

FEMA Region X: Cross—Sector Collaboration

By

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TERMINAL PROJECT

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Chapter 1: Introduction

Background

Losses from disasters can devastate communities and nations. Natural and human – caused disasters worldwide have resulted in financial losses that have risen steadily from 1980 to 2009. The decadal annual average losses from the 1980's were approximately \$20 billion, increasing to \$80 billion in the 1990's and \$110 billion by the 2000's (Council 2011). Disaster losses in the U.S. are reflecting a similar trend and have been increasing exponentially since 1960 (Cutter and Emrich 2005).

In the decade 2000 – 2009, natural disasters in the United States caused over \$350 billion in economic losses (Re. 2009). Some hazards, such as earthquakes, hurricanes, floods, droughts, landslides and volcanic hazards, can affect communities well beyond those directly impacted by the event. Due to the increasingly interconnectedness of local and national communities, broader regions are vulnerable to the effects of natural disasters (Council 2011).

Hazard Resilience and Mitigation

A myriad of potential disasters put communities at risk. Natural and human – caused disasters result in public health emergencies, suffering loss of life, damage to economies, and damage to community environments. Hazard resilience is the capacity of community systems to adapt to these stressors and continue, or quickly recover normal functions following a disaster (Council 2011). Issues surrounding community resilience are prompting practitioners to question the existing networks established to implement hazard mitigation. Ultimately, a community's approach to hazard mitigation can influence overall resilience (Council 2011).

According to FEMA, hazard mitigation “is any sustained action to reduce or eliminate the long-term risk to human life and property from hazards” (FEMA 2008). Hazard mitigation can be implemented prior, during and/or after an incident; but may be most effective when implemented in comprehensive long – term planning mechanisms before a disaster occurs (FEMA 2008). In 2000, Congress passed the Disaster Mitigation Act (DMA2K) that established new requirements for coordination in hazard planning between local, state, and tribal governments. The passage of this act also allocates federal grant funding for state and local governments that develop hazard mitigation plans (HMP) (FEMA 2000). The implementation of mitigation and preparedness strategies has the potential to alleviate the effects of many natural threats, and since the passage of the DMA2K, the importance placed on mitigation has increased (Beller-Simms 2004).

Role of Collaboration in Mitigation

According to FEMA mitigation planning resources, the HMP serves to benefit the community most when the steering committee is representative of the whole community, including State

and Local Government, private companies, non – profit agencies, and educational institutions, etc. (FEMA 2002). Collaboration is recognized as an approach to solving complex problems in which a diverse group of stakeholders, i.e. steering committee, deliberate to build consensus and translate consensus into results (Margerum 2011). It is the responsibility of the steering committee to engage in a deliberative process to fully understand the risks and vulnerabilities of the community, engage the general public to ensure that hazard mitigation approaches are accepted by the broader community and ultimately reach consensus about hazard mitigation goals, objectives, and a hazard initiative implementation strategy.

The complexity of hazard planning warrants a collaborative environment as there is the need to share decision making power and guide resource allocation of mitigation projects. The necessity of collaboration illustrates the changing nature of public policy and planning approaches today and suggests how hazard mitigation can be accomplished (Margerum 2011, Council 2011).

Issue Surrounding Resilience-Focused Collaboration

Despite the adoption of the local HMPs, and the intended collaborative nature of plan development, individuals and organizations often fail to perceive that hazards may pose unacceptable risk to their communities and ways of life, and do not accept their role in reducing that risk (Council 2011). These circumstances can result in the failure of communities to engage all necessary parties, and can ultimately affect the quality of the plan as well as the effectiveness of hazard implementation strategies – this is the case in hazard planning across the country.

Both the public and private sectors play a role in hazard management. The public sector, including the local government, provides many services that strengthen resilience and manage the day – to – day functions of the community. The public sector allocates staff for emergency and hazard planning, manages stormwater systems so as to reduce flooding impacts, and regulates the seismic safety of facilities through building and development standards, etc.. The private sector, on the other hand, maintains many other services that are essential to the community well – being, including water services, power and communication distribution and medical care.

However, the failure to recognize roles and responsibilities of hazard management is embodied by the limited engagement of the private sector in hazard mitigation planning (Council 2011). These circumstances lead to question the extent of collaboration with any entities beyond the public sector, including quasi – governmental and not – for – profits.

Purpose

The hazard planning literature recognizes that cross sector collaborative planning can positively influence the hazard resilience of a community; however, MacManus and Caruson suggest there has been little cross – sector hazard planning research at the local level (MacManus and Caruson 2011). In light of the minimal local – level research analyzing cross – sector

involvement in collaborative hazards planning, I propose to develop a general synthesis of resilience – focused cross – sector collaboration in FEMA Region X counties.

Project Overview

This study will examine the extent to which local actors collaborate with public, quasi – public/not – for – profit and private sectors, and evaluate the quality of that collaboration. Then the study will identify limiting factors of collaborative planning and offer strategies associated with sustaining resilience – focused cross sector collaboration throughout counties.

I perform this analysis, by sampling and analyzing the responses to a cross – sectional survey distributed to 17 counties across FEMA Region X: Alaska, Idaho, Oregon and Washington. To supplement the survey responses, I conducted case – study interviews with three of the counties included in the survey sample.

Chapter 4: Results, discusses how the county case – interviews can be applied to the general results captured by the steering committee survey, and any implications as they relate to each survey question. I also provide suggestions for improving ongoing resilience-focused collaborative implementation efforts based on my findings, and present ideas for further research on this, and similar topics.

Chapter 2: Literature Review

In this section I review the available literature that discusses issues relevant to resilience – focused cross – sector collaboration. Some of the collaborative literature was specific to the topic of hazard resilience; however, some resources can be indirectly applied to the area of research.

Re-Shaping Hazard Mitigation Planning

Post – disaster analysis of large scale events such as 9/11 and the uncoordinated hazard management of local, state and federal agencies during Hurricane Katrina enhanced the debate about how to re – shape systems of mitigation and preparedness to increase management capacity for hazardous incidents. This debate produced consensus about the need to strengthen local, cross – sector collaboration and depart from the traditional command – and – control approach typical of disaster management (MacManus and Caruson 2011).

Resilience – focused cross – sector collaboration shares responsibility and decision making authority across community stakeholders, which can foster increasingly effective disaster management (Waugh and Streib 2006). This approach interacts effectively with the broader disaster relief community, by the engaging the public government sector, non – profit and private sectors in mitigation planning (MacManus and Caruson 2011, Waugh and Streib 2006). The critical role of local resources in hazard preparedness, and the local capabilities of mitigation are strengthened and reinforced by engaging in cross – sector collaboration (Schafer 2008).

Bryson, Crosby and Stone argue that cross – sector collaboration is a necessity of public decision – making because we live in a shared – power world in which many groups and organizations are involved in, affected by, or have some partial responsibility to act on public challenges (Bryson, Crosby and Stone 2006). No one organization or institution has the legitimacy, power, authority, or intelligence to act alone on important public issues, such as those present in hazard mitigation planning. These collaborative arrangements emerge when key public and private sector actors recognize that individual and community goals cannot be achieved alone (Council 2011). The public and private sectors each have resources, capabilities, and access to different parts of the community; thus cross – sector collaboration may improve the ability of a community to mitigate hazards.

Complexity of Hazard Mitigation

Collaborative approaches are invariably needed to address complex problems, such as those associated with hazard planning (Council 2011). Disaster losses are the result of interactions between three major systems: the physical environment, which includes hazardous events; the social and demographic characteristics of the communities that experience them; and the

buildings, roads, bridges, and other components of the constructed environment (Mileti 1999). Disaster losses are growing because these systems, and their interactions, are becoming more complex and increasingly challenging to mitigate.

Challenges of Initiating and Sustaining Resilience-Focused Collaboration

Even though there is growing awareness of community disaster resilience and cross-sector collaboration, resilience collaborative communities tend to be an exception rather than a rule. Cross-sector collaboration to enhance resilience can be extremely effective when efforts are tied to higher levels of government for additional support and expertise; however, a political and social environment truly supportive of community based resilience-focused cross-sector collaboration does not exist at the national level. The National Research Council suggests that communities are left independently to determine how to move forward, what works, and what does not, in terms of resilience-focused collaboration (Council 2011). This ad-hoc trial and error process can overwhelm community capacity and lead to disinterest.

The lack of higher-level guidance can often result in wide variability of preparedness across communities. Some of the limiting factors that may impede successful cross-sector collaboration are described here.

Risk Perception

Risk perception is measured in a variety of ways: as the perceived likelihood of a particular event, such as an earthquake; as expectations about the severity of its impacts on the community; and as expectations about the personal threat posed by the hazard (Tierney, Lindell and Perry 2001). Perception is the basis of action, and inaccurate perceptions stand in the way of action to promote community disaster resilience through collaboration (Council 2011).

Risk Uncertainty

Communities are often aware of hazards that can impact their community, but understanding the risk is conceptually difficult and subject to biases. In particular, society has great difficulty in understanding and acting on information related to low-probability-high-consequence events (Council 2011). Such that communities may base their expectations of future events on historical occurrences (Council 2011). An example of this bias occurred during Hurricane Katrina, where some residents chose not to evacuate their homes in spite of a mandatory evacuation, because of less-severe events in the past. Risk uncertainty may emerge as a greater barrier when a community experiences natural disasters infrequently

Personalizing Risk

Communities are often aware of hazards that can impact them, but fail to personalize the risk (Tierney et al. 2001, Council 2011). It is a common misconception that hazards can happen, but not in my community, nor during my lifetime. The capacity to recognize that hazards can affect

an individual personally influences risk perception, whether it is in direct damage to a home, personal injury, or economic hardship.

Personalizing risk appears to be an important link between acknowledging a hazard and taking self – protective action (Tierney et al. 2001). In cases where individuals are unable to personalize risk, they may not consider it their responsibility to reduce that risk or participate in such efforts (Council 2011).

Prior Disaster Experience

Personal disaster experience is the main influencing factor in determining risk perception, and how preparedness activities are undertaken. Prior experience engenders higher levels of preparedness, largely because experience leads to greater awareness of disaster impacts and the demands that the events can generate (Tierney et al. 2001). Individuals and communities that have experienced disaster situations are more likely to ensure the necessary mitigation tasks and activities are carried out more effectively (Tierney et al. 2001).

Diverging Interests

Interests of public, quasi – public/ not – for – profit and private sector collaborators often diverge, and this impedes the maturation of trusted collaborative relationships. An example of divergent interests occurs between floodplain management and residential developers, i.e. where developers may want to locate property adjacent to a river or waterway, but development would conflict with maintaining the environmental benefits of the floodplain. Where there are diverging interests it is challenging for entities of various perspectives to recognize a medium.

When diverse stakeholders engage in a joint venture, vested interests often come into play and can result in conflict and failure to agree on objectives, goals, and methods (Council 2011). No entity can be faulted for pursuing its own interests; however, problems develop when stakeholders view collaboration as a zero-sum game. Such problems can complicate resilience – enhancing efforts and the development of effective collaboration (Council 2011).

Prioritization

Low prioritization of resilience – focused collaboration can frequently be the result of diverging interests. While planners and elected officials are often receptive to the importance of hazard mitigation and planning, natural hazard planning in communities is often held as a low priority on the political agenda (Burby 1998, Hamilton 2010). Communities are faced with struggling economies, unemployment, stressed education systems, endless costs associated with infrastructure maintenance, amongst many other challenging issues that affect community health and stability; these circumstances result in the tendency to view natural hazards as a secondary priority (Mileti 1999).

Collaboration initiatives and partnerships revolving around hazard planning can be burdensome for policy makers because there are many other issues that are of higher necessity

to the daily operations on the community. Often, these circumstances can result in conflicting priorities and a lack of coordination in engaging decision makers about hazard mitigation and community resilience (Hamilton 2010).

Power and Trust among Collaborators

There is an overall lack of trust among parties that collaborate to build resilience. Power imbalances among collaborating partners can be a key source of mistrust in collaborative environments (Bryson et al. 2006). Businesses fear government regulation, direction, or control that will limit creativity and market flexibility. There is a wide cultural gap between private sector managers and public sector officials. Their organizational cultures, standards, and languages are different, and thus make it difficult to enable or participate effectively in public and private partnerships (Council 2011). These power and trust imbalances become most significant when partners have difficulty agreeing on a shared purpose (Bryson et al. 2006).

Information Sharing

Incomplete or ineffective sharing of information, concerning threats and vulnerabilities, constitutes a challenge to public and private collaboration. Both government and the private sector have legitimate concerns regarding the sharing of information. The private sector's concerns include the sensitivity of information, legal limits on information disclosure, advantages that competitors might gain through sharing, and non-disclosure agreements (Council 2011). The public sector may also have information privacy restrictions, transparency requirements and security rules as governments are required to protect classified information (Council 2011). Due to information sharing limitations it may create doubt about the effectiveness of such cross sector collaborative efforts.

Engagement Disincentives

Collaboration and partnerships are often formed through the efforts of individuals who venture outside of their organization to further collaborative engagement. However, organizations often do not seek, develop, or reward the organizational and individual competences needed to support collaborative efforts (Council 2011). When public sector entities interact with the private sector, the interactions often center on legal and regulatory issues, as opposed to voluntary and mutually beneficial collaboration (Council 2011). As a result of this, entities tend to function in silos rather than seek engagement.

Regulatory Framework

Vertical networking between local, regional and national collaborators can be very difficult for lower-level entities because each of the players collaborate at difference scales and are not effectively linked to one another (Council 2011). The complicated regulatory framework may result in some businesses or quasi-public/not-for-profit organizations collaborating with national entities; however, not participating with local-level entities within the community where they have a physical presence. While, other private or quasi-public entities may be very active locally but are not part of the regional or national collaborative efforts coordinated by federal partners (Council 2011).

Uncertainty of Resilience—Focused Cross—Sector Collaboration in County Planning

Even though the literature provides reasoning for why cross sector collaboration is important and insight into the barriers associated with collaboration, there is minimal local – level research regarding cross – sector collaboration (MacManus and Caruson 2011). There is opportunity to improve our understanding of existing cross – sector collaboration and its limits.

Chapter 3: Research Methods

Research Question

Considering the importance placed on resilience – focused cross sector collaboration, it is imperative to understand the various forms of collaboration that are taking place across communities. If the literature is correct in framing the importance of resilience – focused cross sector collaboration in past hazard events, sustained mitigation efforts can be considered an important factor towards achieving greater hazard resilience.

While there is a mandate to update local HMPs every five years, in order to be eligible for hazard planning and recovery grant funding, there is little analysis of sustained cross – sector collaboration following the adoption of local HMPs and to what effect the collaboration is conducted.

1. *How extensive and what is the perceived quality of public, quasi – public and private sector collaboration with regards to hazard planning following the adoption of county HMPs?*
2. *What are the perceived barriers to cross – sector collaboration and why have these barriers emerged?*
3. *What are the strategies or methods that have been most successful in supporting collaboration around natural hazards?*

The results to the first question will provide a general picture of the existing conditions regarding ongoing cross – sector collaboration in various counties across FEMA Region X. The results of this question not only capture how much ongoing collaboration is occurring and to what quality the collaboration is conducted, but will also identify the sectors counties are most likely to engage and with which sector collaboration is best conducted. If cross – sector collaboration is recognized as an integral element in hazard mitigation as argued by MacManus and Caruson (2011), the National Research Council (2011), Waugh and Streib (2006), and Schafer (2008), I would expect that cross – sector collaboration would be a fundamental element in planning. Finally the last question should identify strategies for overcoming the barriers to resilience – focused cross sector collaboration.

Overview

In order to answer the research questions, I conducted a cross – sectional survey of HMP steering committees to identify ongoing resilience – focused cross – sector collaboration. Steering committees are knowledgeable and experienced in hazard planning, and are often representative of public, quasi – public and private sectors.

The steering committees were selected from counties in Alaska, Idaho, Oregon and Washington, all of which are within FEMA Region X and are of comparable size, so as to limit internal and external variability in natural, political and economic environments. I selected FEMA Region X counties because according to Brett Holt, FEMA Hazard Mitigation Planner, there is limited capacity at the federal level to conduct analysis of ongoing collaboration subsequent to the approval of the local HMP (Holt, Personal Communication, 2012).

Like many counties across the country, counties within FEMA Region X function as an administrative resource and have played a significant role in hazard planning and emergency management. Many of the state's smaller municipalities have relied upon their county for disaster – related planning and provides the rationale in surveying county level entities (MacManus and Caruson 2011).

Following the completion of the cross – sectional survey, I conducted case – interviews with County Emergency Managers whose HMP steering committees participated in the survey. During these interviews, we were able to discuss the survey responses and enhance the overall analysis of existing conditions surrounding resilience – focused collaboration.

This analysis was carried out in three steps; (1) the creation and distribution of the electronic survey, (2) holding case – interviews, and (3) conducting a content analysis based on the survey and case – interview responses.

Sample

My sample consisted of 17 counties; one in Alaska, 3 in Idaho, 6 in Oregon and 7 in Washington. This distribution was based on county population. To control for vastly different planning contexts between large and small counties, only medium sized counties were selected. Selected counties had populations ranging from roughly 138,000 to 529,000 people, due to a natural break in county populations on both the high and low ends of that range. Population data for each county came from the 2010 U.S. Census. Counties also had to have a FEMA approved HMP and a steering committee during the formulation of the plan.

Procedures: Cross Sectional Survey

The survey was electronically distributed, via Qualtrics software, to the local Emergency Manager or Hazard Mitigation Plan (HMP) Steering Committee Convener, whichever was applicable. The Emergency Manager or Committee Convener subsequently distributed the electronic survey, via email, to the HMP steering committee within each of the selected counties. If there had been staff turnover since the adoption of the local HMP, the Emergency Manager and/or Steering Committee Convener were instructed to distribute the survey to the person who is currently responsible for those tasks.

In addition to the initial survey distribution, an electronic reminder was distributed by Josh Bruce, Interim Director of Oregon Partnership for Disaster Resilience, to the selected counties two weeks after the primary invitation.

The survey was collected in the spring of 2012 and asked a series of seven questions about the overall extensiveness and perceived quality of public, quasi – public and private collaboration; and the responses will help determine barriers and strategies for sustaining resilience – focused collaborative efforts.

Introductory Questions

The survey respondents were asked three general filter questions, *Question #1*, to identify the County they were responding for; *Question #2*, identify the sector they represent (public, quasi – public or private); and *Question #3*, identify the entity responsible for leading hazard mitigation in their county. Asking these initial questions helps to identify survey response bias.

Evaluating the Extensiveness and Quality of Cross Sector Collaboration

Following the three initial questions, respondents were asked *Question #4*, to rate the extent and quality of ongoing hazard mitigation collaboration with Federal, State, Local, quasi – public/not – for – profit and private sectors, since the adoption of the County HMP. On a scale of 0-4, with 0 having never collaborated and 4 having collaborated on a regular basis, the respondent was to identify how much collaboration they have participated in with the above mentioned entities. If the respondent identified that a partnership was in place, the representative was asked to then rate the collaborative quality as poor, fair, satisfactory or excellent.

To gain a sense for the general collaborative nature of the County, *Question #5*, asks the respondent to compare levels of engagement of resilience-focused collaboration to other County level management activities.

Evaluating Barriers to Cross Sector Collaboration

The survey then analyzed the perceived planning barriers to cross – sector collaboration by asking the respondent in *Question #6*, to identify two primary barriers of ongoing Public, quasi – public/not – for – profit and private sector collaboration. If the respondent identified barriers to ongoing collaboration with public, quasi – public/not – for – profit and/or private entities, *Question #7*, asks them to explain strategies or methods that have been most successful in supporting collaboration around natural hazards.

Cross—Sectional Survey Analysis

The survey sample and response rate are estimated based upon the maximum number of entities and individuals identified in the HMP steering committee. Approximately 190 steering committees representatives were distributed the survey.¹

The survey analysis is broken down by general topic area: extent, quality, limiting factors and implementation strategies of cross – sector collaboration. Simple descriptive statistics were used to evaluate the survey responses.

Procedures: Case—Interviews

In developing a sense of the existing conditions surrounding resilience-focused cross – sector collaboration throughout FEMA Region X, case – interviews were conducted with communities that participated in the survey. Through the case – interviews I sought to gain a better understanding of the barriers associated with sustaining resilience – focused cross – sector collaboration, and clarify some of the themes identified by the steering committee survey.

All of the seven communities that responded to the survey were invited to participate in a case – interview, three counties responded to the request, while four did not. Ultimately three case – interviews were performed with County Emergency Managers, Mike Curry from Jackson County, Oregon, Jay Wilson from Clackamas County, Oregon and Gerry Bozarth from Spokane County, Washington. Emergency Managers were selected for the case – interviews based upon the survey responses, documented in the Chapter 4: Results. The case – interviews were conducted over the phone and lasted approximately 20-30 minutes per interview.

Limitations

Several aspects of this study limited its ability to be conclusive, or more than a source of guidance for FEMA Region X and County Emergency Managers.

- Consultation with FEMA Region X Hazard Mitigation Planner, Bret Holt, revealed that there may be variability regarding how frequently steering committees convene following the HMP adoption (Holt, Personal Communication, 2012). It is possible some steering committees have not convened since the last HMP update. This reality makes it challenging if not impossible for the Emergency Manager or Convener to forward the survey to committee members, resulting in a low survey response rate.
- Second, due to the low response rate, the survey responses may not be representative of the larger population. Considering this analysis was a voluntary effort, it likely resulted in selective responses.
- Third, I have limited information about the survey population. In terms of the survey sample, it is impossible to identify the survey sample size and estimate response rate,

¹ This number is based upon the number of committee representatives documented in the local HMP.

considering I did not directly distribute the survey to the HMP steering committees. Nor do I have any information regarding the cross – sector representation of the committee.

- Finally, I was only able to contact a limited number of case – interviews with County Emergency Managers and therefore the views from these individuals may not be representative of all managers across FEMA Region X.

Chapter 4: Results

Approximately 190 steering committees representatives received the survey and 28 individuals responded. The response rate is estimated at 14%. Overall, the survey captured steering committee responses from seven counties including Canyon County in Idaho, Clackamas, Jackson and Washington Counties in Oregon and Spokane, Thurston and Yakima Counties in Washington. Of the respondents, 96% of them represented public entities (27 respondents) and 4% represented quasi – public/ not – for – profit entities (1 respondent). There were no survey responses from the private sector.

Table 1: County Survey Responses

County	Number of Respondents
Canyon	1
Clackamas	8
Jackson	6
Washington	1
Spokane	1
Thurston	8
Yakima	2
Unknown	1
Total	28

*The 28th survey response did not identify the county they were responding for.

County Emergency Management Departments are identified as the primary responsible entity for resilience – focused collaborative efforts (75% response), followed by regional planning bodies (11% response) and then County Planning Departments (11% response). The results of this question identified those in which to target for case – interviews, as they should have the most knowledge regarding resilience collaboration in the county.

Extent of Cross-Sector Collaboration

Resilience – focused collaboration is more common with local entities, including neighboring cities, counties, public health agencies, etc. In contrast, collaboration is *rare* with federal, state, quasi – public/ not – for – profit and private entities.

According to Gerry Bozarth, the Spokane County Emergency Manager, it is common to see varying levels of collaboration with respect to higher and lower levels of government due to bureaucratic systems. He explained that the role of the state and federal government may not have direct involvement with local – level partners in ongoing collaboration, because their role is to support the planning process as a whole. Higher – level government tends to facilitate collaboration through grant allocation, training and other support services (Bozarth, Personal Communication, 2012).

When comparing general extent of collaboration on a scale of *do not collaborate – to – collaborate on a regular basis*, 20% of the individual responses indicate that they frequently collaborate with federal, state, local, quasi – public/ not – for – profit or private sectors, 34% of the responses identify that they *sometimes* collaborate, and 23% indicate that they *rarely* collaborate in terms of hazard mitigation. The majority of responses (72%) indicate a collaborative extent of *sometimes* or less with any of the entities. Only 27% of the responses consider collaborative extent to be *frequent* or more often. Survey results are displayed in Table 2, the most commonly reported level of extent is bolded.

Table 2: Extent of Collaboration

	Do not Collaborate	Rarely Collaborate	Sometimes Collaborate	Frequently Collaborate	Collaborate on a Regular Basis	Mean
Federal (FEMA, Army Corps, etc.)	4	8	8	4	2	2.69
State (State Emergency Management, National Guard, etc.)	1	11	7	6	1	2.81
Local (Neighboring Cities or Counties, Public Health Agencies, Educational Services, etc.)	1	3	8	10	5	3.56
Quasi-Public/Not-for-Profit (Resource Management Districts, Special Puspore Districts, etc.)	4	5	11	5	1	2.77
Private (Utilities, Finance and Insurance, Manufacturing, Information, etc.)	10	4	11	2	0	2.19
Total Responses	20	31	45	27	9	
Percentage of Total Responses	15%	23%	34%	20%	7%	

*The remaining 1% is due to a respondent not answering this question.

The survey also measured the extent of resilience-focused cross-sector collaboration by comparing levels of engagement to other county level management initiatives, such as business development, parks and open-space planning, and health and human services, etc. Compared to other County activities, public, quasi-public/not-for-profit and the private sectors are less

Table 3: Cross-Sector Engagement in Hazard Mitigation Planning in Comparison to Other County Planning Initiatives

	Response	Percent of Responses
Much Less	5	18%
Less	10	36%
About the Same	9	32%
More	2	7%
Much More	2	7%
Total	28	100%

engaged in hazard mitigation and resilience-focused collaborative efforts than other planning initiatives (36% of responses). This response leads to the assumption that hazard mitigation is not held as a high priority on the county planning agenda, especially in comparison to other mandated planning initiatives or the pressing need for acquired grants.

According to the survey and case-interviews collaborative variability, in terms of which entities collaborate with and how frequently, is

the result of many circumstances that influence cross-sector engagement in communities. These issues are addressed in Limiting Factors within Chapter 4: Results.

Quality of Cross-Sector Collaboration

In general, there is better resilience-focused collaboration quality with local jurisdictions in FEMA Region X counties, than with federal, state, quasi-public/not-for-profit and private partners. All but the local entities, which were given a *satisfactory* quality, were considered to have *fair* collaboration quality. If a collaborative partnership was not present for a given entity,

respondents rated quality as *not applicable*, and the rating was omitted from calculating the mean score and percent of response. When comparing general quality of collaboration, on a scale from *poor* –to–*excellent*, 71% of the individual responses denote that the cross – sector collaboration that is occurring within their county is of *satisfactory* quality or better.

Quality of collaboration is also influenced by a variety of community factors, including resources, education, collaborative framework, prioritization and regulatory framework. According to County Emergency Managers, those limiting factors are the same as those identified as influencing collaboration extent. Details clarifying each of the influencing factors are discussed in Limiting Factors of Chapter 4: Results.

Table 4: Quality of Collaboration

	Not Applicable	Poor	Fair	Satisfactory	Excellent	Mean
Federal (FEMA, Army Corps, etc.)	6	2	4	8	2	2.63
State (State Emergency Management, National Guard, etc.)	4	2	2	11	3	2.83
Local (Neighboring Cities or Counties, Public Health Agencies, Educational Services, etc.)	3	0	3	10	7	3.20
Quasi-Public/Not-for-Profit (Resource Management Districts, Special Puspore Districts, etc.)	4	0	5	12	1	2.78
Private (Utilities, Finance and Insurance, Manufacturing, Information, etc.)	8	1	6	7	0	2.64
Total Responses		5	20	48	13	
Total Pertege of Responses		6%	23%	56%	15%	

Comparing Extent and Quality of Collaboration

In comparing extent to quality between federal, state, local, quasi – public/ not – for – profit and private sectors, an assumption can be made that extent and frequency of collaboration influence quality of collaboration. Groups that were rated with less frequent collaboration were given a lower quality rating, and the local jurisdictions that were rated with a higher extent were also given a higher quality rating. These results are listed in Table 5 below.

Table 5: Comparison of Collaboration Extent and Quality per Sector

	Collaboration Extent	Collaboration Quality
Federal (FEMA, Army Corps, etc.)	Rare	Fair
State (State Emergency Management, National Guard, etc.)	Rare	Fair
Local (Neighboring Cities or Counties, Public Health Agencies, Educational Services, etc.)	Sometimes	Satisfactory
Quasi-Public/Not-for-Profit (Resource Management Districts, Special Puspore Districts, etc.)	Rare	Fair
Private (Utilities, Finance and Insurance, Manufacturing, Information, etc.)	Rare	Fair

Limiting Factors of Cross-Sector Collaboration

Limiting Factors by Sector

The limiting factors of extent and quality of cross – sector collaboration identified by the steering committees emerged as five general themes including, resources, education, collaborative framework, prioritization and regulatory framework. While some of the themes are uniform across the various sectors, others have particular nuances unique to an individual sector.

General Observations:

- Resources, education, and regulatory framework are three themes where responses were uniform across the public, quasi – public and private sectors. Within the themes, each of the sectors identified staff, time and funding; lack of hazards knowledge and awareness of risk; and an unwillingness or aversion to following the regulatory guidelines.
- The theme of collaborative framework has slight nuances across the sectors. The quasi – public and private sector identify additional limitations to collaboration that were not identified specifically for the public sector, those include, knowing which groups to participate in, lack of experience in collaborating, and willingness to form partnerships.
- Within the theme of prioritization also emerge slight nuances across the sectors. In particular this sector is concerned with “what is on the table” for them. This nuance, does not present itself for either the public or quasi – public sectors.

Table 6: Most Frequently Reported Limiting Factor

	Primary	Secondary
Public	Resources	Prioritization
Quasi-Public/Not-for-Profit	Resources	Collaborative Framework
Private	Prioritization	Resources

Table 6 highlights the most frequently reported limiting factors per sector, based on the survey responses. Even though resources are identified as a limiting factor

across the sectors, it is the second most commonly reported limiting factor for the private sector. These results tie back to the nuances addressed above. The steering committees consider the private sector to be more concerned with prioritization, and in particular, the costs versus the benefits of collaborating than are the public or quasi – public sectors. When the benefits of mitigation are not immediate, it influences the willingness of the private sector to collaborate.

Another important consideration in terms of these results, places emphasis on the collaborative framework utilized to engage the quasi – public/ not – for – profit sector in hazard planning. While this limiting factor was identified across all sectors, it carries more weight regarding the quasi – public/ not – for – profit sector. Therefore it is recognized by the steering committees that the County’s inability to identify stakeholders, execute an effective outreach strategy, and provide opportunities for interaction is a significant factor in determining the extent and quality of collaboration with quasi – public/ not – for – profit entities.

Reference Table 7 for general limiting factors by sector and theme, the results are not listed in priority.

Table 7: Limiting Factors of Cross-Sector Collaboration

Public Sector				
<u>Resources</u>	<u>Education</u>	<u>Collaborative Framework</u>	<u>Prioritization</u>	<u>Regulatory Framework</u>
<ul style="list-style-type: none"> ▪Lack of Funding ▪Lack of Available Staff ▪Lack of Staff Time 	<ul style="list-style-type: none"> ▪Awareness of Hazards and Risk ▪Lack of Education 	<ul style="list-style-type: none"> ▪Inability to Identify Appropriate Stakeholders ▪Ineffective Outreach Strategy ▪Lack of Communication ▪Planning Defficiencies 	<ul style="list-style-type: none"> ▪Hazard Mitigation in not the Highest Priority for Day-to-Day Needs ▪Indifference to Hazard Mitigation ▪Hazard Mitigation is not a Core Mission ▪Unmatched Objectives ▪Pressure by Development Sector 	<ul style="list-style-type: none"> ▪Different Federal, State and Local Regulatory Frameworks ▪Aversion to Regulations
Quasi-Public/Not-for-Profit Sector				
<u>Resources</u>	<u>Education</u>	<u>Collaborative Framework</u>	<u>Prioritization</u>	<u>Regulatory Framework</u>
<ul style="list-style-type: none"> ▪Lack of Funding ▪Lack of Available Staff ▪Lack of Staff Time 	<ul style="list-style-type: none"> ▪Awareness of Hazards and Risk ▪Lack of Education ▪Lack of Knowledge Surrounding ▪Lack of Subject-Matter Expertise 	<ul style="list-style-type: none"> ▪Inability to Identify Appropriate Stakeholders ▪Planning Defficiencies ▪Lack of Communication ▪Knowing which Work Groups to Participate In ▪Limited Opportunities for Interaction ▪Lack of Experience Collaborating ▪Willingness to Form Partnerships 	<ul style="list-style-type: none"> ▪Hazard Mitigation in not the Highest Priority for Day-to-Day Needs ▪Indifference to Hazard Mitigation ▪Unmatched Objectives ▪Unconnected Realms of Operation ▪No Immediate Benefit 	<ul style="list-style-type: none"> ▪Unwilling to Follow Current Regulations
Private Sector				
<u>Resources</u>	<u>Education</u>	<u>Collaborative Framework</u>	<u>Prioritization</u>	<u>Regulatory Framework</u>
<ul style="list-style-type: none"> ▪Lack of Funding ▪Lack of Available Staff ▪Lack of Staff Time ▪Issues of Sharing Proprietary Information 	<ul style="list-style-type: none"> ▪Awareness of Hazards and Risk ▪Lack of Education ▪Lack of Subject-Matter Expertise 	<ul style="list-style-type: none"> ▪Inability to Identify Appropriate Stakeholders ▪Planning Defficiencies ▪Lack of Communication ▪Knowing which Work Groups to Participate In ▪Limited Opportunities for Interaction ▪Lack of Experience Collaborating ▪Willingness to Form Partnerships 	<ul style="list-style-type: none"> ▪Hazard Mitigation in not the Highest Priority for Day-to-Day Needs ▪Indifference to Hazard Mitigation ▪Unmatched Objectives ▪Unconnected Realms of Operation ▪No Immediate Benefit ▪Lack of Demand ▪Cost v.s. Benefits ▪They Look Out For Their Best Interest ▪Lack of Common Goals 	<ul style="list-style-type: none"> ▪Aversion to Regulations ▪No Legal Requirement

Common Limiting Factors

The limiting factors commonly identified by the steering committee and Emergency Managers include; resources, education and prioritization. Each of these factors is recognized as influencing resilience – focused cross sector collaboration across the public, quasi – public and private sectors.

Resources

Extent and quality of collaboration is first and foremost influenced by funding. Most resilience—focused collaboration efforts rely on the availability of grant funds, as grant funds decrease, so has participation (Curry, Personal Communication, 2012). Large or small, public or private—most entities across FEMA Region X have limited capacity to allocate time, staff and fund resilience—focused initiatives (Case-Interviews, Personal Communication, 2012). As is the case with the public sector, staff are likely required to wear multiple hats concerning their job responsibilities and only a limited portion of their time is dedicated to hazard mitigation (Wilson, Personal Communication, 2012).

Education

Education across the public, quasi—public/not—for—profit and private sectors is also an influencing factor of extent and quality of cross—sector collaboration. Sector entities have varying levels of knowledge surrounding hazard mitigation and awareness of hazards and risks. This knowledge not only varies across the sectors, but also within specific entities. The lack of education surrounding potential hazards influences the perspective importance of mitigation. It is also apparent these sectors may have a lack of awareness with regards to what mitigation activities are currently going on throughout the county and thus would affect their responses for extent and quality.

Prioritization

Hazard mitigation is not a priority amongst the day—to—day needs for many public, quasi—public and private sector entities. Whether this is the result of limited funding or overwhelmed staff, these factors result in a general indifferent attitude towards hazard mitigation. This is particularly evident in Jackson County, where Mike Curry's ability to recruit members at large from the community has not been well attended. As it stands, the steering committee has limited cross—sector representation (Curry, Personal Communication 2012).

This relative indifference to hazard mitigation may also be attributed to limited incentives that do not encourage participation. Private sector entities, in particular, may have lower levels of collaboration than public and quasi—public partners, largely in—part because they tend to weigh the costs versus benefits or participating. There must be something on the table to encourage cross—sector entities to engage; otherwise staffing, funding and time constraints may discourage their participation (Curry, Personal Communication, 2012).

Varied Limiting Factors: Steering Committee

However, some of the limiting factors addressed by the steering committee differed from the responses shared by County Emergency Manager's. While the responses were not specifically contradictory of each other, their perspective likely influenced the character of their responses.

Regulatory Framework

The federal, state and local governments involved with hazard mitigation have different established regulatory frameworks. Thus the complexity of the system can inhibit cross—sector

involvement for partners who may be unfamiliar with the process or unwilling to decipher the requirements needed by the respective levels of government to effectively participate.

For those entities who may not fully understand the regulatory framework, there is a common misconception that participating in hazard mitigation can lead to additional regulation. Thus there is a tendency for entities to have an aversion, or sense of distrust, of the regulations established by the varying levels of government. While this cannot be certain based upon the survey or case – interviews it is a plausible explanation for why there is varying cross – sector participation in resilience – focused collaborative efforts.

Collaborative Framework

It is apparent from the survey that steering committees consider the existing resilience – focused collaborative framework to be ineffective. Respondents indicate that planning, lack of communication, limited opportunities for engagement, and the inability to identify appropriate stakeholders that will benefit and supplement the collaborative process, are just some of the various limiting factors that influence extent and quality of collaboration.

Varied Limiting Factors: Emergency Managers

Geography

According to the case – interviews, geography of the local county is a double – edged sword in terms of benefiting collaboration. On one hand expansive, rural geographic extent can lend itself towards increasing collaboration, due to necessity of limited resources; on the other it can hinder entities ability to participate in such efforts.

Gerry Bozarth suggests rural counties may have stronger partnerships due to the systematic lack of resources. Rural counties reflect a dispersed population, fewer jurisdictions, and less funding as compared to metropolitan areas. Specifically in Spokane County, the Department of Emergency Management incorporates all cities, towns and unincorporated areas under one agreement and management structure (Bozarth, Personal Communication, 2012). Considering the size of many communities across Spokane County, there is limited hazard mitigation planning resource capacity; therefore the County Emergency Manager and staff, act as the regional planning body. This program structure can alternatively strengthen the planning process – streamline resources, maintain regional oversight and coordinate initiatives – versus, the planning dynamic in more politically complex regions, where multiple individual emergency managers all coordinate and duplicate similar efforts.

However, in Jackson County, the extreme variability in community size and the widely dispersed population present throughout the various remote cities obstructs collaboration. Many communities across the county have limited staff allocated to hazard planning and thus rely on the county to provide such resources. According to Mike Curry, the distance required for representatives to travel, in order to convene with a broader planning body, deters cross – sector engagement for any type of mitigation initiative (Curry, Personal Communication, 2012).

Risk Perception and Uncertainty

Immediacy and urgency of a hazard and its associated risks plays an important role in determining extent and quality of collaboration; while this was not specifically supported by the survey responses, all of the case – interviews addressed this as an influencing factor of ongoing cross – sector collaboration. The County Emergency Managers argue that hazard mitigation may be less collaborative than other county level initiatives due in the infrequency of hazards, and if hazards do not serve as an immediate threat it is difficult to gain momentum (Bozarth, Personal Communication, 2012). Even though Oregon has a history of earthquakes and tsunamis, due to the long time – horizon of such hazards the perceived risk can be downplayed by the community.

Organizational Cultures

Whether rural or urban, organizational politics can interfere with efforts to initiate and sustain cross – sector collaboration. Resilience – enhancing efforts require the collaboration of diverse partnerships, some of which may have minimal experience working with one another, have divergent priorities, or operate differently in terms of language and communication. Communities and regions are influenced by an inherent competitive nature between players because of these differences, and competition can be amplified when there are multiple cities, towns and counties all vying for funds and recognition (Bozarth, Personal Communication, 2012).

Chapter 5: Recommendations & Conclusion

Recommendations

Despite the variety of challenges that counties face in sustaining resilience – focused cross – sector collaboration, the steering committees, County Emergency Managers and the literature offered strategies for successfully implementing such efforts. The strategies listed below can be utilized by hazard mitigation planning practitioners throughout FEMA Region X.

Establish a Collaborative Structure and Process

Collaboration to achieve disaster resilience requires considerable attention to organizational design and structure. It is recommended that County Emergency Management Departments across FEMA Region X strengthen and/or reorganize the existing hazard mitigation program structure, including the collaborative framework used to engage cross – sector partnerships. Many of the factors that limit cross-sector collaboration identified by the steering committees addressed the inadequate collaborative structure currently in place across counties in FEMA Region X. A revitalized program has the potential to improve communication, disseminate information, strengthen diverse stakeholder representation, form relationships, and organize opportunities for partners to engage with one another – and overall improve extensiveness and quality of collaboration.

The literature review, survey and case – interviews all emphasize the importance of coordinators, that ensure communities progress in collaboration, partnership building and other project goals (Council 2011, Case-Interviews, Personal Communication 2012, Survey 2012). The National Research Council, in particular, suggests that regardless of how collaborative activities are organized, it is necessary to devote resources specifically for collaboration management (Council 2011). It appears to be insufficient to argue for the importance of collaboration without investing in individuals or groups that are charged with the responsibility of ensuring that collaboration is taking place. When hazards are infrequent, it is far more challenging to gain ongoing active participation, thus a strong collaborative network with dedicated staff will help keep loss reduction and resilience a community priority as an integral part of normal community functioning (Council 2011).

- An example of an ongoing collaborative program is *Be Ready Utah*. *Be Ready Utah* is the State of Utah's official emergency preparedness campaign managed by the Division of Homeland Security. It is designed as a bottom – up approach for preparedness with their primary focus on individual personal responsibility for preparedness. The *Be Ready Utah* campaign was officially launched in April 2005, following the devastating floods in January 2005. *Be Ready Utah* provides valuable information for individuals and families,

communities, public safety professionals, business and civic leaders, school administrators and volunteers (Utah.gov).

- Another example of a public – private collaborative is the *Aware and Prepare Program* in Santa Barbara, California. This is a public-private partnership dedicated to strengthening disaster resiliency. It enhances the capabilities and coordination of government agencies and non-profit organizations through public education and awareness, planning and training, as well as, the coordination of resources.

One of the largest undertakings for the *Aware and Prepare Program* was enhancing the capabilities of nonprofit organizations in Santa Barbara County to prepare for disasters and collaborate with each other and with the government sector. The program has been able to provide resources to enhance their role in a disaster situation, and offers valuable guidance for practitioners in FEMA Region X for how to approach the quasi – public/not – for – profit sector in collaboration.

Develop Alternative Funding Streams

FEMA Region X reliance on federal grants is not providing adequate resources to sustain planning initiatives, and may be the primary reason for limited cross-sector collaboration. Limited funding affects staff allocation, and time dedicated to hazard mitigation and emergency management. As noted from the literature, steering committee survey and the case-interviews, dedicated and motivated staff in charge of hazard mitigation planning is critical to the success of the program and implementation strategies. In order for counties to have the capacity to fund permanent staff and ongoing collaboration efforts, it is recommended County Emergency Management Departments seek alternative funding streams to provide support for planning and outreach.

- An example of an alternative funding stream is the interlocal agreement enacted in Spokane County. The interlocal agreement charges a per capita rate, for all cities, towns and unincorporated areas over 1,000 persons, to fund the County Emergency Management Department. This alternative funding stream allocates enough resources for an emergency planning staff of eight. While Gerry Bozarth acknowledges that this is a rare approach to funding emergency planning and hazard mitigation, it has been successful in Spokane County (Bozarth, Personal Communication, 2012).
- Another progressive venture for alternative funding is to seek out foundations that have some investment in hazard resilience. An example of innovative funding is provided by the *Aware and Prepare Program* in Santa Barbara, California. Over 40 projects and programs have been supported directly by *Aware & Prepare*, totaling an investment of over \$5 – million since 2008. Since its inception, *Aware & Prepare* has been supported by a

collaborative of funders including the Orfalea Foundation, the Santa Barbara Foundation, James S. Bower Foundation, Wood-Claeysens Foundation, Outhwaite Charitable Trust, Hotchkis Family Foundation and the Fund for Santa Barbara (Foundation).

Take Advantage of the Hazard Opportunity Window

The key to communicating and engaging the broader public about hazard resilience is to utilize windows of opportunity during and/or after a disaster. The force of one catastrophic event has the potential to change what people think, their behavior, and even public policy oriented towards reducing hazard risk (USDA 2004). This concept also applies to disasters abroad, such as earthquake and tsunamis that create an opportunity to raise the issues of community resilience locally.

Disasters can create new conditions and relationships within environmental and political structures, institutions and organizations (Birkmann et al. 2010). Windows of opportunity enable and excite institutions that once were not previously engaged, to become involved in the issues of hazard planning and mitigation. These dynamics reframe how hazards are managed and provide teachable moments where people and agencies see it as critical to reduce future losses (Birkmann et al. 2010). For further explanation of disaster impacts on community systems and change, reference Birkmann 2008.

In some regions, natural hazards occur infrequently thus it is essential that programs and strategies for outreach during the hazard opportunity window are considered throughout the existing hazard mitigation program. Such that in the event of a flood, for example, communities have a developed strategy for implementing impromptu community hearings to account for public feedback regarding flooding impacts; and/or the community has a strategy and process identified for the dissemination of public awareness campaigns, that account for special population characteristics; i.e., language, disability, age, etc.. Prior planning in terms of public engagement will benefit the quality and success of outreach strategies.

Maximize Hazard Planning Efforts through Multi—Objective Planning

Multi—objective planning and management creates support for hazard mitigation by expanding current planning initiatives to include mitigation concepts, policies and activities. Integrating mitigation concepts and policies into existing plans, such as the Comprehensive Plan, Capital Improvement Plan, Stormwater Master Plan, Redevelopment Housing Plans, etc., provides expanded means for implementing initiatives via well—established mechanisms (FEMA 2002). For example not all communities have comprehensive plans or are required to develop them under state legislation, but in some sense all communities need to plan for their future. As the comprehensive plans are reviewed and updated, mitigation policies and action

items should be incorporated into planning elements such as economic development, transportation, housing, and environmental protection (FEMA 2002). Reference the FEMA State and Local Mitigation Planning How – to – Guide for implementation ideas.

Examples of multi – objective planning include:

- **Redevelopment and housing plans:** these plans identify areas where construction is occurring or will occur. Opportunities exist to incorporate mitigation techniques into retrofit activities and new construction, and to influence the location of redevelopment away from hazard areas;
- **Open space and recreation plans:** these plans target locations for open space and recreation areas where property acquisition or buyout programs in hazard areas can complement the planned improvements;
- **Transportation Plans:** these plans identify and prioritize road improvement projects where mitigation where mitigation of transportation and utility systems can be incorporated.

Depart from the Command—and—Control Management Structure

Traditional hazard and emergency management originates from a command – and – control structure that is intrinsically top – down. The top – down management framework can influence both the flow of communication and the collaborative nature of decision – making. A truly collaborative approach to hazard resilience necessitates an inherently motivated convener that pursues outreach and the constant facilitation of feedback – loops. This study revealed the need for Region X counties to reevaluate the fundamental principles of their management structure.

This recommendation is the direct result of the steering committee survey responses that critique the collaborative framework currently operationalized in FEMA Region X counties. Issues of collaboration including, i.e. identification of stakeholders, communication, opportunities for engagement, etc., were only addressed by the steering committee representatives. Because of this, it is recommended counties establish a process to facilitate two-way communication between the steering committee and Emergency Management Department on an ongoing basis. This approach is characteristically divergent from the traditional command – and – control approach of hazard management where information most commonly flows in one direction, i.e. from the Emergency Manager. It needs to be possible for the steering committee representatives, as well as, quasi – public and private partners in the broader community to communicate what they think works, and does not work, concerning the collaborative framework established by the county. As well as, facilitate a forum that establishes a platform for cross – sector partners to share current activities they are implementing to improve resilience.

It is critical to note, that the collaborative and engaging nature of hazard mitigation is largely the result of the personal traits embodied by the Emergency Manager. The Emergency Management attitude and ability to be receptive and actively implement feedback – influences their management capacity to increase cross-sector collaboration.

The facilitation of communication can be improved by a variety of strategies:

- establish workshops that engage cross – sector partners in discussion and planning;
- distribute informational surveys;
- meet one – on – one with cross – sector representatives, as it may prove beneficial to approach them in contrast to them coming to the county;
- include the facilitation of cross – sector communication as a job description of an existing employee, so that someone is held accountable; and/or
- hire a non – biased contractor to stabilize the process, someone that is removed from existing relationship dynamics in the community.

Conclusion

This study analyzed cross – sector collaboration based on perceptions of county steering committees and Emergency Managers. Through this study I was able to assess the extent, quality and existing issues surrounding cross – sector collaboration in FEMA Region X counties; and while this study is only exploratory, some high – level guidance can be provided to FEMA Region X and Emergency Managers on how to improve cross-sector collaboration.

This initial attempt of analyzing cross – sector collaboration opens several possibilities for future research. The following is a list of potential research topics that would enhance this introductory study on cross – sector collaboration.

Suggestions for future research

1. *Research successful resilience-focused collaborative program structures and processes such as those represented by Be Ready Utah and Aware and Prepare, of Santa Barbara California; and identify what resilience—focused collaborative structures are feasible for FEMA Region X.*
2. *Research alternative funding strategies for hazard planning and implementation to supplement the existing funding structure. It may be critical to pay special attention to how the structure originated in evaluating the success of the strategy.*
3. *Develop policy recommendations for the formulation of a national public—private collaborative framework, by evaluating other existing national frameworks that are currently in place.*
4. *Conduct an economic analysis of the benefits of multi—objective planning, and quantify the reduction of duplication of efforts through this planning approach.*

5. *Further research Emergency Management Department incentive strategies to encourage broader extent of collaboration with quasi—public /not—for-profit and private entities.*
6. *In evaluating extent and quality of cross-sector collaboration in future research, capture insight from the private sector. The approach taken to survey steering committees was ineffective at collecting private sector input. In targeting the private sector, consider surveying a chamber of commerce or another community group that is primarily composed of private sector entities.*

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