limitations their areas of responsibility represent are fully considered.

The essential partners in this effort, those who truly make up the “winning coalition,” include “those whose support is essential if the leaders are to survive in office.”¹⁸¹ These are the actual leaders who support and supervise the carrying out the agreement. They are the ones who make the political signatories on the agreements look like visionaries. Without their support for the interoperability agreement, it is doomed to failure before it is signed. In the case of the El Paso/Juarez area, the essential partners include the city manager, who influences policy for the departments. Many of these department heads, such as for the legal team, law enforcement, fire service, environmental quality, and others, are also essential to the success of the process and should be represented on the steering committee. Local politics vary, so each entity must identify the key players who keep the political leader in power and ensure that those individuals are included in the process. The fire chief, as the head of the fire service and, in certain instances, emergency management functions of the city, is potentially the most critical in moving the existing agreement beyond a simple notification agreement into a fully interoperable emergency response agreement. This process also plays out on the other side of the border, as the

¹⁸¹ Ibid., 5.

fire chief and director of civil protection are instrumental to the success of the agreement signed by the mayor and council.

In order to build a winning coalition that will help support the signing and implementation of a cross-border response agreement, the key stakeholders must be considered during development. These stakeholders should come together in the form of a steering committee. Developing steering committees has proven successful in establishing existing agreements. Deciding who to place on that committee is vital to the effort's success. It is also important to keep this "winning coalition as small as possible."¹⁸² This small group of essential partners must be willing to thoroughly evaluate the perceived limitations that may have previously restricted fully interoperable response agreements. Their assessment will determine if the agreement can be delivered as a minimum viable product.

Each locality had different participants develop and sign their existing sister city agreements. In order to move the process forward and evaluate if cross-border response can be incorporated into future revisions of the agreement, the key players must be identified locally and represented in the steering committee. In El Paso, for example, the agreement with Juarez is signed by each city's mayor, the fire chief, and environmental manager. In addition, the working committee for the agreement included representatives from the signatories in the mayor's office; fire department; and local, state, and federal environmental agencies, as well as the two involved consulates, emergency management and civil protection. This committee set the foundation for collaboration between the two sister cities and can be used as a template for a steering committee. Key players must come to the committee with decision-making authority in their organizations, an understanding of how the limitations impact their organizations, and a willingness to consider the potential to incorporate cross-border response into the existing agreement.

¹⁸² Ibid., 17.

The steering committee's recommendation will be based on its assessment of whether or not the limitations identified in each local area can be overcome. If those limitations can be overcome satisfactorily, then language changes should be suggested that indicate the willingness to allow resource-sharing in times of emergency. Recommending language changes in the sister city agreements in those border metro-zones that do not currently allow for cross-border resource deployment, such as San Diego and El Paso, will not place a mandate on the entities. It will, instead, remove a legal restriction hindering international partnerships in times of emergency. The potential to treat international borders in a similar fashion as interstate boundaries for purposes of mutual-aid assistance has implications beyond the local entities making the agreement. It has the potential to play a role in international relations. Whether it is a hazardous materials team responding to help mitigate a rail car leak, a search-and-rescue team responding to assist at a building or trench collapse, or a medical strike team responding to help with the triage and transport of victims in a mass-casualty incident, the use of local resources to help an international sister city partner impacts more than just the regional communities.

If the steering committee determines that agreements should no longer restrict cross-border response capability, then they should provide recommended replacement language. The language that currently appears in the agreements takes many forms, and its amount of detail is a local decision influenced by the legal department's representatives. Once acceptable language has been drafted, the steering committee should also make recommendations to successfully implement the provision. At this point, the operational components should be addressed by ad hoc committees to ensure that training and exercises, command and control, communication, border-crossing procedures, etc., are addressed. This ad hoc committee's goal will be to generate an operational procedure that will be implemented during the agreement's activation. Some agreements incorporate these procedures, at least in part. In other instances, the

operational procedures are a stand-alone document. Whichever format they take, these operational procedures will be essential to the agreement's success.

These types of agreements have the potential to be trust-building mechanisms between international partners. Local international metro-zone partners working together to address issues of mutual concern can become the model for agreements in an age of globalization. Borders exist between countries; however, emergency events do not recognize those borders. The willingness to put into writing that one community may help another, if their own needs and resource availability allows it, is a humanitarian outreach that acknowledges border limitations while still saying, "I'll do what I can to help in a time of need." No mandates—just potentials. Potentials for close-knit communities to improve upon their partnerships and, in so doing, impact international relations.

VII. CONCLUSION

This thesis addressed the research question: What are the challenges to fully interoperable emergency preparedness and response frameworks within binational, sister city regions in the U.S.-Mexico borderlands? The challenges examined included:

(1) Legal and Liability Issues

Legal and liability issues focus on protecting the municipalities and their responders. Some of the legal issues include responders working outside of their jurisdictional authorities, denial of injury and death-benefit compensation, management of customs and border protection regulations, and response vehicle coverage. These groups of challenges are specifically listed as justifications for prohibiting international cross-border responses in some agreements, but are managed successfully in others. The Canadian agreements specifically identify the needed protections that address these legal concerns. The sister city agreements on the Mexican border do not specifically address all of these concerns. In spite of this, many of the affected entities allow cross-border response as a component of their agreements. The EMAC-based agreements on the northern border may provide the model language to help overcome this group of challenges.

(2) Local Political Influence

Other challenges are specific to the southern border. As they are not present at the same level in every sister city region, this group of challenges needs to be evaluated by each individual city pair. One such challenge was political pressure. As the interoperability agreements with Mexican cities are designed as local sister city agreements, they are subject to the influence of local politics. Disputes among local mayors and city councils can derail efforts to accomplish goals within a jurisdiction, and this can, in turn, impact efforts to work outside of that jurisdiction, including across the bridge into Mexico. As these

agreements are signed by local politicians, they can be impeded and/or withdrawn by local politicians. While formal agreements may help reduce this potential, the truth behind the axiom that “all politics are local” has the capacity to hinder these local agreements.

(3) State and Federal Jurisdictions

The presence of other major state and/or federal entities within a jurisdiction impacts the ability to develop local partnerships. One specific challenge that exists in both the El Paso/Juarez and the San Diego/Tijuana sister city regions is the presence of major military installations. These federal partners, while not necessary for signing interoperability agreements, can present themselves as obstacles to cross-border response agreements. The presence of the military can have a positive impact on regional response-planning efforts, as having access to federal resources through local agreements is a significant benefit. This benefit does come at a cost where it represents extra influence on local decision-makers. The more entities involved, especially federal ones, the more problematic reaching a functional agreement may become. There was a noted concern over pre-plans choosing to close a federal port of entry during an emergency in order to help protect the national defense asset. This is a consideration that plays a role in only a few agreements; however, in the regions where it exists, it potentially negates any efforts toward establishing cross-border resource-sharing agreements.

(4) Public Perception

The challenge of managing public perception regarding dealings with Mexico adds yet another layer of resistance in efforts to develop any partnerships, including emergency response agreements. When there is an outcry on the national level to “build the wall higher,” efforts to break down the wall are viewed with skepticism. Protectionism has the potential to counter the impacts of globalization. The demands to stop illegal immigration, and the reports of terrorist sleeper cells sitting immediately across our southern border, can

hinder any efforts to develop agreements that promote open borders. These issues were shown to be more closely covered by border-city media outlets. The more they are covered, the more negative sentiment is developed, the greater the challenge that local entities encounter when attempting to develop interoperable agreements.

(5) Violence

The role of violence along the southern border was the last challenge evaluated challenge. The presence of drug-related violence on the Mexican side of the border is a significant and potentially insurmountable problem for response agreements. The threat to public officials and citizens from cartel drug wars has had the potential to spill over into areas such as El Paso, Nuevo Laredo, and San Diego. Thankfully, it did not. However, the level of violence that made Juarez, Mexico the deadliest city in the world for several years also made it unconscionable for El Paso authorities to consider cross-border resource deployment. While the level of violence has dropped significantly over recent years, the potential for violence to reoccur presents a challenge that must be taken into consideration when evaluating modifications to existing interoperability agreements.

The research question was answered, at least in part, by this thesis. While each entity has unique challenges, which may or may not have been addressed here, an overview of how other entities have dealt with interoperability issues was provided. One significant question that remains unanswered at the conclusion of this research is if the identified challenges can be overcome. Based on the research, it is my conclusion that this question must be answered at a local level. There are examples demonstrating that challenges to full cross-border response capabilities can be managed; however, it is truly a local decision. This thesis suggests that it is beneficial to have a steering committee tasked to objectively consider the challenges to fully interoperable response agreements in light of the potential impact that they may have not only on their

binational sister city region, but on international relations as well. Ultimately, however, questions about the impacts outweighing the risks must be answered locally, one sister city at a time.

As an example of the potential positive impact of a binational sister city emergency response agreement, let us reconsider the emergency response scenario that framed the thesis question. On a warm July evening, a train derailment occurs on the rail crossing just on the Mexican side of the border between Ciudad Juarez and El Paso. During the incident, two railcars are damaged, one of which is an anhydrous hydrogen fluoride car with a leaking valve. Initial assessments indicate that the valve has the potential to fail and release the entire contents of the car into Downtown El Paso. The Mexican railroad calls in the emergency to Juarez officials, who contact the El Paso Fire Department, requesting mutual aid. The newly signed sister city agreement is implemented and El Paso's hazardous materials task force is deployed across the international port of entry, where they meet with the Juarez hazardous materials team. The Juarez crews have one railcar kit, which was recently obtained through a federal grant.

The crews implement the response procedure that they have been practicing on a quarterly basis and begin working to contain the spill to as small an area as possible. The railcar kit is applied and the HF that has been released is neutralized. The hazardous materials response team conducts decontamination procedures and, having helped mitigate a potential internationally impactful accident, crosses back over the international port of entry to their station in El Paso. All necessary documentation is completed and the railroad is charged for the equipment used to manage the incident. A few days later, a joint after-action review is completed with Juarez responders and El Paso Fire. Lessons learned are discussed and the next training session is scheduled to practice implementing the new, jointly developed operational recommendations.

Whether or not this scenario is realistic is a decision for the local authorities to make. The goal of this thesis was to identify challenges to fully interoperable, binational emergency preparedness and response frameworks within binational sister city regions along the U.S.-Mexico border. It was intended to offer a fuller context under which policy makers could consider local challenges, and to provide steering committees an additional evaluation tool.

No matter if an emergency occurs one-half mile across the Texas/New Mexico border or one-half mile across the U.S.-Mexico border, the citizens of the international region can benefit from emergency assistance by their closest neighbors. In so doing, the impact of these types of local interoperability agreements just might move us “beyond sister city agreements,” and put us on the path toward functional international partnerships.

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