THE ROLE OF THE COUNTY EMERGENCY MANAGER IN DISASTER MITIGATION

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ABSTRACT

Scholarship on disasters in the United States would suggest that emergency managers should play a role in hazard mitigation. Yet, little empirical research has investigated precisely what role or roles emergency managers actually do play during this phase. This study explored the role of county-level emergency managers in hazard mitigation and the factors that might influence those roles.

Data for this study was collected through 42 in-depth, telephone interviews with county-level emergency managers in FEMA Regions III, V, and X, which includes the Mid-Atlantic, Midwest, and Pacific Northwest regions of the United States. Grounded theory was utilized in order to organize and analyze the data.

The data suggests that emergency managers play several roles within mitigation: a generic role, a support role, an administrative role, a promoter role, a public educator role, and a planning role. These roles are explained by a number of factors, including conceptual confusion, response and preparedness orientation, financial resource factors, planning factors, additional resource factors, competition between mitigation and development, resistance to mitigation, and engagement in mitigation. It is also important to note that emergency managers spend only a small amount of their time in mitigation.

The results of this study suggest that there is a gap between the theorized role and the actual role that emergency managers play within mitigation. Closing this gap will likely require additional resources for mitigation and county-level emergency management, as well as greater consistency in defining mitigation through policy and education.

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DEDICATION

This dissertation is dedicated to Jack Bauer, a very good boy.

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LIST OF ABBREVIATIONS

BLM ..... Bureau of Land Management

CBRN ..... Chemical, Biological, Radiological, Nuclear

CDBG-MIT ..... Community Development Block Grant for Mitigation

CEMHS…….Center for Emergency Management and Homeland Security

CRS……Community Rating System

DHS ..... Department of Homeland Security

DMA……Disaster Mitigation Act

DRRA……Disaster Recovery and Reform Act

EMAP ..... Emergency Management Assessment Program

FEMA……..Federal Emergency Management Agency

HUD ..... Department of Housing and Urban Development

IAEM ..... International Association of Emergency Managers

IPCC……....International Panel on Climate Change

IRB……..Institutional Review Board

NEMA ..... National Emergency Management Association

NMF……National Mitigation Framework

CHAPTER ONE: INTRODUCTION

For nearly four decades, Comprehensive Emergency Management has served as both a key organizing paradigm and recommended approach for emergency management research and practice in the United States (National Governor's Association, 1979). This approach employs four functional phases – response, preparedness, recovery, and mitigation – and underscores emergency management's involvement in activities across each phase (National Governor's Association, 1979). There is, however, some suggestion of an ongoing bias toward response and preparedness, with mitigation and recovery being comparatively neglected (Britton, 1999; Stehr, 2007). If the emergency management profession has indeed tasked itself with engaging in all phases of the comprehensive emergency management cycle (FEMA, 2011), it would seem to follow that emergency management practitioners would play an active role in implementing mitigation activities within their communities. Yet, little research has examined the extent to which emergency managers are involved in mitigation broadly, and implementation of mitigation activities specifically. This research will therefore seek to address the following question: What is the role of the county-level emergency manager in disaster mitigation?

Background

Hazard events may be destructive, disruptive, expensive, and pose a threat to lives, homes, and communities (Aherns & Rudolph, 2006; Bourque et al., 2007; Disaster Mitigation Act of 2000, 2000; Mileti, 1999; National Research Council, 1999; Zhang, Lindell & Prater, 2009). Hazard events can be broadly classified as emergencies, disasters and catastrophes (Auf der Heide, 1989; Quarantelli, 2006). Emergency management, despite having 'emergency' in its title, focuses primarily on disasters – namely, those hazard events for which jurisdictions' resources are overwhelmed, responding personnel and organizations must take on new tasks, the

structure of responding organizations changes or new organizations are formed, participants who are not typically involved in emergency management become mobilized, jurisdictional boundaries are crossed, and there is a need for coordination (Auf der Heide, 1989).

The way disasters have historically been managed in the United States, both in practice and in policy, has been highly reactive (McEntire, 2004; Rubin, 2012). Rather than focusing on proactive measures such as locating communities outside of hazardous areas or writing and enforcing building codes designed to protect people from disasters, U.S. society, as a whole, has instead tended to respond to disaster threats only once imminent or after they have occurred. Moreover, our exposure to disasters, as well as their costs to society, have only increased (Brouwer et al., 2011; Cutter & Emrich, 2005; IPCC, 2012; Munich Re, 2013); the number of hazard events has continued to rise year after year, with growing impacts on individuals and households, organizations and communities (Rubin, 2012). Exacerbating this issue, the disaster impacts we face are likely to grow even more across stakeholder groups due to climate change (O'Brien et al., 2006; Van Aalst, 2016), as hazards intensify in number and scope (IPCC, 2018), and more communities find themselves in the way of rising sea levels (Nicholls & Cazenave, 2010; Rahmstorf, 2007).

Instead of continuing to pursue reactionary responses to disaster threats, it is possible to seek out strategies that reduce our exposure to them. One of the principle ways in which we can reduce our disaster exposure is through mitigation (Highfield & Brody, 2017; Hill & Gaillard, 2013; McSweeney & Coomes, 2011). Mitigation refers to the phase of the emergency management cycle in which "sustained action [is taken] to reduce or eliminate risk to people and property from hazards and their effects" (FEMA, 2017, p. 1). Mitigation would ideally occur before a disaster has occurred (Godschalk, Brower & Beatley, 1989), but in many instances,

communities instead attempt to take advantage of "windows of opportunity" to implement mitigation in the wake of disasters (Asgary et al., 2007; Baker, 1977; Fois & Forino, 2014; Healy & Malhotra, 2009; Hill & Gaillard, 2013; Labossière & McGee, 2017; Le Masson, 2015; McSweeney & Coomes, 2011; Olson, Olson & Gawronski, 1998; Paul & Che, 2011; Solecki & Michaels, 1994; Tunstall, Johnson & Penning-Roswell, 2004).

Mitigation has been found to be a cost-effective strategy for reducing disaster losses, with researchers estimating that for every dollar spent on hazard mitigation, communities receive four dollars in future benefits (although this figure varies by hazard type) (FEMA, 2018; Rose et al., 2007). Research and policy alike also suggest that mitigation should, however, exist in a broader context of community development (Berke, Karetz & Wenger, 1993; DHS, 2016; Godschalk, 2003; Mileti, 1999; Paton, 2000; Pearce, 2003; Schneider, 2002). Mileti (1999) uses the term 'sustainable hazard mitigation' to link "wise management of natural resources with local economic resiliency, viewing hazard mitigation as an integral part of a much larger context" (p. 2). Other researchers have expanded on this idea, linking disaster mitigation to environmental conservation (e.g. Barbier, 2006; Costanza et al., 2008; Duxbury & Dickinson, 2007), sustainable livelihoods (e.g. Cannon, Twigg & Rowell, 2003; Pomeroy et al., 2006; Sanderson, 2000), and community economic growth (e.g. Berke, Karetz & Wenger, 1993), among others. For example, conserving wetlands may not only preserve biodiversity and natural beauty, but also reduce hurricane impacts to coastal communities (Berke, Song & Stevens, 2009; Godschalk, 2003; Prater & Lindell, 2000; Reddy, 2000). In spite of the benefits it confers, the trend of increasing disaster losses suggests that communities are not implementing enough mitigation.

Both literature and policy suggest that the local level bears the primary responsibility for emergency management functions, including mitigation (e.g., Cutter et al., 2013; Dynes,

Quarantelli & Kreps, 1972; National Mitigation Framework, 2016; Robert T. Stafford Act, 2000). It is axiomatic among disaster scholars, for example, that "all disasters are local" (e.g. Cutter et al., 2013; Dynes, Quarantelli & Kreps, 1972; Perry, 2003; Somers & Svara, 2009). This emphasis on local primacy is due to the fact that the local level is closest to the impacts of disasters (Somers & Svara, 2009; Waugh, 1994), is able to respond to disasters most quickly (Schneider, 1995; Waugh, 1996), and has the best understanding of local priorities, needs, and emergent needs (Schneider, 1995; Somers & Svara, 2009). From a mitigation standpoint, local primacy is reasonable, because local governments control many of the policies often associated with mitigation, including building codes, zoning decisions, and other land use policies (Burby, 2006; Col, 2007; Godschalk, 2003; Henstra, 2010; Reddy, 2000).

This notion of local primacy is echoed by legislation. Federal policy and legal frameworks suggest that emergency management activities broadly, and mitigation activities specifically, are a responsibility of local government. For example, the National Mitigation Framework (NMF), a nonbinding document produced by FEMA that "describes the benefits of being prepared by understanding risks and what actions can help address those risks" (FEMA, 2016, p. 1), identifies thirteen categories of mitigation roles and responsibilities that should be undertaken by local governments (National Mitigation Framework, 2016). The Disaster Mitigation Act (DMA) requires that local governments develop and submit mitigation plans in order to receive federal funding for mitigation (Disaster Mitigation Act, 2000). It further emphasizes the value of encouraging mitigation at the local level, including forming effective community partnerships, implementing hazard mitigation measures, and committing to long-term hazard mitigation (Disaster Mitigation Act, 2000). Although it is clear that actors at the

local level should be responsible for mitigation, it is not clear who within local jurisdictions should take on particular tasks during a mitigation process.

Although local government is responsible for mitigation, there is nothing that would suggest that mitigation is the sole responsibility of any singular person or agency within local government. Emergency management is a "distributed function" (Canton, 2007). That is, the responsibility for the broad array of tasks and activities associated with emergency management, including mitigation, is shared across departments and organizations throughout government, and society more broadly (Canton, 2007; Drabek & Hoetmer, 1991; McEntire, 2007). In the case of mitigation, this distributed function could include planners (e.g. Sipe & Vella, 2014; Solecki & Michaels, 1994; Stevens, Berke & Song, 2008; Wu & Lindell, 2004 e.g. Sipe & Vella, 2014; Solecki & Michaels, 1994; Stevens, Berke & Song, 2008; Wu & Lindell, 2004), engineers (e.g. Posner & Georgakakos, 2017), local elected government officials (e.g. Birkland, 1996; Birkland, 1998), members of the public (e.g. Evans-Cowley & Gough, 2008; Godschalk, Brody & Burby, 2003), other local government agencies, and potentially many others. For example, planners may be responsible for spearheading a mitigation planning process, while engineers may be responsible for recommending specific mitigation measures for a given hazard and community, and local elected officials are responsible for passing legislation related to zoning and land use.

It would also seem that emergency management professionals would have a role to play in mitigation. Emergency managers, defined as the professionals who "coordinat[e] and integrat[e] all activities necessary to build, sustain, and improve the capability to mitigate against, prepare for, respond to, and recovery from threatened or actual natural disasters, acts of terrorism, or other man-made disasters" (FEMA, 2007, p. 4), have tasked themselves with

engaging in all phases of the comprehensive emergency management cycle (FEMA, 2011). It would follow, therefore, that emergency managers would be engaged in mitigation activities.

Moreover, the suggestion that emergency managers should move beyond preparedness and response has been made in the literature. Although he was describing the evolution of the role of the emergency manager more broadly, Britton (1999) identified a number of areas that emergency managers should be responsible for related to mitigation. These include: assisting in the creation and management of community development and growth; assisting in the "process of enhancing the long-term equilibrium between human and natural environmental interactions" (p. 232); helping "ensure that appropriate emergency management mechanisms are in place, are operable, and are capable of responding to the overall risk environment" (p. 232); and linking emergency management with wider community management (pp. 232-233). This framing of the role of the emergency manager would strongly suggest that mitigation, especially sustainable hazard mitigation (e.g. Mileti, 1999), is within the scope of the local emergency manager's responsibilities.

Mitigation represents a critical strategy for managing the growing disaster threat faced by our communities (Schneider, 2002). Mitigation can reduce both the suffering caused by disasters, as well as the costs communities incur due to disasters (FEMA, 2018; Highfield & Brody, 2017; Rose et al., 2007). Although much of the work of mitigation is appropriately done by members of emergency management's distributed function, the comprehensive emergency management framework suggests that emergency management professionals have a role to play as well (Britton, 1999; FEMA, 2011; National Governor's Association, 1979; Stehr, 2007). Yet, it is not clear from the research what, if anything, emergency managers are doing related to disaster mitigation.

It is important to note here that local government may refer to county government, municipal government, or to any one of a variety of other jurisdictional structures, and that there is significant variation within local government structure (National Academy of Public Administration, 1980; National League of Cities, 2017; Silvestri & Nelson, 1999). Counties may be an especially important unit of local government to investigate, because they are located close to environmental problems or hazards (Benton, 2002; Benton & Menzel, 1993; Hoene, Baldassare & Shires, 2002; Park, 1996; Steel & Lovrich, 2000; Waugh, 1994), are likely to have greater resources than municipalities (Benton, 1996; Johnston, Pagano & Russo, 2000; Pagano & Johnston, 2000; Waugh, 1994), are structured in a way that may encourage inter- and intragovernmental cooperation (DeSantis & Renner, 1993; Menzel et al., 1992; Waugh, 1994), have a close relationship with state governments (Martin, 1993; Salant, 1989; Salant, 1993; Waugh, 1994), create opportunities for local-local cooperation (Cigler, 1993; Cigler, 1995; Massey & Smith, 1994; Sekwat, 1996; Waugh, 1994), and "serve as general purpose local governments representing local interests and having strong local identification" (Waugh, 1994, p. 253). As such, the focus of this research will be the county level. This does not preclude the importance of other levels of local government, but an investigation of municipal and special forms of local government has been left to future researchers.

Significance

Emergency management, both in scholarship and practice, has historically neglected mitigation, especially compared to preparedness and response (Britton, 1999; Stehr, 2007). In fact, very little research has been done using an emergency management lens at all; most empirical investigations of mitigation have been conducted through the lens of other disciplines and areas of practice, including planning and public policy (e.g. Burby et al., 1997; Berke,

Karetz & Wenger, 1993; May et al., 2013; Stevens, Berke & Song, 2008). Yet, mitigation not only has the potential to reduce or eliminate the effects of disasters on communities, but may also make communities better in a variety of ways, from economic and financial well-being, to improved environmental health, making it a crucial subject area for emergency management professionals and researchers alike.

Comprehensive emergency management includes mitigation, which suggests that emergency managers have some responsibility to help their communities mitigate. Yet it is not currently known what, if anything, local or county-level emergency managers are doing in regard to mitigation. By investigating the role of emergency managers in mitigation, this study will provide important foundational knowledge for scholars and practitioners. Understanding what (and how much) emergency managers do within mitigation will shed light on the value of the comprehensive emergency management framework to practice, and may suggest recommendations about how the role of the emergency manager should be modified to fit the realities of practice.

Conclusion

This chapter has introduced hazard mitigation and its importance to communities, and its place in comprehensive emergency management. It has also discussed ideal features of community hazard mitigation, discussed the influence of state and federal policies and programs on mitigation outcomes, and provided an overview of the history of the academic literature on mitigation. Chapter Two reviews the academic literature in more depth. Chapter Three discusses the research methods for this project. Chapter Four describes the findings of this research. Chapter Five discusses and contextualizes these findings, and considers their implications for education, theory, practice, and policy.

CHAPTER TWO: LITERATURE REVIEW

Chapter Two reviews the literature foundation for this study. No empirical research had specifically examined the county-level emergency manager's role in disaster mitigation at the onset of this project. As such, the purpose of this literature review was not to establish how the study fit into what is known already on the topic (Maxwell, 2005). Rather, the intent was to offer theoretical sensitivity (Glaser, 1978), allowing the researcher to initiate the project with an understanding of the nuances that may be associated with collected data. Specifically, in this chapter, the researcher synthesizes the work related to disaster mitigation that had been conducted across disciplines—including public administration, planning, sociology, and political science—to identify the contextual and background elements that provide the meaning and insight necessary for determining the relevance of data during collection and analysis (Strauss & Corbin, 1998). In addition, the researcher outlines how these contextual and background factors indicate a role that county-level emergency managers could be playing in disaster mitigation, which offered the source for comparison between the current role of county-level emergency managers and the role inferred by the relevant literature.

It must be noted here that Samuel and Siebeneck (2019) published an exploratory study while data collection and analysis for this project were ongoing that examined a similar research question, namely the role of local emergency managers in hazard mitigation planning and implementation. Given the express intent of the literature review and the grounded theory approach to this research, that study was not reviewed until data analysis was complete. While not considered here, that study and its related findings are integrated into the discussion in Chapter 5.

The first section of this chapter briefly discusses mitigation tasks and activities. The second section reviews the factors that have been found to influence mitigation, which include municipal, community, and external factors, and discusses the potential relationship between these factors and the role of the emergency manager. The third section considers the context in which local emergency managers operate. The fourth and final section describes an idealized emergency manager, based on the factors that influence mitigation.

Mitigation Tasks and Activities

Literature has identified a variety of mitigation tasks and activities than can be implemented at the community level. These activities may be classified into five main categories developed by Lindell et al. (2006): hazard source control, community protection works, land use practices, building construction practices, and building contents protection. According to Lindell et al. (2006),

> Hazard source control involves intervention at the point of hazard generation…, community protection works attenuate disaster impact by altering the hazard transmission process… Land use practices limit hazard exposure by minimizing development in areas where the likelihood of hazard impact is high. By contrast, building construction practices limit physical vulnerability by building structures whose resistance to hazard impacts is high. Finally, building contents protection prevents furniture, equipment..., and other building contents from being damaged or destroyed (pg. 195).

Such a classification captures more mitigation activities than a simplistic structural versus nonstructural classification system (Lindell et al., 2006), although some activities, especially those related to education and awareness, could be added (e.g. Berke, Smith & Lyles, 2012; Kang, Peacock & Husein, 2010). Table 1 provides examples of activities that fall into each of these categories.

Table 1
Categories and Examples of Mitigation Activities

Categories	**Activities**
Hazard source control	For technological hazards: confining fuels, substituting nontoxic chemicals, reducing chemical quantities, lowering operating temperatures and pressures, maintaining equipment (Lindell et al., 2006); physical modification, to include: slope terracing, slope drainage, removal or replacement of soils, wetland reclamation, dredging rivers, dredging reservoirs; replenishment, to include: sanding, reforestation, soil backfill; restoration: wetland, sand dune
Community protection works	Flood control works (including stream channelization, dams, levees, and floodwalls), landslide controls (including reducing shear stress, increasing shear resistance, or a combination), industrial storage failure controls (Lindell et al., 2006); barriers, to include: seawalls, natural or synthetic wind and particle movement barriers; deflection systems, to include: avalanche bridges, chutes, lava flow channels, diversion trenches, channels, canals, spillways; retention systems, to include: storm water management, dams, levees and flood walls, slit dams, landslide walls, slope stabilization covers; detection systems, to include: imaging satellites, CBRN systems, ground movement monitoring systems, flood gauges, weather stations, undersea and buoy oceanic movement detection, information systems; treatment systems, to include: water treatment systems, air filtration ventilation systems, decontamination systems, hazardous materials decontamination systems; build/designate community shelter
Land use practices	Acquisition of land and development rights, capital improvement programs, fiscal policy to distribute public costs of private development on hazardous property, hazard mitigation planning, zoning, and subdivision regulations (Lindell et al., 2006); relocation, denial of services, density control, open space preservation and/or protective resource preservation
Building construction practices	Building components, structural protection from hydrological hazards, structural protection from wildfire hazard, structural protection from wind hazard, structural protection from seismic hazard, structural protection from airborne hazmat, and building codes (Lindell et al., 2006); safety standards, building codes, resistant construction
Building contents protection	Internal movement of contents, protection-in-place, and contents stabilization (Lindell et al., 2006); prevent furniture and equipment (e.g. furnaces, air conditioners, washers, dryers) and other building contents from being damaged or destroyed

It should be noted that not every activity listed above is appropriate for every community or hazard. For example, Lindell et al. (2006) note that most of the hazard source control activities are appropriate primarily for technological hazards, which not every community must contend with. At the same time, all communities face risk, and, as discussed in the introduction, local

governments have a responsibility for mitigation. This would suggest that emergency managers should be engaging in at least some of these activities. Emergency managers themselves are not directly responsible for implementation of mitigation in most cases – for example, they would not be responsible for constructing a levee or enforcing building codes. However, they could, at minimum, work with those who are responsible for implementation to ensure that all parties have the resources and information they need.

In addition to the mitigation activities discussed above, planning is an additional process related to mitigation that has been studied extensively, and is incentivized by policy (e.g. Robert T. Stafford Act, 2000; Stehr, 2007). Planning has been found to improve mitigation outcomes (Berke, 1996), and research has identified several factors that improve planning outcomes, including the existence and quality of planning mandates (Berke, 1996; Brody et al., 2009), increased hazard salience (Deyle & Smith, 1998), and high levels of participation from community members (Brody, 2003). The literature has not addressed the extent to which emergency managers are engaged in mitigation planning processes, or should engaged in planning processes, but research would suggest that, at minimum, they could make mitigation planning more successful by bringing varied stakeholders together and educating the public about hazard risk.

Each category of mitigation activities, as well as mitigation planning, requires engagement and participation by many parties within a community, rather than the emergency manager alone. Many of these activities, however, fit within Britton's (1999) description of the role of the local emergency manager, and it is easy to see where others would represent emergency manager responsibilities. For example, emergency managers might take on the role of

negotiating the construction of a community protection work by working across government departments, or by helping to develop community-based coalitions.

Factors that Influence Community Mitigation

In addition to tasks and activities, the disaster literature has identified a number of factors that may facilitate or inhibit disaster mitigation at the local or community level. Some of the factors that have been found to influence community mitigation are entirely, or nearly entirely, outside the control of an emergency manager. These factors include the characteristics of policies and the legal framework or mandates that govern mitigation (e.g., Berke, 1996; Brody, 2009), and the socioeconomic or demographic characteristics of a community (e.g., Burby & Dalton, 1994; Landry & Li, 2011). With respect to policies, research has found that incentive programs, like the Community Rating System (CRS), have been somewhat successful at increasing mitigation (Rivera & Wamsler, 2014; Zahran et al., 2010), essentially acting as an additional financial resource for communities. The role of mandates has also been investigated extensively. Mandates have been found to influence mitigation in a number of ways, including: making the existence of plans more likely (Berke et al., 1996), making plans better (Berke et al., 1996), substituting for other community characteristics that make having a plan more likely (Berke et al., 1996), keeping post-disaster 'windows of opportunity' open longer (Solecki & Michaels, 1994), and increasing the amount of mitigation that is undertaken (Brody et al., 2009; Burby & Dalton, 1994; Reddy, 2000). Some research has also found, however, that even state-approved mandated plans do not meaningfully reduce hazard risk (Deyle, Chapin & Baker, 2008). Although emergency managers cannot control the content of federal or state mitigation policy, they can help ensure that their communities are in compliance with these policies, so that they are eligible for all associated benefits and incentives.

Regarding the relationship between a community's population profile and mitigation outcomes, findings are surprisingly scarce. Where researchers have considered population characteristics, there has been a great deal of variation in the specific factors they have evaluated. These have included communities' economic conditions (Landry & Li, 2011) and their size and density (Burby & Dalton, 1994; Landry & Li, 2011). Landry and Li (2011), for example, found that denser and wealthier communities were more likely to implement mitigation, and Burby and Dalton (1994) found that larger populations were associated with more mitigation. In the only study considered for this research that examined demographic factors, the researchers found that these factors did not influence mitigation implementation (Landry & Li, 2011). Although emergency managers may not be able to affect their community's geographic or demographic profile, or the regulations, policies and mandates under which they must operate, simply understanding these factors and the dynamics within their communities may make other mitigation-related activities they undertake more successful.

Although emergency managers may not be able to affect the above factors, there are other factors over which they do exercise some control. Among these factors, some are specific to the community. For example, characteristics of the government itself and local leaders have been found to affect mitigation outcomes (e.g., Birkland, 1996; Solecki & Michaels, 1994; Stevens, Berke & Song, 2008). Other factors are associated with the community. Among these, the support and engagement of the community (e.g. Evans-Cowley & Gough, 2008; Godschalk, Brody & Burby, 2003), and the community's hazard profile (e.g., McGee, 2011; Mockrin et al., 2015; Neuvel & Van den Brink, 2009) are particularly important. Finally, factors associated with actors external to the community, especially the availability of resources (e.g. Becker & Reusser, 2016; Brody et al., 2009; Fois & Forino, 2014; Hakaloba et al., 2016) have also been found to

affect mitigation. The research on these factors rarely offers findings about emergency managers specifically. However, the fact that emergency managers are generally understood to have a responsibility for coordination and integration (FEMA, 2007; Waugh & Streib, 2006) allows an appropriate role for emergency managers in mitigation to be induced from the literature. The following subsections include an in-depth discussion of these additional factors that may affect mitigation outcomes, and how emergency managers may influence these factors.

Local Government and Leadership

There are a number of leadership characteristics that researchers have found to influence mitigation, all of which emergency managers themselves may exhibit. One particularly important community leadership role is that of a policy entrepreneur (Birkland, 1996; Labossière & McGee, 2017; Olshanksy et al., 2008; Olson & Olson, 1993; Solecki & Michaels, 1994). The policy entrepreneur is an individual (or organization) committed to implementing mitigation, often after a disaster, and who has the resources to influence the mitigation process (Solecki & Michaels, 1994). The presence of a policy entrepreneur can give a mitigation process the direction, resources, and enthusiasm necessary for its success. Although in some cases, community planners have been identified as mitigation policy entrepreneurs (Birkland, 1996; Solecki & Michaels, 1994), emergency managers, as the profession tasked with engaging in mitigation as part of the comprehensive emergency management framework, should also be well-positioned to serve in this capacity. Yet, the extent to which they act as policy entrepreneurs remains unknown.

Researchers have also investigated the relationship between successful mitigation outcomes and the characteristics of the people responsible for driving mitigation processes. Like the research on policy entrepreneurs, most of this scholarship has investigated the characteristics

of planners, but it is likely that these characteristics would inform the success of emergency managers as well. Birkland (1996), for example, found that the presence and cohesiveness of professional policy communities can encourage mitigation. For example, in contrasting hurricane and earthquake policy, Birkland notes that there is a committed community of advocates for improved earthquake protections who can advocate for specific policies, while there is an absence of such a community for hurricanes, resulting in better earthquake policy and worse hurricane policy. Emergency managers could leverage this information by developing policy communities with others whose jurisdictions face similar hazards, and mobilizing these communities to advocate for better policy. This way, in the wake of a disaster, these policy communities of emergency managers would be able to propose policies and legislation that support community mitigation.

Stevens, Berke and Song (2008) investigated planners' role orientation (i.e. planners' beliefs about the scope of their professional role), and found that technical and mobilizer role orientations had a positive influence on mitigation outcomes, whereas advisor and participant role orientations had a negative influence on mitigation outcomes. That is, communities with planners whose beliefs reflected the idea that "planning is a 'rational' process in which the planner is a value-neutral technical adviser who provides technical information to decision makers and the public" (Stevens, Berke & Song, 2008, p. 741) had better mitigation outcomes than communities with planners who are "active participant[s] in decision making and … advocate[s] for particular policies and ideas" (Stevens, Berke & Song, 2008, p. 741). Extrapolating to emergency managers, this finding would suggest that emergency managers who are able to provide technical information and to mobilize their communities may encourage more mitigation than emergency managers who take a more direct role as an advocate. Although this is

seemingly at odds with findings about policy entrepreneurship, it can be resolved, as Stevens, Berke and Song (2008) suggest, by considering an advocate's values. That is, regardless of role orientation, if community leaders value and prioritize mitigation, the communities they serve may be more likely to incorporate mitigation measures.

Additional leadership characteristics scholars have found increase mitigation include political astuteness and awareness (Rubin & Barbee, 1985), discretion and decision-making authority over the mitigation process (Stevens, 2010), and independence from outside influences and resources (Norris-Raynbird, 2005). Political astuteness and awareness refers to the ability to make strategic decisions for the community that enhance long-term future security, requiring political and administrative leadership (Rubin & Barbee, 1985, p. 62), including clear communication with constituents and willingness to put the community's preferences into action (Rubin, Saperstein & Barbee, 1985, p. 42). For emergency managers, this may mean that engaging with their community and seeking buy-in for mitigation is particularly important. With respect to discretion, Stevens (2010) found that planners who had more authority over their mitigation planning process were able to achieve better mitigation outcomes, compared to those who shared control with developers, elected officials and others. Stevens (2010) notes, however, that commitment to mitigation should be combined with discretion to achieve the best outcomes. Emergency managers may also seek to increase the autonomy they have over the mitigation process to implement mitigation more effectively. Finally, independence here refers specifically to the ability of a community to control its own mitigation process, without outside assistance (Norris-Raynbird, 2005). Emergency managers may be able to influence independence by helping to develop community capacity, including working to educate and engage the public, and by seeking out financial and technical resources.

Although none of these findings are specific to emergency managers, by taking them together, it is possible to describe characteristics of an emergency manager who is able to successfully mitigate in their community. Such an emergency manager would make efforts to be engaged with their community on mitigation topics (Brody, Kang & Bernhardt, 2010; Norris-Raynbird, 2005; Rubin, Saperstein & Barbee, 1985; Stevens, Berke & Song, 2008). They would commit to mitigation (Birkland, 1996; Brody, Kang & Bernhardt, 2010; Labossière & McGee, 2017; Olshansky et al., 2008; Olson & Olson, 1993; Reddy, 2000; Stevens, Berke & Song, 2008), but take a hands-off, technical approach to their role (Stevens, Berke & Song, 2008), in which they would provide information to the community and allow others to set priorities for mitigation. They would also seek to develop their community's capacity to operate independently of outside forces (Norris-Raynbird, 2005).

In addition to leadership characteristics, characteristics of jurisdictional governments also influence the mitigation process. Brody, Kang and Bernhardt (2010) identify organizational capacity as a particularly important jurisdictional factor. Organizational capacity is defined as "the ability to anticipate [hazards], make informed decisions about mitigation, and implement effective policies" (Brody, Kang & Bernhardt, 2010, p. 171). Characteristics that explain organizational capacity include access to financial, staffing and technical resources, ability to communicate and share information, strong leadership, and a demonstrated commitment to hazard mitigation (Brody, Kang & Bernhardt, 2010). Emergency managers who work to develop staffing and other resources (Brody, Kang & Bernhardt, 2010; Manyena, 2013; Nelson, 2014; Olshansky et al., 2008), take advantage of education opportunities to become more technically adept (Brody, Kang & Bernhardt, 2010), and have become knowledgeable or experienced with

respect to their community's hazard risk and appropriate mitigation strategies (Brody, Kang & Bernardt, 2010; Rubin & Barbee, 1985; Stevens, 2010) may have better mitigation outcomes.

Related especially to information sharing, Raju and Van Niekerk (2013) address the negative influence of departmental siloing in government on mitigation outcomes. Government departments operate in silos when there is a lack of communication and integration across departments (Raju & Van Niekerk, 2013). Emergency managers can play an especially important role here, as some of their principle responsibilities are integration and coordination (Waugh, 1991; Waugh & Streib, 2006), which they can leverage by working across departments to increase communication and information sharing. A final dimension of jurisdictions that may influence mitigation outcomes is corruption (Le Masson, 2015). Emergency managers cannot control overall corruption within their jurisdictions, but they can operate ethically themselves and encourage ethical conduct across their community.

Community

Researchers agree that the extent of community engagement influences mitigation outcomes. Engagement here may refer to how much influence citizens have over the mitigation process (e.g. Evans-Cowley & Gough, 2008; Godschalk, Brody & Burby, 2003), the extent of citizen education efforts (e.g. Godschalk, Brody & Burby 2003; Hakaloba et al., 2016), the extent of community interest in engaging in the mitigation process (e.g. Godschalk, Brody & Burby, 2003; Hakaloba et al., 2016; Morris-Oswald & Sinclair, 2005), the extent to which the community is consulted during the mitigation process (e.g. Andersson-Sköld & Nyberg, 2016; Morris-Oswald & Sinclair, 2005), and how many citizens attended meetings related to mitigation (Morris-Oswald & Sinclair, 2005). This list would suggest that engagement includes both

autonomous community interest and involvement and efforts to engage the community on the part of emergency managers and other local officials.

In most cases, researchers agree that there is not extensive community engagement in mitigation (Evans-Cowley & Gough, 2008; Godschalk, Brody & Burby, 2003; Kita, 2017; Maly, 2017; Morris-Oswald & Sinclair, 2005; Stevens, Berke & Song, 2010). However, most researchers have found that community engagement positively affects mitigation outcomes (or that the absence of community engagement negatively affects mitigation outcomes) (Andersson-Sköld & Nyberg, 2016; Evans-Cowley & Gough, 2008; Hakaloba et al., 2016; Le Masson, 2015; Manyena, 2013; McNamara & Des Combes, 2015; Norris-Raynbird, 2005; Olshansky et al., 2008; Oulahen & Doberstein, 2012; Passerini, 2001; Sipe & Vella, 2014; Stevens, Berke & Song, 2010). Based on these findings, emergency managers should seek to increase engagement, including by working to consult stakeholders in the mitigation process, educating the community about mitigation projects, and allowing citizens to have a greater voice in decision-making.

Others, however, have noted that community engagement can generate conflict or unrealistic expectations (Asgary et al., 2007; Kennedy et al., 2008; MacAskill & Guthrie, 2016), which may worsen mitigation outcomes, and at least one study has found that engagement may result in worse outcomes (Stevens, Berke & Song, 2008). To some extent, this conflict can be resolved by considering how engagement takes place. For example, some authors have found that, where communities can effectively coordinate and develop coalitions, mitigation outcomes improve (Birkland, 1998; Goldstein, 2008; Labossière & McGee, 2017; Lane, 2000; Lu et al., 2017; Mannakkara, Wilkinson & Potangaroa, 2014; Meo, Ziebro & Patton, 2004; Nelson, 2014; Olson, Olson & Gawronski, 1998; Raju & van Niekerk, 2013; Sipe & Vella, 2014; Weischelgartner & Pigeon, 2015). This suggests that emergency managers who seek to

effectively manage community engagement could help the community to develop coalitions by working across stakeholder groups. In order to prevent unrealistic expectations from hampering outcomes, emergency managers could also focus on educating their communities and ensuring that they have the most accurate information for priority-setting and decision-making.

Media attention can also increase the implementation of mitigation (Olson & Olson, 1993), specifically by facilitating communication with the community (Sipe & Vella, 2014) and sharing data and information (Weischelgartner & Pigeon, 2016). Effective engagement of the media, which requires a consistent message be delivered across varying types of media, has also been found to increase mitigation (Sipe & Vella, 2014). It is also important for communities to have an effective and well-planned communication strategy (Baudoin & Wolde-Georgis, 2015; Fois & Forino, 2014), which includes how mitigation is framed to the community (Evans-Cowley & Gough, 2008), and the number of techniques used to transmit information (Stevens, Berke & Song, 2010). Evans-Cowley and Gough (2008), for example, found that citizens were more supportive of mitigation projects when they were framed as a reflection of community values than when they were framed as protection from hazards. Fois and Forino (2014) found that a well-developed communication strategy, including different messaging and channels for different audiences, was important to increase support both within and outside the community. It would therefore follow that successful mitigation outcomes would be associated with emergency managers who have developed strong communication strategies, made efforts to actively engage with the media, and used a large number of techniques to transmit mitigation information to the community.

Community priorities and values have also been found to have an influence on mitigation outcomes. Priorities and values are, essentially, what the community wants, either with respect to

disasters, or generally, and also include the community's attitudes toward government and governance (Diggins, Wright & Rossi, 1979; Greenberg et al., 2014; Harris, McGee & McFarlane, 2011; Maly, 2017; Morris-Oswald & Sinclair, 2005; Moser & Ekstrom 2010, p. 22029; Nelson, 2014; Powell, 2011; Townshend et al., 2015; Tunstall, Johnson & Penning-Roswell, 2004). For example, how much does the community value safety from disasters? Does it value this safety more than unrestricted economic development? Some researchers have attempted to monetize community values using willingness to pay for mitigation, and have found both cases in which people are willing to pay for mitigation (McNamara & Des Combes, 2015) and cases in which they are not (Greenberg et al., 2014).

Understanding community values and priorities can give emergency managers insight into whether to pursue mitigation projects, and which projects will be most likely to be supported and successfully implemented. Particularly effective emergency managers may also be able to influence priorities and values through education and well-developed communication strategies. As Rubin, Saperstein and Barbee (1985) found, using community values and priorities to determine mitigation strategies is a hallmark of political savvy managers, and leads to more successful outcomes.

In addition to these 'intangible' community characteristics, a community's physical characteristics, including its hazard profile, have also been found to influence mitigation outcomes. There are two primary elements of a community's hazard profile: the risk they face (or believe they face) (Burby & Dalton, 1994; Landry & Li, 2011) – associated with the location of the community relative to hazard risks (Burby & Dalton, 1994), quality of community infrastructure (Hunt & Watkiss, 2011, p. 38), and risk perception (Ford, Berrang-Ford & Paterson, 2011; Harris, McGee & McFarlane, 2011; Neuvel & van den Brink, 2009) – and their

hazard experience, both historical (Lu et al., 2017; Rubin & Barbee, 1985), and recent (McGee, 2011; Mockrin et al., 2015; Neuvel & Van den Brink, 2009). When communities have recently experienced a disaster, some scholars have investigated whether a "window of opportunity" has followed, in which policy makers and the public are more likely to be willing to undertake mitigation projects (Asgary et al., 2007; Baker, 1977; Fois & Forino, 2014; Healy & Malhotra, 2009; Hill & Gaillard, 2013; Labossière & McGee, 2017; Le Masson, 2015; McSweeney & Coomes, 2011; Olson, Olson & Gawronski, 1998; Paul & Che, 2011; Solecki & Michaels, 1994; Tunstall, Johnson & Penning-Roswell, 2004).

Findings about hazard experience and windows of opportunity are, however, not straightforward. Some researchers have found that windows of opportunity existed after disasters (Asgary et al., 2007; Baker, 1977; Fois & Forino, 2014; Healy & Malhotra, 2009; Hill & Gaillard, 2013; Labossière & McGee, 2017; Le Masson, 2015; McSweeney & Coomes, 2011; Olson, Olson & Gawronski, 1998; Paul & Che, 2011; Tunstall, Johnson & Penning-Roswell, 2004), some found that they only existed under specific conditions (Birkland, 1996; Birkland, 1998; Ozcevik et al., 2009; Solecki & Michaels, 1994; Tunstall, Johnson & Penning-Roswell, 2004; Wu & Lindell, 2004), some found they existed but were largely ineffective (Bolton & Orians, 1998), and others did not observe them at all (Allan & Bryant, 2011; Evans-Cowley & Gough, 2007). Similarly, some scholars have found that disaster experience increases mitigation implementation (Baker, 1977; Deyle & Smith, 1998; Evans-Cowley & Gough, 2008; Fois & Forino, 2014; Harris, McGee & McFarlane, 2011; Labossière & McGee, 2017; Landry & Li, 2011; McGee, 2011; Mockrin et al., 2015; Neuvel & van den Brink, 2009; Sipe & Vella, 2014), while others have found that it decreases mitigation implementation (Lin, Shaw & Ho, 2008; Mannakkara, Wilkinson & Potangaroa, 2014). Other researchers have simply found that disaster

experience tends to reinforce pre-existing ideas about mitigation (Morris-Oswald & Sinclair, 2005).

Even if windows of opportunity are rare or only modestly helpful, emergency managers should attempt to take advantage of the periods after disasters to encourage mitigation adoption. In communities that have experienced a disaster, those with emergency managers who are aware of the potential window of opportunity may have more successful outcomes, especially when combined with an effective strategy for engagement and pre-disaster planning initiatives. More generally, without implementing mitigation, emergency managers cannot affect the risk their community faces, but they can influence how the residents they work for understand and perceive their risk through risk assessments and education initiatives. Where residents have a more accurate understanding of the hazard risk they face, they may be more likely to support mitigation initiatives (Rubin, Saperstein & Barbee, 1985).

External

In terms of the existing research, the principal external category of factors over which emergency managers may nevertheless exercise some control is resource availability. For the most part, the findings about resource availability related to mitigation are straightforward. When projects are expensive, or when communities lack resources, less mitigation occurs. This is true for both financial (Baudoin & Wolde-Georgis, 2015; Becker & Reusser, 2016; Brody et al., 2009; Fois & Forino, 2014; Hakaloba et al., 2016; Hill & Gaillard, 2013; Labossière & McGee, 2017; Manyena, 2013; Nelson, 2014; Raju & van Niekerk, 2013; Sipe & Vella, 2014; Wiek et al., 2010; Yoon, Youngs & Abe, 2012) and non-financial resources, including technological (Meo, Ziebro & Patton, 2004; Posner & Georgakakos, 2017; Stevens, Berke & Song, 2010), human (Hunt & Watkiss, 2011), and information resources (Moser & Ekstrom, 2010). The

availability of external resources, including technical and financial resources (Asgary et al., 2007; Maly, 2017; Raju & van Niekerk, 2013) among others (Olshansky et al., 2008; Rubin & Barbee, 1985), has also been found to increase mitigation, although dependence on external resources – especially leadership resources – has been found to limit mitigation in at least one case (Norris-Raynbird. 2005).

Although emergency managers cannot control their community's resources, they can influence resource availability at least two ways: seeking out grants and other sources of funding, and ensuring that they have met requirements to receive federal resources. For example, the Robert T. Stafford Act requires that communities have mitigation plans in order to receive federal funding (Robert T. Stafford Act, 1988; Stehr, 2007). We would likely expect communities who have successfully undertaken mitigation to have emergency managers who actively work to increase resources available for mitigation. Emergency managers could also coordinate with neighboring jurisdictions to access technical or human resources that their own communities lack.

Emergency Management Context

As the above section explains, county-level emergency managers may be able to exert their influence over elements of the mitigation process, however it is possible that their role may be constrained by contextual factors. Some of these contextual factors include features of their county government, including whether they operate their own department or are part of another department (Labadie, 1984), how much statutory authority they have (Labadie, 1984), how informed and interested the public is in their role (Labadie, 1984; McEntire & Dawson, 2007), access to resources from the local government (Petak, 1985; Waugh, 1993), and how emergency management departments are perceived in terms of cost-benefit determinations (McEntire &

Dawson, 2007; Somers & Svara, 2009). There may be significant variance across these factors: for example, some county-level emergency managers may have a great deal of authority and autonomy whereas others do not; and some counties may have residents who are actively engaged in conversations about emergency management and mitigation whereas others may have residents who are unaware of or disinterested in emergency management issues.

With respect to mitigation, county-level emergency managers also operate within a larger federal and state policy context which may affect how and whether they may influence mitigation outcomes. One of these policies is the National Mitigation Framework (NMF), part of the National Preparedness System. The NMF does not legally require local governments to take any specific actions, but it does identify some of the mitigation activities they should take responsibility for. The NMF identifies a long list of activities as being roles or responsibilities of local governments, which can be found in Appendix A (National Mitigation Framework, 2016). In contrast, the Robert T. Stafford Act requires that municipalities have mitigation plans, although it does not require that they actually implement mitigation (Robert T. Stafford Act, 1988; Stehr, 2007). Mitigation planning is also mandated by a number of states (Berke et al., 1996; Burby & Dalton, 1994; Deyle, Chapin & Baker, 2008; Deyle & Smith, 1998; Solecki & Michaels, 1994). Although community and policy context and their importance for emergency managers have been considered and discussed in the disaster scholarship, it is not clear how these contextual factors influence mitigation outcomes.

The Idealized Emergency Manager

While the literature does not explicitly describe how county-level emergency managers are involved in disaster mitigation, it is possible to use the above factors to extrapolate a profile of the role an emergency manager could play in the successful implementation of mitigation in

the community. Such an emergency manager has sought to maximize their community's financial resources for mitigation through compliance with federal programs and by pursuing mitigation grants (e.g. Baudoin & Wolde-Georgis, 2015; Brody et al., 2009; Zahran et al., 2010). They have looked for opportunities to increase resources to improve organizational capacity (e.g. Brody, Kang & Bernhardt, 2010; Nelson, 2014; Olshanksy et al., 2008) and have taken advantage of educational opportunities to become more technically adept and knowledgeable (e.g. Brody, Kang & Bernhardt, 2008; Rubin & Barbee, 1985; Stevens, 2010). They may also have tried to make their governments more effective by working to reduce siloing by working across government departments (e.g. Brody, Kang & Bernhardt, 2010; Raju & Van Niekerk, 2013), and by behaving ethically (Le Masson, 2015). By developing greater organizational capacity, this emergency manager has also increased their community's independence and ability to run their own mitigation process without outside assistance (Norris-Raynbird, 2005).

When their community has experienced a disaster, they have recognized the potential for a window of opportunity for mitigation, and have tried to take advantage of it (e.g. Baker, 1977; Hill & Gaillard, 2013; Olson, Olson & Gawronski, 1998). They may act as a policy entrepreneur, actively advocating for mitigation for their community (e.g. Birkland, 1996; Olshansky et al., 2008; Solecki & Michaels, 1994). This commitment to mitigation could result in part from their membership in a robust and cohesive policy community that also advocates for mitigation (Birkland, 1996).

Even if they have not actively advocated for mitigation, however, the emergency manager can still facilitate its implementation. For example, they can take on a technical or mobilizing role, providing members of their community with the resources and opportunities to advocate for mitigation themselves (Stevens, Berke & Song, 2008). As a mobilizer, the

emergency manager would have centered community needs and preferences (Rubin, Sapertstein & Barbee, 1985), and worked to engage their community in mitigation decision-making (e.g. Evans-Cowley & Gough, 2008; Passerini, 2001; Stevens, Berke & Song, 2010). To further facilitate community engagement, the emergency manager has helped members of the community develop coalitions (e.g. Birkland, 1998; Lane, 2000; Weischelgartner & Pigeon, 2015), and created interest in the process through an effective media and communications strategy (e.g. Baudoin & Wolde-Georgis, 2015; Sipe & Vella, 2014; Stevens, Berke & Song, 2010). The activities of the idealized emergency manager in mitigation are summarized below in Table 2.

Table 2
Idealized Activities of Emergency Managers in Mitigation

Idealized Activities
Increase availability of financial resources
• Maintain compliance with federal, state and local requirements
• Apply for and manage mitigation grants
• Increase organizational capacity for mitigation and emergency management generally
Engage in mitigation advocacy
• Act as a mitigation policy entrepreneur
• Mobilize other stakeholders
• Develop a mitigation policy community
• Take advantage of 'windows of opportunity'
Work with their community
• Center community needs and preferences in decision making
• Engage community in mitigation decision making
• Develop community coalitions
• Develop effective media and communications strategies
Improve professionalization
• Operate ethically
• Seek educational opportunities in mitigation
• Develop knowledge or experience in mitigation
• De-silo local government

The emergency manager can take actions to increase the likelihood that their community will successfully implement mitigation, but it is important to recognize the importance of

context. The most successful emergency managers likely operate in environments where they have a great deal of statutory authority and autonomy (Labadie, 1985) and in communities that support emergency management initiatives (e.g. Labadie, 1984; Petak, 1985; Somers & Svara, 2009).

Conclusion

This chapter has explored the factors that have been found to influence community-level mitigation, and discussed how a county-level emergency manager could leverage their roles to improve mitigation outcomes across these categories of factors. Yet, at the time this study was conducted, no study had investigated the extent to which county-level emergency managers are engaging in mitigation activities, or what mitigation activities they are engaged in. This study attempted to fill a gap in the research by addressing these questions.

CHAPTER THREE: RESEARCH METHODS

Chapter Three is organized into five sections. The first section describes the methodological approach to this study. The second section discusses the intended population and sampling process for the study. The third section details the data collection procedures that were used. The fourth section explains the data analysis process that was utilized in this research. The fifth section discusses the study's limitations.

Methodological Approach

This study investigated the role of the county-level emergency manager in disaster mitigation using a qualitative research approach. A qualitative methodological approach allows the researcher to study "things in their natural settings, attempting to make sense of, or to interpret phenomena in terms of the meaning people bring to them" (Denzin & Lincoln, 2000, p. 3). A qualitative approach also allows the researcher to investigate how people construct their social reality (Taylor & Bogdan, 1998), which makes it an appropriate method for a study investigating how people perceive their own roles.

A qualitative methodological approach is also "particularly well suited to exploring issues that hold some complexity and to studying processes that occur over time" (Ritchie & Lewis, 2003, p. 5). Disaster mitigation meets both those criteria: it is a complex process involving many factors, which often occurs over a long period of time. It therefore made sense to investigate the role of county-level emergency managers in mitigation, which may also be complex and occur over time, using qualitative methods. Qualitative methods are also appropriate as a tool to "explore substantive areas about which little is known" (Strauss & Corbin, 1990, p. 19). Little to no empirical work on the role of emergency managers in

mitigation exists, which again suggests qualitative methods were an appropriate approach for investigating this study's research questions.

The specific methodological approach to this study was grounded theory. Grounded theory has been refined and updated over time since it was developed by Glaser and Strauss (1967) (see for example: Bryant, 2002; Charmaz, 2006; Glaser, 1978, 1998; Strauss, 1987; Strauss & Corbin, 1998). However, there are several components comprising an agreed-upon foundation for grounded theory. According to Charmaz (2006), a grounded theory approach should include:

- Data collection and analysis which occur at the same time
- The construction of categories and analytic codes from the data rather than from pre-determined logically deduced hypotheses
- Use of the constant comparative method, which requires the researcher to make comparisons during every analytic stage
- The advancement of theoretic development at every phase of data collection and analysis
- The use of memo-writing in order to develop and specify properties of categories, explore the relationships between categories, and recognize gaps between categories
- A sampling methodology aimed at the construction of theory, rather than for representativeness (pp. 5-6)

Instead of attempting to impose existing theory or hypotheses on data, grounded theory research is designed to derive theory from the data collected (Strauss & Corbin, 1998). Doing so requires careful and consistent evaluation of the data by the researcher, ideally resulting in reflection, questioning and conceptual refinement (Strauss & Corbin, 1998). This interaction with the data allows the research design to be flexible, because researchers can investigate new

questions as they emerge and evaluate new ideas through theoretical sampling and collection of additional data (Charmaz, 2006). This approach is justified by grounded theorists because the close interaction with the data that is demanded, as well as the collection of additional data as needed or appropriate, makes it more likely that new theory will be consistent with reality (Strauss & Corbin, 1998).

Another benefit of grounded theory is that it allows for the creation of theory that is complex, detailed, and explanatory, rather simplified descriptions of phenomena (Charmaz, 2006). Due to the absence of existing empirical research on the role of county-level emergency managers in mitigation, and the complex and dynamic nature of the mitigation process, it was appropriate to begin an investigation on this subject using a qualitative, grounded theory approach with rich data from county-level emergency managers.

Population and Sampling

The population for this study included all county-level emergency managers in FEMA Regions III, V, and X. Region III comprises Delaware, Maryland, Pennsylvania, Virginia, West Virginia, and Washington DC. Region V comprises Ohio, Michigan, Indiana, Illinois, Wisconsin and Minnesota. Region X comprises Alaska, Washington, Oregon, and Idaho. It was determined that selecting FEMA regions, instead of the entire United States, was appropriate both for the purpose of expediency in selecting a sample and to control for factors like regional governance that could affect the data and analysis. These regions face diverse risks, including earthquakes (Fisher et al., 1999), tsunamis (Wood, Burton & Cutter, 1999), wildfire (Steele, Arno & Geier-Hayes, 1986), flooding (Ruggiero, 2012), volcanoes (Hoblitt, Miller & Scott, 1987), and others. These regions have also faced fewer disasters in recent months than others, including hurricanes in Region IV and wildfires in Region IX, and the researcher anticipated that emergency

managers would not be as time-limited as emergency managers managing responses or recoveries.

All counties in FEMA Regions III, V and X were included in the population, because all counties are threatened by hazards (CEMHS, 2018), and all counties have a responsibility to protect the populations they serve from these hazards (FEMA, 2018). Counties were selected as the unit of analysis, because county governments tend to have greater capacity than municipal governments (Waugh, 1994), they may be local agents of state administrations and have close administrative ties to state agencies (Waugh, 1994), but they also "serve as general-purpose local governments representing local interests and having strong local identification" (Waugh, 1994, p. 253).

This study used a combination systematic random sampling and purposive sampling to build the sample. Purposive sampling units are selected on the basis of "particular features or characteristics which will enable detailed exploration and understanding of the central themes and puzzles which the researcher wishes to study" (Ritchie & Lewis, 2003, p. 78). Because this study was interested in the role of county-level emergency managers in mitigation, county-level emergency managers were the most appropriate individuals to provide data regarding that role. County-level emergency managers can be thought of as a "homogenous sample," or people "chosen to give a detailed picture of a particular phenomenon… this allows for detailed investigation of social processes in a specified context" (Ritchie & Lewis, 2003, p. 79). In order to avoid a sample comprising mainly or exclusively small, poorly resourced counties, the list of counties was sorted using population. Systematic random sampling was conducted on the population-sorted list of all the counties in FEMA Regions III, V, and X. Using this list, individuals were selected to participate in interviews randomly, and were invited by email.

Initially, the researcher estimated that 50 interviews would be sufficient to examine the experiences of county-level emergency managers in FEMA Regions III, V and X, provide at least some degree of theoretical saturation, and reflect "the practical exigencies of time, money and other resources" (Seidman, 1991, p. 45). In consultation with the researcher's dissertation advisor, it was determined that a lower total number of interviews was sufficient to achieve theoretical saturation. Emergency managers were contacted in waves, with approximately 50 offices in each wave. Ultimately, 520 county-level emergency management offices were contacted, resulting in 42 completed interviews, representing a response rate of approximately 8.1%. Several emergency managers expressly declined to participate in this project (n=11) either because they were too busy (n=6) or because they did not play a significant role in mitigation (n=5). More often, emergency managers did not respond to the invitation at all. A breakdown of respondents by FEMA Region and state is provided in Table 3 below.

In order to properly contextualize participants' responses, it is also helpful to understand the communities in which they work. Appendix F provides relevant county information (US Department of Health and Human Services, 2013; US Census, 2018), including county government type, population, population density, jurisdiction type, 2019 county budget, poverty level, and location of the emergency management office, and is provided to help supply this context. In order to preserve anonymity, population has been rounded to the nearest thousand, density to the nearest integer, county budget to the nearest million dollars, and poverty level to the nearest integer percentage.

Table 3
Summary of Participants Interviewed by Location

Attribute	Number of Interviewees
FEMA Region	
• Region III	12
• Region V	17
• Region X	13
State	
• Washington	5
• Alaska	3
• Pennsylvania	3
• Wisconsin	4
• Virginia	6
• Minnesota	5
• Idaho	3
• Ohio	3
• Illinois	2
• West Virginia	2
• Oregon	2
• Indiana	2
• Delaware	1
• Michigan	1
Total Interviews	42

The ultimate goal of grounded theory research is achieving theoretical saturation (Charmaz, 2006; Glaser, 1998; Glaser & Strauss, 1967; Strauss & Corbin, 1998). Theoretical saturation may be defined as a point in data collection at which "no new properties, dimensions, or relationships emerge during analysis" (Strauss & Corbin, 1998, p. 143). Achieving theoretical saturation may be difficult, however, because "new" properties, dimensions and relationships can continue to emerge if the researcher commits to finding them (Strauss & Corbin, 1998). Due to this difficulty, Strauss and Corbin (1998) write that "saturation is more a matter of reaching the point where collecting additional data seems counterproductive; the 'new' that is uncovered does not add that much more to explanation" (p. 136). In addition to saturation, Seidman (1991) notes that the idea of sufficiency can be used to evaluate when enough data has been collected. The

hallmark of sufficiency is that there are "sufficient numbers to reflect the range of participants and sites that make up the population so that others outside the sample might have a chance to connect to the experience of those in it" (Seidman, 1991, p. 45).

Data Collection

Data collection and analysis for this study followed Charmaz's (2006) grounded theory model. In order to create grounded theory, the researcher must collect 'rich data,' or data that is "detailed, focused, and full" (Charmaz, 2006, p. 14). As a result, researchers using a grounded theory approach must use strategies for collecting data which illuminate "participants' views, feelings, intentions and actions as well as the contexts and structures of their lives" (Charmaz, 2006, p. 14). One strategy for collecting data that meets these criteria is intensive interviewing. This strategy is especially useful for collecting detailed data from people with relevant experience, as it allows "participants to describe and reflect upon his or her experiences in ways that seldom occur in everyday life" (Charmaz, 2006, p. 25). This study used intensive interviewing in order to allow county-level emergency managers to reflect on and discuss their experiences in mitigation in directed conversation (Charmaz, 2006), which gave them the opportunity to contribute valuable information about the role they have played during the mitigation process.

This study began in January 2019 after the research proposal had been approved by the dissertation committee, and the Institutional Review Board (IRB) had approved the IRB protocol, in January of 2019. The researcher collected data using telephone interviews. Participants were contacted to request their involvement in the study via email. They were sent an information sheet explaining the specifics of the project as an attachment to the invitation email. See Appendix B for a copy of the invitation letter and Appendix C for a copy of the

information sheet. Once they consented to be interviewed, appointments for convenient dates and times were scheduled with the participants.

To facilitate the interviewing process, the researcher used an interview guide. The main questions were developed to be broad and open-ended, so that county-level emergency managers could discuss their understandings of their experiences in hazard mitigation in an in-depth fashion (Charmaz, 2006). The interview guide covered emergency managers' background and experience, a description of the county in which they worked, their definition of mitigation, what their county had done to mitigate hazard risk, and their role in mitigation efforts. In keeping with a grounded theory approach, the open-ended and flexible nature of the questions in the interview guide allowed "ideas and issues to emerge during the interview and interviewers can immediately pursue these leads" (Charmaz, 2006, p. 29). Appendix D includes the exact questions in the interview guide. A list of follow-up and probing questions were also used to explore leads that emerged during interviewing. Appendix E contains a list of potential probes that was used as a guide during the interview process.

Interviews were recorded using a digital recorder. The researcher uploaded recordings to her personal computer. Interview recordings were transcribed soon after they were uploaded, and identifying personal characteristics of interviewees were removed using code substitutions. No one but the researcher and dissertation advisor was able to access the audio files, transcriptions, and codes. Recordings were deleted as soon as interviews have been transcribed, and transcriptions and codes were destroyed when they were no longer relevant. The final dissertation contains neither participants' identifying characteristics nor codes. Where quotations are included, the researcher has protected participants' identities to the greatest extent possible.

Data Analysis

In keeping with grounded theory methodology, the researcher collected and analyzed data simultaneously. During data collection and analysis, the researcher followed analytical steps offering "a balance between science and creativity" (Strauss & Corbin, 1998, p. 13). Specifically, the procedures used in analysis have provided the research process with structure and rigor, while also giving the researcher the ability to "extract an innovative, integrated, realistic scheme from masses of unorganized raw data" (Strauss & Corbin, 1998, p. 13).

The coding process was integral to the organization of data collected into a meaningful structure (Charmaz, 2006). Specifically, coding helped the researcher "define what is happening in the data and begin to grapple with what it means" (Charmaz, 2006, p. 46). Coding occurred in two phases: an initial phase and a focused phase.

The initial coding phase required close reading of the early interview data to identify "analytic ideas to pursue in further data collection and analysis" (Charmaz, 2006, p. 46). In this initial phase of coding, each line of transcription was examined and coded individually. Despite the seeming arbitrariness of a line-by-line coding protocol (as not all lines will contain information relevant to the research question), such an approach encouraged the researcher to "remain open to the data and see nuances in it" (Charmaz, 2006, p. 50). This line-by-line approach to coding also provided insights that assisted with further data collection, including refinements to probing questions during the interview process (Charmaz, 2006).

After initial codes were developed during line-by-line coding, they were tested using constant comparative analysis, in which data was compared in and across interviews to locate similarities and differences (Charmaz, 2006). Through a constant comparative analysis, the researcher developed a set of codes that were significant, and which repeat across the data. The

codes created through this process were further evaluated during the second, focused coding phase. This phase included comparisons of early and later data in order to determine the appropriateness of the initial codes (Charmaz, 2006).

This process resulted in focused codes, which were then used to filter and integrate information from the larger data set (Charmaz, 2006). Analytical categories were refined through the process of comparing data to the focused codes, which improved the accuracy of the codes with respect to the data (Charmaz, 2006). The researcher experienced non-linearity during the coding process (Charmaz, 2006). That is, when this process revealed new insights into the data, earlier data was re-examined to investigate issues that were initially overlooked (Charmaz, 2006).

During coding, analytic memos detailing emerging categories were developed and used in analysis. These memos included categories' scope, applicability, definition, and linkages to other categories (Charmaz, 2006). From the analytical categories developed through this process, memos were used for theoretical sorting, in which theoretical links were sought between categories based on an examination of their relationships (Charmaz, 2006). The researcher also used diagramming to develop theoretical links, which offered a helpful visual representation of the relationships between categories (Charmaz, 2006). During this theoretical sorting and memo writing process, quotations representing various emerging themes were selected and listed with other quotations representing that theme, and labeled with information identifying the interview the quotation came from using the interview number and position data. By listing quotations under their corresponding theme, the researcher could ensure that the information from the interviews was accurately represented and that the themes were found consistently across the

data. After this process was completed, similar response data were reduced, and all labels removed before findings were reported.

Ultimately, the goal of this study was to produce meaningful research findings. Grounded theorists have advanced a number of criteria to evaluate grounded theory research. These criteria include: credibility of both the research and the researcher (Charmaz, 2006); research originality and its resonance with and beyond the population studied (Charmaz, 2006); the usefulness of research findings and researcher interpretations to practice and academia (Charmaz, 2006); fit, work, relevance and modifiability with respect to the relationship between theory and data (Glaser, 1978); presence of dense and well-developed categories (Strauss & Corbin, 1998); variation that is either built in or explained (Strauss & Corbin, 1998); and information or guidelines for action that either explain phenomena, suggest directions for future research, or guide programs (Strauss & Corbin, 1998). These criteria guided the researcher's analysis during this study, and every effort was made to meet the criteria for a high quality study identified above.

Limitations

This study has some limitations. It is possible that the researcher's bias and effects on participants may have influenced this study (Maxwell, 2006), in part because researchers "construct grounded theories through past and present involvement and interactions with people, perspectives and researcher practices" (Charmaz, 2006, p. 10). At the same time, the researcher relied on "checks" described by Charmaz (2006) as part of grounded theory, which are designed to reduce the likelihood of misinterpreting or misrepresenting participants' perspectives. The researcher also solicited feedback from the dissertation advisor while the processes of analysis

and writing are ongoing, in order to identify any unrecognized assumptions or biases on the part of the researcher, as well as any logical fallacies (Maxwell, 2006).

Due to the low response rate, this study may also have been limited by bias (Chambliss & Schutt, 2006). A particular concern is that only emergency managers who are actively engaged in mitigation were willing to participate, resulting in data that is not representative of emergency managers as a population. The study was also likely limited in its generalizability because the proposed sample represents only three of eleven FEMA regions, and only fourteen states out of fifty. The researcher hopes that this study will provide an important foundation for future research on this topic, which may include other FEMA regions.

Conclusion

This chapter reviewed the qualitative methods used for this study. Following Charmaz's (2006) grounded theory methodology, an interview guide was used to conduct telephone interviews with 42 county-level emergency managers about their role in hazard mitigation. Grounded theory was also used as the methodology during coding and analysis of the collected data.

CHAPTER FOUR: FINDINGS

This chapter describes the main findings of this research from the 42 interviews conducted for this project. This chapter is organized into two sections. The first section details the key findings around the various roles county-level emergency managers played in disaster mitigation. The second section discusses possible explanatory factors around their described roles.

Allocation of Effort

By their own estimates, county-level emergency managers do not spend a great deal of time on mitigation. A few of the emergency managers interviewed for this study were mitigation specialists (n=3) and understandably spent the vast majority of their time engaged in the mitigation realm. However, for the generalist emergency managers (that is, emergency managers who were responsible for all phases of emergency management), the average percentage of time spent on mitigation was 26 percent, but the median was 13.75 percent and the mode was 5 percent. Although the average suggests that county-level emergency managers spend approximately a quarter of their time on mitigation—a percentage that would make sense given emergency management's four phases—the other measures of central tendency indicate that the average was affected by outliers in reported percentages. Indeed, at least two of these generalists considered everything they did to be mitigation, albeit their conceptualization of mitigation differed from the academic definition. If the outliers (i.e., mitigation specialists and generalist emergency managers who reported spending more than 75 percent of their time on mitigation) are excluded, the average percent of time spent on mitigation drops to 15.9 percent. These results might also be skewed by time allocation reports during years when the hazard mitigation plan was being written. A number of emergency managers (n=10) noted that the time they spent on

mitigation during the planning process was dramatically higher than the time they spent on mitigation otherwise. This suggests that county-level emergency managers are indeed investing at least some of their energies into mitigation—it is not being ignored—although they are not universally spending as much time in mitigation as the comprehensive emergency management framework might suggest they should.

Disaster Mitigation Role

Within that dedicated time commitment, participants in this study identified a number of role they may play related to disaster mitigation. These roles include a support role, an administrative role, a promoter role, a public education role, and a planning role. These roles are summarized in Table 4 below. In many cases, these roles were described generically, using language associated with the emergency management profession more generally. This section explores emergency managers' descriptions of their roles in disaster mitigation.

Generic Terms to Describe Role

County-level emergency managers did not necessarily view their role in mitigation specifically as distinct from their role as emergency management professionals more broadly—over a quarter (26%) relied on generic terms often associated with the description of the profession, e.g. coordination, facilitation, and relationship-building, to describe what they do related to the mitigation phase. An analysis of participants' use of these terms revealed that emergency managers seemed to have only a nebulous understanding of exactly how, and to what extent, the terms would be applied to disaster mitigation. Even when probed, many emergency managers struggled to clearly articulate what exactly they were doing to coordinate, facilitate, or build relationships and specifically with whom. For example, one county-level emergency manager said, "[T]hat coordination that comes with the role of emergency management, where

we just kind of coordinate things, and I think with mitigation it is just a good fit, because we do all that coordination already" (Participant 5). Another emergency manager, speaking about relationships, noted, "One of the things that is, again, building that network and having good relationships with your partners and your stakeholders" (Participant 29). And a third stated, "Our mission set is focused, centers around relationships, and being able to shake hands before a disaster happens" (Participant 7). It was clear that these emergency managers felt that in mitigation they should be, as in the other phases, taking some sort of actions related to the coordination and facilitation of activities, as well as the building of relationships—what was not as obvious, even after probing, was exactly how these generic functions were to be specifically employed in the mitigation context.

Table 4
Mitigation Roles Described by Participants

Role and Role Description	**Number of Participants**
Generic • Includes activities typically associated with the emergency manager role, like coordinating between groups and facilitating collaboration	N = 11 (26%)
Administrative • Includes paperwork, applying for and maintaining grants, locating and accessing resources	N = 30 (71%)
Support • Includes assisting partners, participation in mitigation processes (rather than running/being responsible for mitigation processes)	N = 10 (23%)
Promoter • Includes incorporating mitigation into other projects, reminding partners to consider mitigation, advocating for mitigation	N = 14 (33%)
Public Education • Includes hosting public meetings, attending community events to discuss mitigation, meeting with community groups about mitigation	N = 28 (67%)
Planning • Includes running a planning process, participating in a planning process, maintaining plan, following up on plan goals and targets	N = 37 (88%)

Support Role

Respondents did identify a variety of mitigation tasks and activities that were happening in their communities (e.g. buyouts, property elevations, facility retrofits, building code implementation and enforcement, levee/floodwall construction, planning). However, for the vast majority of these tasks and activities, many county-level emergency managers did not see themselves as driving these projects—they were not the primary "doers" of these mitigation tasks. Rather, almost a quarter (23%) of participants suggested that responsibilities for the completion of mitigation tasks and activities were distributed across a variety of departments and agencies within the local government, as well as other stakeholder groups, including private firms.

Emergency managers identified at least 38 different agencies or organizations involved in the completion of mitigation tasks and activities, specifically emphasizing the involvement of private businesses (n=9), the county floodplain manager (n=6), the state highway or transportation department (n=6), planning and zoning officials (n=6), nonprofits (n=5), and local hospitals (n=4), among others. Several county-level emergency managers, moreover, identified their role primarily as a support function (n=10). As summarized by one emergency manager, "We're a support function, so of course our engineers are involved, stuff like that, so they would probably be more of the lead on any physical projects, we would more be a support" (Participant 14). Another emergency manager helped paint a broader picture of what this support function looks like, saying,

> This office helped find the funds through the grant programs to help finance the projects, kind of provide project management, oversight, reporting as required with the grant, work through with the vendors to make sure that appropriate request processes were filed, help the communities, kind of a leader and guide to make sure that they were doing what they needed to do, because they don't deal with this kind of project very often. Help work with the property owners and the

> engineers on things such as the design of the structures, the maintenance and operations plans, finding the local matches for the grants to help offset the cost (Participant 36).

It was clear from the data that emergency managers considered themselves unable to complete the majority of the tasks and activities associated with mitigation, but rather their role was to support the efforts spearheaded by other offices or partners.

Administrative Role

Almost 75% of emergency managers indicated that they offered administrative support to county mitigation efforts (n=30). Almost half of participants identified the acquisition and maintenance of grants (n=18) as a way in which they contribute to the administration of mitigation activities. However, the extent to which respondents engaged in the grant process varied across jurisdictions with some playing a much larger role than others in the acquisition and maintenance of grants. It should also be noted that, in many instances, this funding acquisition was connected to preparedness activities, rather than mitigation activities. Within the grant activities of these 18 participants, for example, at least three specifically discussed applying for grants to acquire generators, two purchased communication equipment for their first responders, and at least one applied for a grant to install new tornado sirens, all of which are preparedness rather than mitigation activities.

For a few emergency managers (n=3), their role in this grant process was quite extensive, including identifying grants, completing grant applications, and being involved in grant administration. As one emergency manager stated,

> We help to facilitate the applications for the hazard mitigation funding, and then we will get involved in the actual project development, just helping to sort of look at strategically if the places where we're looking at doing these things are the places we're actually trying to target (Participant 37).

In other jurisdictions, emergency managers only engaged in parts of this process. There were some emergency managers (n=7) who simply advised their jurisdictions on grant availability and potential applications, but did not themselves complete or assist in that applications process. One emergency manager noted, "We can provide them with advice based on our past experience and our knowledge of these types of projects and programs" (Participant 36). Still other emergency managers assisted different municipal agencies in completing the applications for grants identified in those other agencies (n=3). For example, one said, "I'm here to help you do the application or help [you with] the application and all that other stuff as well as part of my job" (Participant 34). And, a few others went beyond assisting to apply directly for those grants (n=2). One participant explained, "For a lot of the grant funding, at the county, the county becomes kind of the pass through for many grants, so we have to apply for grants on behalf of the municipalities" (Participant 5). Certain emergency managers were also engaged in grant maintenance (n=4). One said, for example, "EM financed that to make sure that the grant was being tracked appropriately and that everything was staying on the timeline" (Participant 11). Regardless of the extent of their involvement in grant management, the importance of securing and maintaining grants was noted by many emergency managers.

Emergency managers noted a variety of types of grants, many of which were FEMA grants (usually Hazard Mitigation Grant Program grants (n=12) or Pre-Disaster Mitigation grants (n=4), whereas Flood Mitigation Assistance was only identified by one participant). Others also identified state grants (n=2) and other, more specific grants (n=7), like forestry grants that could be used for mitigation. Two participants also identified homeland security grants, and two identified Project Impact grants as sources of mitigation funding. One participant noted they had received a Severe Repetitive Loss grant, and at least two participants knew that they had received

mitigation grants, but did not know which program they had come from. In at least one case, an emergency manager reported there being too many grants and grant programs to keep track of, and trusting the municipal offices on whose behalf they would apply to locate grant funding.

About twenty percent of emergency managers also reported doing paperwork and maintaining documentation (n=8) as part of their mitigation work. The paperwork emergency managers reported doing was typically connected to an existing mitigation project in the jurisdiction. In several cases, the required paperwork pertained specifically to financial reporting (n=3), but in the others, paperwork was described more generically. For example, one emergency manager explained,

> I go, well, you need to get these people, you need this number of homes, and then I'll help them do the paperwork on that. So they do the legwork, but I'll do the paperwork, and that's really how it seems to be with a lot of this stuff, they want to do this stuff, they do the legwork and I end up having to do the paperwork (Participant 32).

In addition to filling out particular forms, these participants also suggested that gathering information and maintaining documentation related to potential projects was important. This was especially true for documentation connected to the receiving of grants or associated with ensuring that projects were eligible for funding through hazard mitigation plans. Documentation included taking photos and compiling relevant information. As described by one emergency manager,

> I had previously documented, extensively documented, damage that had occurred during floods in the city of XXX. So, when the time came to show the need for the project, my office had pictures and data and damage assessment information to couple with the city to basically make the narrative and make the case for the project (Participant 7).

In all cases, the completion of projects was dependent on emergency managers completing administrative tasks related to documentation and paperwork.

A final administrative task related to mitigation in which a few emergency managers engaged was the hiring of contractors to help complete mitigation projects (n=3). In one case, the contractor was overall responsible for managing one of the county's fire mitigation programs, while in the other cases the contractors were hired to fulfill a specific function in an existing project or program. For example, one emergency manager noted in relation to getting a fire station built, "I've been working with an architect from out of state, but he's built fire stations, so he knows how to work the paperwork to get it through" (Participant 6). The presence of these contractors further reinforces the supporting role played by the majority of emergency managers in disaster mitigation.

Promoter Role

Although respondents did emphasize their support role and did not generally report driving mitigation projects, a third of the emergency managers (n=14) noted they played a role in promoting either mitigation activities or the integration of mitigation into other projects. One emergency manager explained,

> [Mitigation] is not always heeded with as much gravity as we feel it should be, and so one of the things we try to do is work with our partners to make sure that they are thinking about hazards every time they make decisions about populations, development (Participant 12).

Another, discussing the importance of using partners to ensure mitigation is incorporated into other projects, said:

> An emergency manager's actual role is kind of the end-to-end engagement, the ability to walk into a room of land use planners, of climate change people, of environmental people, of public works people, and have a good enough and broad enough knowledge of hazards and the relationships between projects, and public projects, and regulations, and hazards that they can help push things toward that better track and help people do things more safely and securely (Participant 30).

Some emergency managers (n=6) specifically discussed the importance of providing a forward-looking perspective to decision-making related to mitigation. One emergency manager suggested the example, "Hey, it's quick to build the school, but can we build the school in a way that provides a community resource after a major disaster?" (Participant 12). Other emergency managers also emphasized the importance of making sure this perspective is present when working with partners doing mitigation-related work. For example, one explained,

> Mitigation is something that should happen in every phase, it should be something that is part of what we do in everything, and too often it ends up being opportunities for funding post-event, if you get the declaration. And you do the plan, all the municipalities do the plan, not to be forward thinking, and not to look for opportunities for growth, and the vision tends to be superficial (Participant 17).

Thus, while these emergency managers did not necessarily spearhead specific mitigation activities in their jurisdictions, they perceived that they had a role in championing the general cause of mitigation by threading it across community discussions.

Public Educator Role

Two thirds of the emergency managers interviewed (n=28) suggested that they had a role in educating the public about mitigation, including the need for mitigation and targeted mitigation strategies at both the household and community level. One emergency manager was quite blunt in their approach to education and outreach to the public: "As I put it, my job is to scare everybody" (Participant 24). Others described this role quite generally. One explained, "I think, primarily, we do education, we do a lot of outreach to people" (Participant 37). Others discussed the value of a public educated on mitigation, including one who said, "If you can use citizens that are concerned and educated and trained as a catalyst, then things happen" (Participant 31). Regardless, many of these emergency managers failed to robustly describe the

specific ways in which they were reaching members of the public in need of mitigation information, relying instead on broad and vague accounts of general public outreach efforts.

However, one tactic a few of the emergency managers described to educate the broader public was attending and participating in general community events (n=4). One emergency manager described a typical event, saying,

> With the public, we have a very well-attended county fair, and our office is out there every single day for, I don't know, six, eight, ten hours, I don't know exactly how long we're out there. And we engage the public in conversations about mitigation (Participant 9);

A few other emergency managers attended specific events or meetings in order to reach more specialized audiences, including particular interest groups, neighborhoods, church groups, or those who might be affected by a proposed project (n=6). One, for example, met with a condominium community that was investigating a mitigation project,

> We were in the process and so the county administrator actually asked us to go down and meet with them, that community, and we actually had like a little HOA, homeowners' association meeting, and we took the contractor with us, and they met with us, and we identified, or tried to talk through how mitigation works, and the whole process (Participant 41).

Still an additional few emergency managers described the virtual techniques and mechanisms their offices were using to disseminate information about mitigation to the public (n=3). For example, one explained,

> We really try and see what's going on on the emergency manager side, but even our planning department, here's a website, send us an email, here's a digital form, call us, here's names and numbers you can call and talk to a person. We really try to utilize technology, and we'll have a virtual meeting, or send us a video clip, or whatever you want to show us, because we don't have good turnout for face-to-face meeting anymore, so we're really trying to give them other avenues to give us their input (Participant 39).

Although in many cases, the education and outreach were clearly related to mitigation specifically, it is likely that, in some cases, the role being described pertained more to

preparedness than to mitigation. Several emergency managers, for example, discussed educating the public on resources they would need for survival after a disaster (n=7) or informing the public of the role of emergency management in the community more broadly (n=3).

Planning Role

Emergency managers consistently emphasized their role in the mitigation planning process. Of all of the activities they mentioned, it was not only the most frequently identified (n=37), but also described in the most detail. It is worth noting that mitigation planning, is arguably not even a mitigation activity at all, insofar as it does not itself reduce hazard risk, but it is discussed here because of participants' perception that it their involvement in this process is a key part of their role in mitigation.

In many ways, the planning role incorporates elements of all the roles discussed above: it is largely administrative in nature, it requires emergency managers to promote and to educate the public about mitigation, and it necessitates many of the generic and supporting functions emergency managers reported engaging in, including coordination, facilitation, and relationship-building. However county-level emergency managers went about the planning process, they nearly universally identified planning as being in their domain, unlike any other task or activity. This section will describe emergency managers' planning role as it relates to the planning process, compiling elements of the plan, and plan maintenance.

A number of emergency managers described their involvement in the planning process, including the procedural elements of completing the plan (n=9). Broadly conceived, one emergency manager explained, "[W]e coordinate planning, we assist [municipalities] with plan development" (Participant 37). More specifically, emergency managers described, "facilitating the conversation, bringing the plan forward so folks know what it's about and what it can do for

us, and why it's in place; making sure they understand its purpose" (Participant 18) and meeting "with the cities and villages to discuss their concerns and get an idea as to what projects they'd like to see" (Participant 36). Another emergency manager highlighted the importance of the approval process for mitigation planning:

> Obviously, the hard part on any mitigation plan is making it palatable enough to get adopted by the local jurisdiction, recognizing that it points to weakness and it points to things that need repair, and really in some ways it points to liability, but you're really saying we need to have the ability to harden these things long-term, so we need to be holistic in how we do it (Participant 8).

Other emergency managers discussed special circumstances in which changes to the plan needed to be made ("I had to convene special public hearings to be able to do an amendment to our plan" (Participant 7)), and frustrations with parts of this process:

> Just right now, we were trying to upload our finances to the shared portal that you're required to do, and oh, by the way, the format of our plan doesn't quite fit so we've got to reformat the plan again and change it so it would fit into the portal (Participant 28).

Regardless of exactly how the planning process was structured, logistics associated with planning, including setting up meetings, arranging communications, liaising among different partners, and information gathering, was an element of planning that many county-level emergency managers (n=10) described as part of their role in planning. As one emergency manager said, "I pool our resources and advise them as to what meetings we need to get everybody together and I come up with the master plan on how to achieve our goals and what the goals would be, and now I'm working with the different groups letting them do the work to achieve the goals" (Participant 38). Another said,

> I did a lot of footwork for [the contractor], we had to set up a meeting place to meet with all these people. And of course, there's privacy, I had to make sure it's some private area where we could go and discuss things. And sometimes communication was a factor, because they couldn't speak English, so we had to get translators in there. So that was a role we played (Participant 4).

Emergency managers also described their role in helping to compile components of the mitigation plan itself. The two major sections emergency managers described were hazard and risk identification (n=5), and goal and strategy development (n=3). With respect to hazard identification, one emergency manager said:

> We did our whole process, all the public meetings, went through I'll call that a mini-THIRA [threat and hazard identification and risk assessment], but they wanted us to rank everything, put numbers to it, we kind of went through a THIRA process for top ten hazards in the area (Participant 32).

Other emergency managers discussed the development of mitigation goals and strategies: "We come up with our new projects and goals for us to meet for the next five years" (Participant 27). Although a few emergency managers noted writing other parts of the mitigation plan, these were the two most common components, as well as the two most important components of the plan overall.

After the plan itself is completed, emergency managers continue to maintain it, by checking in with planning partners and ensuring that plan timelines are being followed (n=9). One county-level emergency management department developed a program for plan maintenance:

> We started establishing something called a plan to project pipeline, which involves, we go out and give them a workshop, as soon as they finish their plan, we establish a workshop with their planning partners to start converting some of their strategies into projects (Participant 30).

Another emergency manager described a somewhat less structured plan maintenance process:

> We do an annual report, so sometime around the beginning of October I'll send around to the municipalities and the university, a list of, a copy of the goals and objectives and their projects, and find out what the status of their projects is and what they have done to, during the year, for those goals and objectives that were identified through the planning process. We've used it in a way to do our annual

> check-ins with our mitigation plan, as to how people are doing on the action items they had identified during the planning process and see if they've identified any others that have popped up since or finding after an event, what kind of… What sorts of damages have occurred and what sorts of mitigation projects we can bring to help prevent those sorts of damages in the future… As they take on projects oftentimes it'll just be a quick check-in of hey, we're doing the thing, it's going to be, or, usually a major thing like if it's a school district, hey, we're looking to, we got this bond levy and as we develop new schools we're looking to bring in better mitigation principles into those schools so they'll be able to be a shelter site after an earthquake (Participant 25).

Although plan check-ins were reported multiple times, some emergency managers emphasized that they did not necessarily expect municipalities to complete projects that were listed in the plan (n=4). One said, for example,

> As far as the planning, I think sometimes [municipalities are] reluctant to put a project in there because they're concerned because they think if it's written in the plan they have to do it. We try very hard to emphasize that, because you list it in the plan, it doesn't mean you have to do it, it means you'd like to do it (Participant 36).

These emergency managers noted the importance of maintaining the plan, even if it did not result in more mitigation. The reasons county-level emergency managers engaged in a planning role, and the reasons they engaged in the other roles described here, will be described below.

Emergency Manager Characteristics and Role

Although a number of common roles emerged from the data, only one participant reported being engaged in all of these roles (Participant 36), and others reported being engaged in as few as one (Participants 1, 2, and 25). Characteristics of participants and their counties, including county size, emergency management staff, years of experience, education, and background were investigated to determine whether these may have affected the roles that were reported. To do so, each participant's reported county size was coded as small, medium or large; their staff size was coded as having more than one staff member, having one full-time staff member, or having one part-time staff member; their reported years of experience were recorded;

their education was coded as having a graduate degree in emergency management, having an undergraduate degree in emergency management, having relevant educational experience, or having no relevant educational experience; and their background was coded as first response-related, or other (the remaining participants had only worked in emergency management). The researcher did not run any statistical analyses to examine the relationships between these characteristics and reported roles, however a visual investigation of this data did not reveal any relationships or patterns.

Explanatory Factors

Chapter Two presented a hypothesized grouping for explanatory factors – municipal factors, including leadership and government characteristics; community factors, including community support and hazard profile; and external factors, including resource availability – however, this research suggests a somewhat different grouping schema. The factors that explain emergency manager role based on the findings of this research would instead include conceptual confusion, response and preparedness orientation, financial resource factors, funding requirements, planning requirements, additional resource factors, competition between mitigation and development, resistance to mitigation, and engagement in mitigation. This section will discuss these categories of findings in more depth.

Conceptual Confusion

When asked to define mitigation, participants' definitions provided some insight into how they conceptualize the roles they play, and the activities they consider to be mitigation. Mitigation, as defined in Chapter 2, refers to "sustained action to reduce or eliminate risk to people and property from hazards and their effects." Two critical components of this definition, sustained action, and risk reduction or elimination, were absent in either all or many of the

definitions provided by emergency managers. Of the 31 definitions provided by participants, none referenced sustained action, and more than half (n=17) did not reference risk reduction and/or elimination. Instead of risk reduction or elimination, a number of participants discussed impact reduction instead, which is conceptually related but distinct (n=12). The remaining definitions, i.e. the five that failed to include reference to sustained action, risk reduction/elimination, or impact reduction were either confused (for example,

> Mitigation, to me, it starts from prevention to providing a service during a disaster and continuing to provide that service after that disaster, and to plan, to have a plan, implement the plans, and once you get through with the disaster, after action report, see what you can do better, see what you need to improve on, what other resources we may need, identify those and make improvements in case we have another disaster (Participant 15)),

or were describing a different concept, like resilience (for example, "I could quote a textbook but I don't want to do that. I'd say, to help adapt to the environment" (Participant 1)). A complete list of definitions is included as Appendix G.

Although many of the activities emergency managers discussed as being mitigation activities did, in fact, constitute mitigation, many were instead preparedness activities, and in some cases, recovery activities. For the purposes of this project, preparedness may be defined as,

> A dynamic state of readiness that is dependent on context and the process of completing the activities required to effectively take immediate action to save lives, property, and/or the environment; and to effectively restore, reshape and rebuild the parts of life impacted by disasters (Nojang, 2015),

and recovery defined as, "a differential process by which individuals and households, organizations, and jurisdictions seek to restore, rebuild, and/or reshape that which has been directly or indirectly impacted by a hazard event through pre-event planning and post event action" (Montano, 2017). It is possible that the fact that the definitions emergency managers

provided differed significantly from the definition scholars have agreed upon affected the activities they considered mitigation.

Some of the activities that the researcher would consider to be preparedness or recovery rather than mitigation include acquiring generators (n=11), distributing weather radios (n=4), and doing damage assessments and debris management (n=2). Mitigation seemed to be most often confused with preparedness (n=14), and only occasionally with recovery (n=2). Exemplifying the confusion between preparedness and mitigation, one emergency manager said, "When they have a car kit, when they put stuff in their car to be more prepared in case of an emergency, they're mitigating the effects of something that they might not have full control over" (Participant 9). Another said, "They're preparedness and part of preparedness, like I said, is education, which is mitigation" (Participant 5). The activity misidentification illustrated above suggests that county-level emergency managers may not understand mitigation well enough to engage in it as comprehensively or as actively as scholars might hope. It also suggests that county-level emergency managers were doing even less mitigation than they reported, because at least some of the activities that they included in their time allocation estimates do not constitute mitigation.

Only a few emergency managers (n=4) identified education or expertise regarding mitigation as important, but the conceptual confusion highlighted above suggests that emergency managers are not, in fact, well educated in mitigation. Without understanding mitigation either conceptually or in practice, county-level emergency managers could not be expected to value or know how to drive mitigation. One participant noted that many emergency managers they had encountered were insufficiently knowledgeable about mitigation,

> And we certainly need to educate our emergency managers differently about the value of mitigation to the programs, and I don't recall ever seeing any applicant

> for a position or for an internship ever reference any knowledge of hazard mitigation (Participant 17).

Another, echoing this sentiment, remarked that they did not necessarily have the experience or expertise necessary to engage in mitigation,

> I think that's been part of the problem, is the fact that there's this expertise level that everybody wants you to be at, or you should know how to do this. Well, you gotta remember, this is the first time for me too so I don't know all the answers (Participant 32).

The deficits emergency managers demonstrated in understanding and education of mitigation helps to explain the limited role that they reported playing.

Response and Preparedness Orientation

Another factor that seemed to limited the extent of county-level emergency managers' involvement in mitigation was the response and preparedness orientation they and their departments exhibited. Participants varied considerably with respect to the extent of their response and preparedness orientation, and none specifically articulated that they felt response and preparedness were more important than mitigation. This orientation was, however, demonstrable in statements they made. For example, one emergency manager, describing the amount of time that they spend on mitigation, said, "Unfortunately, it's very low, just because of being one person and having other projects that take priority" (Participant 20). In describing their experiences in the introductory part of the interviews, emergency managers were more likely to discuss their response functions and activities (n=15) than their mitigation functions and activities (n=4).

The way county-level emergency management departments were structured also contributed to a response and preparedness orientation. One emergency manager, whose office was located in a fire department rather than independently operated, said,

> I'm a very strong proponent of never having emergency management under any other operational agency, like a response agency. And in Virginia, the average office is going to be under fire. And that really does, the perspective skews that way. You go, we put the water on the fire and we drive the injured to the hospital, and then we go back, and we're done! We clean up our equipment, we restock, we're ready for the next one. And I think that long-term perspective is severely limited when it's under an operational agency (Participant 17).

Of the 42 participants in this study, 13 reported that their department was located within a first response agency. Even though many of these emergency managers were not dissatisfied by this arrangement (n=10), the frustration expressed by the emergency manager quoted above reinforces the importance of those who have some influence over the mitigation process understanding its value. If emergency managers are housed in agencies that do not recognize that emergency management is more than preparedness and response, or if emergency managers themselves do not recognize this, it follows that they would play only a limited role in mitigation.

Financial Resource Factors

One of the most commonly cited reasons emergency managers articulated for not spending more time doing mitigation was the absence of resources, especially financial resources (n=28). One emergency manager, for example, said, "There's some things, mitigation-wise, I think the county could do, but it's the funding that's the tough part" (Participant 3). These participants alluded to the fact that, in contrast to many response, recovery and preparedness activities, many mitigation projects and activities are capital-intensive and expensive. Although structural mitigation is obviously costly, other mitigation activities, including code enforcement, can also be expensive. Especially in poorly-resourced government contexts like low-population rural counties with small tax bases (n=3), without access to outside sources of funding, mitigation may simply be unaffordable. Because funding for mitigation is so limited, and

mitigation itself is so expensive, it follows that county-level emergency managers would spend a significant amount of their allotted mitigation time engaged in fund-seeking activities through their administrative role.

Although some funding for mitigation comes from county and municipal budgets, including matching funds, many mitigation projects are funded by FEMA. Emergency managers from smaller counties described difficulties they had had in accessing this federal funding. In reference to this challenge, one emergency manager said, "I'll tell you where [federal mitigation funding] is going, it's going to the communities that can afford to do [mitigation]. I get that. If they can afford to do that why wouldn't they? I wouldn't sit there and not take the money!" (Participant 7). Another emergency manager from a small, rural county echoed this challenge, saying,

> And as a smaller population it seems like it's kind of difficult to, because you've got to have a cost to benefit ratio, and without the population, it's hard for them to justify, probably, the cost to benefit ratio for you (Participant 23).

As this emergency manager explained, funding mitigation projects in these smaller counties may be unappealing for FEMA, because associated cost savings may not be as high as in larger or more densely populated counties.

Several participants struggled to finance non-flood mitigation projects specifically through FEMA (n=4), in spite of the fact that flood mitigation was not appropriate for their community. One emergency manager explained,

> FEMA, when they come out with the pre-disaster money, it's pretty much, they know where they'd like to see that spent. For elevation or acquisition of properties, to get things out of floodplains. The notification type systems and stuff, that's been challenging, is the best way to put it. We've been able to do certain things so far with some creative funding sources, to try to get this moving forward (Participant 25).

Although emergency managers still engaged in their administrative role to attempt to access this funding, the limited availability of that funding, and the restrictions associated with it, helps to explain the small percentage of time allocated to mitigation and the limited role of county-level emergency managers in mitigation.

One source of financial resources for mitigation was eligibility for federal funding following disaster declarations. A few emergency managers (n=3) discussed this mitigation-related disaster effect. One emergency manager, for example, explained,

> Well, as luck would have it for you, anyway, having had numerous federally declared disasters, one of the benefits, if you want to call it that, from having disasters, is there's hazard mitigation money after the event, some percentage of what the total damage was in your county. And over the years, we've had several projects that have significantly reduced the impacts that flooding has (Participant 24).

In these cases, the administrator role county-level emergency managers play was central to achieving mitigation. Conversely, without having had a hazard event, emergency managers were limited in their ability to access funding. One noted,

> It's fortunate that we don't have great flooding issues, but on the other hand, if we did, it would give us something to go after. I live in the county next door, and there's a little town that flooded numerous times, and they have gone after mitigation money to buy housing and knock it down and make green space, that kind of thing… But we just don't have that kind of repetitive issue here in [my county], which is a good thing, but it takes those big mitigation projects off the table (Participant 34).

Even in the absence of access to FEMA funding, it seemed that county-level emergency managers could still access money and other resources from nontraditional sources. A few participants (n=3) described seeking funding from federal agencies other than FEMA to supplement their mitigation resources. One emergency manager said,

> But I take the resources that I've got and I do the best that I can do with them and I get a lot of things done. And I'm a big one on using other people's resources. If I

> can get something out of the forest service or the BLM or whatever, I'm not hesitant at all about using their resources (Participant 38).

Other respondents looked for local sources of supplemental resources (n=6), including working with state or county partners to locate funding and other resources that could be useful, benefiting from some of the generic coordination, liaising, and relationship-building activities several of them described. One emergency manager explained their experience, saying,

> The big urban areas are getting all the funding, you know, we're not. For us to get funding, we've done creative things here, with other grants and stuff to get some of these projects taken care of. I've been very impressed with some of these municipalities, go-get-it type thing, to get projects done, where they use some, save up and use some of their own money, use people to dig up the road and put in bigger culvert pipes to help move water along (Participant 25).

The limited funding available for mitigation prevents county-level emergency managers from being more engaged in mitigation. However, the need to access this funding likely drives the administrative role that they play.

Funding Requirements

Many emergency managers reported struggling to meet federal and state requirements in order to access funding (n=17). What exactly was required varied by state, but for at least one respondent, requirements were so time consuming that they simply did not have time for mitigation. This emergency manager described all the tasks they had to complete in order to continue receiving state funding, saying,

> I am required to do and jump through a lot of hoops with emergency planning, training, exercising. I now have to exercise all 32 core capabilities that the federal government has identified, I have to exercise all 32 within a four-year timeframe. So I have to exercise, not the agency, me personally, I have to exercise eight core capabilities each year. In between maintaining the emergency operations plan, maintaining the hazard mitigation plan, maintaining the agency inter-operability communication plan, I have to do all of this. I have to do mitigation, I have to do preparedness, response recovery, and prevention. I have to do all these things. Not to mention, because I'm full-time, my county feels like, well, you know, there's emergency management stuff to do, but a lot of people don't have full-time

> emergency managers, so you also need to do the website, you need to do our social media, information management, you need to do asset management, insurance stuff, you pretty much need to do all of it (Participant 7).

Others described challenges meeting the requirements of specific programs, including funding programs (n=8). The challenges participants faced differed by funding source, state, and project type, but included having to expend resources to do research that supports project applications. One emergency manager explained,

> When we speak directly about our mitigation plan and the funding that's put behind it, the pre-disaster mitigation funding and the environmental historic preservation research that has to go into any one project, those are big barriers (Participant 18).

Another specific challenge with some federal funding programs is that, to receive funding, applicants must demonstrate historical losses; whereas in many cases, applicants may be aware that a mitigation program or project is necessary, even if no losses have occurred (n=3). One emergency manager said, for example,

> They want historical data, so even if there's nothing that historically has impacted a certain structure, but you know that it could be, you're trying to prevent it from happening, there just is no, the funding, there's a grant opportunity, but they are kind of stringent on their criteria and their competitiveness (Participant 20).

County-level emergency managers facing these specific structural challenges might still engage in their administrative role to try to access this grant funding, but their frequent inability to access it functionally limited their involvement in mitigation.

There were several additional challenges participants noted regarding meeting FEMA or state requirements. Sometimes these were relatively minor ("I was finishing up an MBA and I never got officially certified because I didn't have time to take Creative Budgeting. It was kind of absurd, but nonetheless" (Participant 17)), but many created significant barriers to engagement

in mitigation (n=6). One emergency manager, discussing ever-increasing regulatory requirements, said,

> I mean, literally, these towns operate off hardly nothing. And the state continues to take more out of us. And the federal government along with the state government continues to put more regulations on us. I don't see how it works in the long-run (Participant 7).

Other emergency managers noted that what may work for the average county is inappropriate for their county (n=3). In these cases, emergency managers acknowledged that mitigation requirements may have value, but they were difficult or impossible for their communities to fulfill. One such emergency manager explained,

> Being a rural county, our resident population, you know, of what we have, the funding is just not there. I got municipality that's got 56 people living in it. And there's, they have two roads, that's it. They don't have a building, they don't have equipment, they don't have anything. But yet they're still supposed to do everything like everybody else (Participant 25).

Planning Factors

Although there were numerous challenges to acquiring funding for mitigation, participants noted that it would be impossible to access federal funding at all without having a state- and FEMA-approved mitigation plan. In fact, the reason many emergency managers gave for the value they placed on the mitigation plan is the relationship between maintaining an approved plan and access to state and federal funding (n=13). One of these emergency managers explained, "Every county in the state has to have this MHMP [multi-hazard mitigation plan] because if you don't, you don't get funding" (Participant 16).

How, and the extent to which county-level emergency managers were engaged in the planning process was associated with how this process was organized, which in turn was explained by planning-specific resource factors. Those most engaged were the emergency managers whose county negotiated the planning process independent of a contractor, followed

by emergency managers whose county hired a contractor to direct or assist with their planning process, followed finally by emergency managers whose county participated in a regional planning process. Those who ran the planning process independently generally did so because they had sufficient staff resources. In contrast, those who lacked these staff resources, but, in many cases (n=8) had access to specific grants, hired contractors in order to lead this planning process. The final group, those who participated in a regional planning process, lacked the resources to run their planning process independently, but were located in a region with an active planning group.

Of the emergency managers interviewed for this research, a minority were in counties which completed their mitigation plans independently (n=9). Half of the emergency managers interviewed for this research, however, reported using a consultant for at least part of their planning process (n=21). There was a continuum of involvement in consultant-led or -mediated planning processes for study participants. Of these, several (n=8) reported having the consultant run the entire process, but may have provided information about the community or hazards as requested. Other emergency managers who hired consultants emphasized that they continued to play a meaningful role in the planning process (n=11). For example, one emergency manager described their role in a consultant-led process:

> We normally hire a contractor to go through the [mitigation planning] process with us, and they have several meetings where we go over what did we have previously, what are our needs, are there any gaps, provide a full updated information of, like, how many flood events did you have, how many tornadoes from the last one, and then we sit down, and as a region we come up with, we go over the hazards, and when they put them into the program they go, is that accurate? (Participant 27)

Still other emergency managers hired consultants to assist them with part of the planning process, but ran the majority of it themselves (n=2). Finally, a few emergency managers

participated in a regional planning process, rather than conducting such a process for their county specifically (n=4). One such emergency manager explained, "Other than being one of the members at the table when we're updating [the mitigation plan], I don't head that" (Participant 24).

Although the planning mandates that help ensure that all, or nearly all, jurisdictions have hazard mitigation plans, has some obvious advantages, there is arguably at least one major downside. Namely, a few emergency managers reported undertaking mitigation planning processes in order to be eligible for grants, rather than with the intention to actually implement any of the projects or programs described by the plan (n=3). To this point, one emergency manager said,

> There's a default position, in order to create a plan that sufficiently addresses enough of the requirements to be eligible for hazard mitigation grants, has a declaration. So what happens is that the minimum becomes the maximum for too many of us (Participant 17).

In spite of this objection to having emergency management funding tied to mitigation planning, the consensus of participants in this study was that there was too little federal funding available, this funding was too difficult to access, and the mechanisms associated with accessing this funding were too complicated.

Additional Resource Factors

Many emergency managers, especially in small counties, reported insufficient staff resources to do as much mitigation as they would like to (n=8). Seven of the participants in this study worked in one-person offices, and four of these were only part-time emergency management employees. For these emergency managers, there simply were not enough hours in their work day to do mitigation in addition to all the other duties they were responsible for. One emergency manager in such a situation said, "So for me, [I wish] I had a partner who could just

go run around and talk to these people all day, let's do this! Let's do this! Yeah, I'll clone myself, you go do this, and I'll do this" (Participant 32). A few emergency managers were also affected by insufficient municipal staff or other municipal resources (n=3). One participant discussed their frustration with the technological and personnel difficulties they faced when trying to do basic mitigation tasks,

> When we get the notice of the application time period for grants, getting that out to everybody. Here's another thing, they do them online now, before you can apply online you've gotta take a class. My municipalities, I'm going to say probably at least a third, that's never going to happen. It's just, they're just not that type of skill level. So, that, while doing that on the computer is nice, then we need to do something to provide some help to areas that don't have those abilities, either through internet and/or the skill set for the people there that do it. A lot of the secretaries here are in their sixties and seventies. I just got one, I got one municipality that finally got a computer (Participant 25).

These non-financial resource limitations likely also contributed to the relatively small amount of time county-level emergency managers spent engaged in mitigation. Although not explicitly stated, emergency managers in counties with large emergency management staffs and access to adequate technological resources were apparently engaged more often in mitigation activities.

Competition Between Mitigation and Development

In addition to lack of funding and other resources, county-level emergency managers also had to contend with municipal and community priorities that compete with mitigation, especially development and economic concerns (n=8). One emergency manager, for example, said, "[There is a] fundamental disconnect between planning and development and hazard mitigation/emergency management" (Participant 30). Although distinct from lack of access to resources, this particular challenge may result from mitigation's incompatibility with either maintaining or expanding the community's tax base and financial position. One emergency manager explained how this may happen as a result of buy-outs: "They're losing that massive tax

base because so many of the homes are gone now [due to buy-outs]" (Participant 14). Another emergency manager discussed a related conflict between mitigation and development:

> The issue is, I mean, let's face it, if we're really talking about mitigation and alleviating a life hazard along the coast line, letting people build multi-million dollar homes along the beach is not the right way to do it (Participant 41).

This problem was exacerbated by the presence of developers in conversations about mitigation. One emergency manager, for example, described how developers could dominate these discussions,

> Right now, the largest voices in our community are the developers, and they, even with this last thing, they like to sell stories, like, oh that will just make property more expensive! And when they're the only one shortcutting, so a resident then can't get water, fuel or anything delivered because they've built this substandard road, but don't have a large voice that likes to spark outrage when those bills come up, and then, so sometimes it just takes, well this is what it really is, and, it's like social media, you know, it's, sometimes the loudest voices are certainly not the most educated or intelligent. Got to counteract that (Participant 31).

Counteracting these development and economic pressures likely requires the deployment of the promoter and public educator roles by county-level emergency managers.

Resistance to Mitigation

In addition to financial and development challenges, emergency managers also discussed the presence of resistance to mitigation in their communities. There was by no means universal resistance to mitigation efforts. Some emergency managers (n=5) felt they had strong support for mitigation. One of these said, "We have an, we're just so lucky, we have an incredible amount of credibility with all our communities, with everything that we do" (Participant 29). Few emergency managers reported active opposition (n=3), but in some cases there was resistance (n=12) to mitigation generally or specific mitigation projects. A number of participants (n=6) described their constituents as "libertarian," or as generally opposed to government projects,

which they might perceive to interfere with their lives. One emergency manager who experienced resistance like this said,

> Generally, there's support, but in a rural county like this, there's always some portion of the county that resents that federal government involving themselves in the business, and these rural areas, they're more of a survivalist type element, and want to take care of themselves, very independent and feel like the government is imposing if they take money, then they're obligated to the government, which is not the case in most cases (Participant 38).

At the same, time, some of these county-level emergency managers (n=4) described how educating the public, via the public educator role, about mitigation could change these attitudes. For example, one emergency manager highlighted one potential benefit associated with engaging in public education: "We help create the champions with our neighboring communities so that they have that assistance when they don't have time to focus on it" (Participant 12).

In a few cases (n=4), resistance to mitigation took the form of litigation against the mitigating jurisdiction. Actual or potential lawsuits discouraged mitigation in some particularly litigious counties. One emergency manager described their experience with mitigation litigation,

> It's interesting for a jurisdiction, and I can tell you, in the last ten years that I've been here, we have been sued five times at least for things that we did in the form of mitigation to benefit somebody's property's safety and integrity. And some years down the road we end up getting sued because of it. And it's like, well, ok, but your property was even worse before we did the good thing to benefit it. So we have been bitten many times for doing mitigation actions too. We think we're doing the right thing when we move forward with a project, and then somebody comes and sues you for it later (Participant 8).

In some cases, these difficulties may lead county-level emergency managers to engage in their promoter role, but in the case of this study's participants, they led emergency managers to disengagement with the mitigation process. For example, when asked if they would consider trying to promote mitigation in such a context, one emergency manager said, "We identified

[mitigation] and made mention of it [through our mitigation plan], but for me to go out and push the issue is probably not something that would happen on a normal basis" (Participant 41).

Some participants (n=8) also noted that there was confusion about what mitigation was among the community, which could also create animosity or resistance to mitigation. One emergency manager noted, for example, "I think the big one is really trying to get people to understand what mitigation is" (Participant 32). At least two emergency managers described community confusion specifically regarding parks that were designed to be flooded. One outlined their frustration with this experience,

> Probably the biggest challenge that we run into has to do with people not understanding why we do mitigation. So every spring, without fail, I listen to the radio, and somebody calls in and says, this million-dollar park we built in the last year or two is under water again, for the umpteenth time, why did we invest all this money in something that's under water again (Participant 22).

When community members are ignorant of mitigation and its benefits, it may be challenging to convince them to approve new mitigation projects or programs. Again, however, by taking an education role, emergency managers reported being able to assuage some of this misunderstanding or hostility toward mitigation. For example, one emergency manager, who fielded similar questions about a flooded park, described their experience educating the governor of their state about mitigation:

> They took land and made it a city park, so [the river] would flood that. Now, ten years later… and this is how I met the governor, I had the governor show up at my office going, I'm getting calls about the city park flooding, you're doing nothing about it, and it's like, well sir, it was designed to flood, that was part of the mitigation plan that we did to save the town. And he looked at me and turned to his aide and said, is that true? And he goes, yeah, sounds good (Participant 32).

Although public education may not always result in such a simple and satisfying conclusion for county-level emergency managers, it can be a useful tool for overcoming confusion about mitigation.

Local government officials may also misunderstand mitigation and mitigation programs (n=4). If politicians and other officials do not understand the value of engaging in mitigation, they may not be willing to commit political capital to promoting mitigation projects. As one emergency manager explained,

> They're just not familiar with the programs, they're, most of these elected officials are part-time people with full-time jobs and other things going on that taking on this work is not something that they do all the time and they probably don't have the opportunity to familiarize themselves, do some of the research, so they tend to rely on folks like myself to kind of be that guidance for them (Participant 36).

In one extreme example, a local government simply refused to participate in mitigation or emergency management initiatives. This emergency manager described this situation,

> Like, one community said, you know, a certain amount of staff time count towards your totals for the declaration and they said, "nope, we're not going to put that in there. That's just our city's policy that we do what we need to do to take care of our community during an emergency and we're not going to put in for that." And we were like, "but do you understand that counts towards our total." So that was a back and forth and they said "nope. We're absolutely not going to put that number in the city's total" (Participant 9).

Although this behavior was not reported by many participants, it reflects the fact that county-level emergency managers may engage in mitigation only at the discretion of the jurisdictions in which they work, and the local governments they work with may be more or less cooperative.

In response to confusion and misunderstanding from local government officials, emergency managers also reported deploying their educator and promoter roles. One emergency manager, for example, said,

> You know, my elected officials up here, I'm going to say, average age is probably 68 or 69, I still have a lot of those that didn't even graduate grade school, so I try to write the plan on a sixth grade reading level. They really, when you meet with them, their basic thing is, tell us what we need to know and what you need us to do (Participant 25).

Even when emergency managers knew that education and promotion was necessary to accomplish mitigation in similar situations, it was not always possible. One emergency manager said, for example, "They just don't understand the paperwork and the cost of that, and sometimes I just don't have that time to go out and teach them" (Participant 32).

Engagement in Mitigation

Another factor that county-level emergency managers must navigate in mitigation is the extent of engagement or buy-in exhibited by various community stakeholders. Buy-in reflects the community's support for mitigation, whereas engagement refers to the extent to which the community is aware of and interested in mitigation. One dimension of this factor is political buy-in. When local elected officials focus on the politics of mitigation (n=6), it can limit the extent of engagement in it. For example, one emergency manager discussed the focus some politicians place on the financial consequences of mitigation:

> But the other stuff that we try to do they do not, it's just harder to get more of a buy-in, because they don't see the, not the value, but they want to see their dollars be put to good use, especially politicians (Participant 26).

The broader community's relationship with mitigation may also affect emergency managers' ability to play an active role in it. One emergency manager, emphasizing the importance of this dimension, said, "[T]here has to be local involvement, and local buy-in, and I think that's where a lot of efforts fail" (Participant 31).

Some emergency managers were satisfied with the amount of engagement in their communities (n=3). Describing their county, one such emergency manager said, "It's a really proactive community. I can see that other communities may have issues, but everyone in XXX is just very involved" (Participant 11). Many others, however, were frustrated by an absence of engagement or interest in mitigation (n=13). One emergency manager, describing part of their

planning process, said, “Part of the mitigation plan, we have to have a public meeting where we show our mitigation plans. The ones we did four years ago, nobody came to, at all. Not a single person” (Participant 5). In order to defray this lack of engagement, some emergency managers embraced their public education and promoter roles, to mixed success. For example, several emergency managers (n=4) noted that they had taken all FEMA and state-recommended steps to increase turnout at public meetings, but they continued to experience low levels of engagement.

Engagement may also be affected by the experience of hazard events. Several participants reported that their communities were interested in mitigation only in the wake of a hazard event (n=7), whereas they were apathetic about mitigation otherwise. One emergency manager said, “It seems like they’re only interested if there’s a disaster” (Participant 14). Another described a specific incident that motivated action in one of the municipalities in their county,

> So they get kind of complacent. In fact, XXX, who had a tornado in 1981, their tornado siren does not work. And I’ve been after them for two years to get their radio fixed, and they’re dragging their feet. Now, with the tornado outbreak in XXX that we’ve had, they’re all like, well what about my siren! (Participant 34).

Although this represents a challenge in many cases, in instances where county-level emergency managers could effectively capitalize on their promoter or public educator role, they could use this post-disaster time to encourage their communities to implement mitigation. One emergency manager, for example, described how they use their public education role following a disaster to encourage mitigation,

> If you can plan, and you can educate people on what to do, what not to do, warnings, everything, I think that sort of mitigation has been our most successful, if you tie it and do mitigation after the disaster. I think that is probably the biggest thing that we had, is people saying, ok now, we had that tornado warning and the sirens went off, and we heeded that, we went into the basement and look, this tree was through the living room (Participant 5).

Relatedly, county-level emergency managers reported that most mitigation projects are for hazards with high salience; that is, hazards that people are most aware of and concerned about (n=12). One emergency manager explained how mitigation projects in their community tended to be tailored to low-impact, high-frequency hazards, rather than high-impact, low-frequency hazards:

> So I just think that's something that's interesting to note, that I think people, at least in my experience with my colleagues, they tend to tailor their mitigation activities around what I'd call the usual suspects, and don't really put a lot of energy into really addressing the really worst-case things, because, going back to what I started with, it's really hard to get policy makers to fund something that may not happen in the next 50 to 100 years (Participant 37).

In order to overcome this challenge, county-level emergency managers had to engage in both their public education and promoter roles. One emergency manager noted that they work to do this in their community, explaining,

> I want to know what risk is going to look like 100 years from now, or fifty years. I want to be able to tell somebody, if you want to build your house to be here in fifty years, you need to adopt a plan of resilience standard, not a current code. And not just encourage people to think about it in terms of building up to the current code, but also to think about it in terms of your resilience standard (Participant 30).

Conclusion

This chapter has summarized the findings of this research. It was revealed that although emergency managers do not spend a great deal of their time on mitigation, they play several distinct roles within mitigation. These roles are: a support role, an administrative role, a promoter role, a public education role, and a planning role. It also discussed factors that may help explain these roles, which include: conceptual confusion, response and preparedness orientation, financial resource factors, funding requirements, planning requirements, additional resource factors, competition between mitigation and development, resistance to mitigation, and

engagement in mitigation. The next chapter will discuss these findings in the context of the mitigation literature and emergency management broadly.

CHAPTER FIVE: DISCUSSION

This chapter discusses the findings of this research, and contextualizes them in terms of the mitigation literature and the comprehensive emergency management framework. This chapter is organized into four sections. The first section considers the extent to which the typical emergency manager interviewed for this study meets the description of the idealized emergency manager defined in Chapter Two. The second section considers how the findings of this study compare to the findings of a similar study. The third section addresses the gap evident between the idealized emergency manager and actual emergency managers in mitigation. The fourth and final section discusses implications of this work for education, practice, and policy.

Emergency Manager Role as Theorized and as Practiced

Chapter Four discussed the roles that emergency managers reported playing within mitigation. Based on these self-described roles and activities they engaged in, it is possible to evaluate the extent to which they meet the description of an idealized emergency manager in mitigation described in Chapter Two. This section will review these idealized characteristics, and compare them to the characteristics participants identified as being part of their own role in mitigation.

Based on the mitigation literature reviewed for this study, the ideal emergency manager has sought to decrease barriers to mitigation in a number of ways. This emergency manager has looked for and accessed financial resources, both by ensuring they are compliant with federal programs, and also by applying for and managing mitigation grants (Baudoin & Wolde-Georgis, 2015; Becker & Reusser, 2016; Brody et al., 2009; Fois & Forino, 2014; Hakaloba et al., 2016; Hill & Gaillard, 2016; Labossière & McGee, 2017; Manyena, 2013; Nelson, 2014; Raju & van Niekerk, 2013; Rivera & Wamsler, 2014; Sipe & Vella, 2014; Stehr, 2007; Wiek et al., 2010;

Yoon, Youngs & Abe, 2012; Zahran et al., 2010). They have also acquired the resources necessary to increase the organizational capacity of their departments and offices (Brody, Kang & Bernhardt, 2010; Manyena, 2013; Nelson, 2014; Olshansky et al., 2008). They have sought out opportunities to increase their own discretion and control over the mitigation process (Stevens, 2010).

Of their mitigation activities, emergency managers were particularly adamant about their role in reducing financial barriers. Their primary mode of reducing these barriers was engaging in a mitigation planning process in order to be eligible for federal funding. Emergency managers, however, also discussed assisting in, applying for, and maintaining mitigation grants. Virtually every emergency manager who participated in this study had an approved mitigation plan in place (n=41), but there was more variation in their success acquiring grants. Some emergency managers, especially in large and already well-resourced communities, reported having no problem accessing mitigation funding, whereas others, often in small and poorly-resourced communities, struggled to meet the requirements associated with mitigation grants (n=5). In spite of their efforts to access funding, however, financial barriers to mitigation were persistent and seemed to be a critical limiting factor for both mitigation implementation and emergency managers' involvement in mitigation.

Partially as a result of the financial barriers facing emergency managers, emergency management offices frequently lacked sufficient organizational capacity to participate in mitigation. Organizational capacity can be recognized by communities' ability to anticipate hazards, make informed decisions about mitigation, and implement effective policies (Brody, Kang & Bernhardt, 2010), and is affected by access to financial, staff, and technological resources; the ability to communicate and share information; and strong leadership (Brody, Kang

& Bernhardt, 2010). Emergency managers consistently reported challenges with organizational capacity, both in terms of how organizational capacity manifests, and the factors that explain it. Most obviously, few emergency managers reported having implemented effective mitigation policies, and several mentioned the presence of policies that likely increased risk. For example, a few emergency managers (n=3) were located in jurisdictions without building or development codes, and they did not seem to believe this was likely to change.

Many emergency managers also lacked the resources associated with organizational capacity. Several participants were the only staff member in their department, and of these, a number were only part-time employees. Although organizational capacity here specifically refers to the capacity to achieve mitigation, it should be noted that emergency managers had to work to maintain even a low level of organizational capacity generally. For example, in addition to seeking funding for mitigation projects, many emergency managers also reported applying for grants, and spending large amounts of time meeting requirements in order to be eligible for state funding to support emergency management offices and pay staff salaries. In spite of the challenges associated with organizational capacity, emergency managers reported fewer activities associated with increasing mitigation-specific organizational capacity than with acquiring financial resources. Many participants reported being dissatisfied with the extent of their organizational capacity, whether it was because they lacked adequate staffing or technological resources, or because their department did not have sufficient funds for general operations. Some emergency managers reported that they hoped to hire additional staff or to acquire additional resources (n=3), but only one had concrete plans to accomplish these goals.

The idealized emergency manager has been a mitigation advocate. For example, they act as a policy entrepreneur and regularly propose mitigation projects, or they take an approach that

mobilizes others to advocate for mitigation (Birkland, 1996; Labossière & McGee, 2017; Olshansky et al., 2008; Olson & Olson, 1993; Solecki & Michaels, 1994; Stevens, Berke & Song, 2008). They have also developed a policy community that they can deploy in advocating for mitigation (Birkland, 1996). They have demonstrated a dedication and commitment to mitigation as a strategy for reducing hazard impacts (Brody, Kang & Bernhardt, 2010; Stevens, Berke & Song, 2008). When their community does experience a disaster, they have taken advantage of the aftermath as an opportunity to implement more mitigation (Asgary et al., 2007; Baker, 1977; Fois & Forino, 2014; Healy & Malhotra, 2009; Hill & Gaillard, 2013; Labossière & McGee, 2017; Le Masson, 2015; McSweene & Commes, 2011; Olson, Olson & Gawronski, 1998; Paul & Che, 2011; Tunstall, Johnson & Penning-Roswell, 2004).

Here again emergency managers reported mixed success. There was variation among participants, but many of the tasks associated with advocacy were not reported. Few emergency managers reported acting as a policy entrepreneur, although several discussed the importance of this role. It should be noted that the literature identifies having resources to influence mitigation as an important dimension of the policy entrepreneur role (Solecki & Michales, 1994). Emergency managers were once again stymied by their lack of access to resources, which made engaging as policy entrepreneurs much more difficult. Similarly, few emergency managers were engaged as mobilizers of their communities, although some identified public education as a necessary task to create mobilizers within their communities. No respondents specifically reported being part of a mitigation policy community, but a few emergency managers were engaged in mitigation working groups, which may accomplish some of the same ends. Overall, it seemed that emergency managers understood the importance of advocacy, but were only able to engage in it a limited fashion.

Although emergency managers were not necessarily involved in these specific advocacy roles defined by the literature, some did report engaging as promoters of mitigation in meetings with government officials. They also emphasized the role that they play in advocacy following disasters. Emergency managers saw these events as an opportunity to promote mitigation projects when interest was highest and people were least likely to object. They also deployed their administrative role in this post-disaster period. Emergency managers, however, emphasized their role in increasing the availability of mitigation funding after disasters more than their role in generating engagement and buy-in for mitigation projects in this time period.

In addition to advocacy, the theoretical emergency manager has been attentive to their community, and has tried to increase the independence of their community in making mitigation decisions by working to augment community capacity (Norris-Raynbird, 2005). When making decisions about mitigation, they have centered community needs and preferences (Rubin, Saperstein & Barbee, 1985). They have worked to engage their community in mitigation (Andersson-Sköld & Nyberg, 2016; Evans-Cowley & Gough, 2008; Hakaloba et al., 2016; Le Masson, 2015; Manyena, 2013; McNamara & Des Combes, 2015; Norris-Raynbird, 2005; Olshansky et al., 2008; Oulahen & Doberstein, 2012; Passerini, 2001; Sipe & Vella, 2014; Stevens & Berke & Song, 2010), through the development of coalitions (Birkland, 1998; Goldstein, 2008; Labossière & McGee, 201; Lane, 2000; Lu et al., 2017; Mannakkara, Wilkinson & Potangaroa, 2014; Meo, Ziebro & Patton, 2004; Olson, Olson & Gawronski, 1998; Raju & van Niekerk, 2013; Sipe & Vella, 2014; Weischelgartner & Pigeon, 2015), and an effective media and communications strategy (Baudoin & Wolde-Georgis, 2015; Evans-Cowley & Gough, 2008; Fois & Forino, 2014; Sipe & Vella, 2014; Stevens, Berke & Song, 2010; Weischelgartner & Pigeon, 2016).

For most of the emergency managers interviewed for this research, there was no reason to believe communities were not making decisions independently, although there were some exceptions. Participants mentioned decision-making being influenced by developers in several cases, and the hiring of contractors for some mitigation projects and for mitigation planning may also have influenced independence. In fact, the literature suggests the influence of these two groups – that is, developers and contractors – should be limited in order to increase community independence (Norris-Raynbird, 2005). Outside influences, especially from groups whose interests were not driven by community safety, tended to reinforce community preferences for economic wellbeing over hazard mitigation. As a result, in some instances, the community needs and preferences emergency managers observed were in opposition to mitigation, although in the absence of these influences, their communities may have preferred public safety.

Another reason communities seemed to prefer development to mitigation was the absence of engagement in the mitigation process. Emergency managers reported making attempts to increase engagement, but they encountered numerous barriers. Efforts to increase engagement did include developing media and communications strategies, but effectiveness of these strategies was somewhat mixed. In spite of attempts to modernize communications through social media, emergency managers reported having a difficult time communicating with the public. Although at least one emergency manager reported that, since they had been in their position, their agency's Facebook profile had attracted a significant number of new followers, engagement in activities like public meetings remained low. In contrast to the efforts emergency managers made regarding communications, there was little explicit evidence that emergency managers were working to create coalitions within their communities, likely because there was too little overall engagement for coalitions to be viable.

The ideal emergency manager has also sought to work effectively and improve themselves professionally. They are professionally ethical (Le Masson, 2015), and have taken advantage of educational opportunities to become more technically adept (Brody, Kang & Bernhardt, 2010). They are knowledgeable or experienced about hazard risk and mitigation strategies (Brody, Kang & Bernhardt, 2010; Rubin & Barbee, 1985; Stevens, 2010), as well as about their community's values and priorities (Rubin, Saperstein & Barbee, 1985). Finally, they actively work to 'de-silo' local government so that there is more communication and information-sharing across departments (Brody, Kang & Bernhardt, 2010; Raju & Van Niekerk, 2013).

The final literature-derived factors, effectiveness and improvement in their professional capacity, was present to some extent in all of the interviews, but the effectiveness of participants' professional efforts were hampered by structural factors. With respect to ethical operation, there was no evidence that emergency managers were operating unethically, although it seems unlikely that participants would have reported unethical behavior even if it were present. Emergency managers did not, for example, report explicit corruption. However, there may have been marginal cases: in at least one case, an emergency manager did report taking actions that they had been specifically instructed not to take by county officials. It is also possible that county relationships with certain stakeholder groups (e.g. developers) may have been present but undisclosed in interviews. To the extent that these actions or relationships may have been unethical, it is also possible that they affected emergency management engagement or effectiveness in mitigation.

There are undoubtedly additional ethical dimensions to mitigation work, especially with respect to policies that prevent low-income communities from addressing hazard risk, a problem

that was alluded to by several participants. Even within communities, it may only be possible to implement mitigation in areas with high property values, leaving residents who are already likely more vulnerable to hazard risks without mitigation protections. Although these ethical dimensions of policy came up in interviews, county-level emergency managers did not report active engagement in efforts to reform policy. In other words, participants seemed to perceive their advocacy role as limited to encouraging local mitigation adoption, rather than as including influencing state or federal mitigation policy.

Emergency managers did not generally report seeking additional discretion over the mitigation process. In most cases, although they seemed frustrated by the amount of mitigation occurring in their counties, they apparently did not identify increased discretion over mitigation as a strategy to increase the amount of mitigation taking place. Emergency managers reported networking and relationship-building across agencies, but it seems that these efforts did not necessarily rise to the level of de-siloing. In addition to networking and relationship-building, meaningful de-siloing would require concerted and coordinated efforts to improve communication and interoperability in a sustained way (Raju & Van Niekerk, 2013). Emergency managers reported challenges they faced as a consequence of departmental silos, especially as they pertained to contradictory and overlapping requirements associated with different permitting agencies. This would suggest that, had emergency managers been attempting to de-silo local government through their relationship-building and networking, they have not succeeded yet.

Participants did report engaging in educational opportunities to improve their understanding of their emergency management role generally, but not necessarily about mitigation specifically. Much of this education represented a requirement to maintain accreditation or state funding, although several emergency managers also reported seeking out

education independent of requirements. Some emergency managers also had either bachelors' degrees or graduate degrees in emergency management or a related field, which was likely helpful for mitigation in at least some cases. However, the extent to which emergency managers failed to accurately conceptualize and define mitigation strongly implies that there were deficiencies with the educations that they had received, whether in a traditional academic setting or in practice-oriented education and training. A summarized comparison between the characteristics of the idealized emergency manager and of participants in this study is provided in Table 5 below.

Although not explicitly discussed as part of the idealized emergency manager role in Chapter Two, Comprehensive Emergency Management and emergency management scholarship would also strongly suggest that emergency managers should play a significant role in mitigation (Britton, 1999; Mileti, 1999). Moreover, emergency managers have tasked themselves with engaging in all four phases of emergency management (FEMA, 2011). Because mitigation is one of four presumably equally important phases, it would follow that emergency managers should spend a significant portion of their time working in mitigation.

Most of the emergency managers interviewed, however, reported that they were not spending as much time working in mitigation as they would like. As noted in Chapter Four, most emergency managers spent well under a quarter of their time on mitigation, and those who reported spending much larger amounts of time often described activities that do not constitute mitigation. The estimates of time allocated for mitigation was also seemingly influenced by mitigation planning processes, which, in at least some cases likely inflated participants' responses.

Table 5
Idealized Activities of Emergency Managers in Mitigation Compared to Activities of Study Participants in Mitigation

Idealized Activities	**Study Participants**
Increase availability of financial resources • Maintain compliance with federal, state and local requirements • Apply for and manage mitigation grants • Increase organizational capacity for mitigation and emergency management generally Engage in mitigation advocacy • Act as a mitigation policy entrepreneur • Mobilize other stakeholders • Develop a mitigation policy community • Take advantage of 'windows of opportunity' Work with their community • Center community needs and preferences in decision making • Engage community in mitigation decision making • Develop community coalitions • Develop effective media and communications strategies Improve professionalization • Operate ethically • Seek educational opportunities in mitigation • Develop knowledge or experience in mitigation • De-silo local government	Participants maintained compliance, applied for and maintained grants. Limited success in increasing organizational capacity. Participants discussed importance of advocacy but had largely not helped develop advocacy in a meaningful way Participants emphasized importance of community, but struggled with engagement and with improving community independence Participants engaged in activities to improve professionalization but were often stymied by structural factors

Findings and Analysis from a Similar Study

As noted in Chapter Two, a study was published in March of 2019 which sought to address a similar research question (Samuel & Siebeneck, 2019). In order to avoid biasing the data analysis of this research, this paper was not reviewed until after data analysis was complete. Yet, the similarities between that paper and this research are notable. Samuel and Siebeneck identified six mitigation roles described by emergency managers: administrator, collaborator, coordinator, fund seeker, advocator, and public educator, as well as an overarching leadership role. There are notable commonalities, especially the presence of the administrator, promoter/advocate, public educator, and generic/collaborator and coordinator roles. In this

research, "fund seeker" was largely subsumed under the administrator and planner roles. Although Samuel and Siebeneck did not specifically identify a planner role, they did find that emergency managers were heavily involved in the mitigation planning process. Samuel and Siebeneck specifically suggested that, due to the large number of their participants who identified collaborator, coordinator, and administrator mitigation roles, emergency managers should play a leadership role in hazard mitigation planning.

It is also important to note that there are several key methodological and analytical differences between the studies. With respect to study design, Samuel and Siebeneck interviewed both municipal and county-level emergency managers, and all of their participants were located in North Central Texas. In contrast, the researcher of this study interviewed only county-level emergency managers across regions of the United States. It is also notable that, like many of this study's participants, Samuel and Siebeneck defined mitigation as "actions taken to reduce the loss of life and property by lessening the impact of disasters," excluding the sustained or long-term dimension of the concept. The authors also fail to identify specific mitigation activities outside of planning, so it is impossible to know whether this conceptualization of mitigation influenced their analysis. In at least two of their interviews, emergency managers seemed to confuse mitigation and preparedness, but the causes and potential consequences of this confusion were not examined.

Moreover, although the findings were quite similar, in contrast to Samuel and Siebeneck, this study found that, in aggregate, emergency managers were engaged in a support capacity rather than a leadership capacity. Notably again, however, Samuel and Siebeneck do not specifically identify activities that constitute leadership, so although their participants described their role using 'leadership' language, it is difficult to determine what they feel leadership looks

like in practice. The studies agree, however, that emergency management engagement in mitigation could be more substantial. Where Samuel and Siebeneck propose emergency management-centric solutions to challenges for emergency management engagement, however, this research instead suggests that these challenges are largely external. The following sections discuss the reasons challenges emerged, and implications of this research for some of these external communities.

Understanding the Gap Between Theory and Practice

Although the emergency managers interviewed for this research bore some resemblance to the idealized emergency manager described in Chapter Two, there are a number of key differences. The idealized roles emergency managers were fulfilling with at least some degree of effectiveness included seeking funding for mitigation, and making efforts toward improving advocacy, communications, de-siloing, and their own educations in emergency management and mitigation. In contrast, emergency managers often struggled to increase organizational capacity, increase the extent of mitigation advocacy, were not members of mitigation policy communities, were not explicitly seeking to increase the independence of their communities, had not developed communications strategies that effectively increased engagement, had not increased their discretion over the mitigation process, had not been successfully fully de-siloed government agencies, and had only a limited education pertaining to mitigation.

Moreover, in spite of the fact that mitigation is purportedly one of four equally important phases in emergency management according to the Comprehensive Emergency Management framework, emergency managers generally reported spending a relatively small amount of time on mitigation-related activities. In fact, several emergency managers contacted for participation in this study declined on the grounds that they considered mitigation to be outside of their

professional purview (n=5). The fact that emergency managers are, by and large, not doing as much mitigation as other emergency management activities, and are involved in mitigation in a support rather than leadership capacity, creates several issues. First, it suggests that, because emergency managers themselves are not doing 'enough' mitigation, there may not be enough mitigation being done overall. It also raises questions about the differences between the roles played by theoretical and actual emergency managers in mitigation, including why they are not doing as much mitigation as researchers would expect. Each of these issues will be addressed in the subsections below.

Adequacy of Mitigation Efforts

Regardless of how much mitigation work emergency managers are doing, there is consensus within the scholarly community that there is not enough mitigation being done overall (see for example: Alesch & Petak, 2002; Deegan, 2007; Rubin & Barbee, 1985). The relative lack of mitigation puts communities at risk today, and these risks will only be amplified as development pressures and the disaster-related effects of climate change put more people in harm's way. It is therefore critical that emergency management scholars and practitioners identify strategies to increase the amount of mitigation being undertaken.

To the extent that the purpose of the Comprehensive Emergency Management framework is to encourage emergency managers to be meaningfully engaged in all four phases of emergency management, it is clear that challenges remain. Although the reason enough mitigation is not being done may be attributed to a widely distributed network of people, it is still important to address whether weaknesses in Comprehensive Emergency Management contributes to this inadequacy. Were emergency managers to spend more of their time in mitigation, it is possible that more mitigation would be implemented.

Why Do Theorized and Actual Emergency Managers Differ?

The differences between the theorized and actual emergency manager in mitigation are likely the result of at least three different challenges. The overarching barrier to mitigation, and to emergency managers playing a more robust role in mitigation, is resource limitations. Having inadequate resources affects virtually every aspect of emergency managers' roles, from the time they spend trying to access additional resources, to their lack of effectiveness across their work in mitigation. Resource limitations prevent emergency managers from having the staffing, time and funding necessary to create community coalitions and policy communities, and to develop and deploy more effective communications and de-siloing strategies. They make seeking out additional knowledge and education much more difficult. Fundamentally, they limit the extent to which emergency managers may expand their organizational capacity, even if they desire to do so.

A second challenge arguably comes from emergency managers themselves. Specifically, some emergency managers consider mitigation to be outside of their purview entirely, and have therefore not sought out opportunities to play a larger or more effective role in mitigation. Although in some cases, emergency managers seemed to be complacent about their professional limitations, it is likely that, for many, this seeming complacency was actually due to an understanding of their resource limitations. Participants in this study reported being frustrated by the lack of control they had over mitigation processes, although few, if any, discussed a plan or even a desire to increase the control they exercised. Emergency managers are also limited in their approach to mitigation by the absence of professional guidelines for how they ought to engage in mitigation. For example, neither the International Association of Emergency Managers nor the National Association of Emergency Managers, the two largest emergency management

associations in the United States, provides robust guidance on emergency manager roles and responsibilities during mitigation. If they had access to resources or documents clearly articulating what their appropriate roles and responsibilities in mitigation were, it seems likely that emergency managers would engage in those roles more often and more effectively.

Finally, it seems that emergency managers may simply lack the knowledge they would need to be more effective players in mitigation. Although there were areas in which they could have played a more substantial role (for example, establishing or participating in policy communities, seeking out greater knowledge of mitigation, and effectively de-siloing local agencies), it seems emergency managers were not always aware this was the case. Notably, these were all barriers to mitigation that were not frequently noted by emergency managers, in contrast to financial challenges and difficulties meeting requirements, for example. If emergency managers do not recognize barriers to mitigation or activities they could be engaged in, it follows that they would not seek out solutions to those barriers, or engage in those activities.

The fact that participants did not pursue the above mitigation-facilitating activities is likely at least partly the result of structural and cultural forces in the emergency management profession. Although some states or local emergency management offices may require that emergency managers have specific certifications, training or education (McEntire, 2018), there is no required national, standardized accreditation system for emergency managers (EMAP, 2019). As a result, knowledge about emergency management generally, and mitigation specifically, is not evenly distributed throughout emergency management practice. In addition, many emergency managers come from first response backgrounds – nearly one in two emergency managers interviewed for this research, for example, had backgrounds in first response. As discussed below, the response-orientation that may result from a first response background likely biases

emergency manager knowledge in favor of response and preparedness, to the detriment of mitigation.

Why Are Emergency Managers Doing Too Little Mitigation?

Chapter Four addressed some of the explanatory factors that influence both the amount of mitigation being done, and the roles emergency managers play within mitigation. However, these factors should be contextualized by considering the external forces that give rise to them. Emergency managers operate in a space that is underappreciated, underfunded, and often misunderstood (Labadie, 1984). They must attend to differing and frequently changing laws and guidance at the local, state, and federal levels (Wamsley & Schroeder, 1996). Emergency management has also not been fully professionalized (e.g., Carlson, 2015; Cwiak, 2019; Farris & McCreight, 2014), which contributes to the fact that emergency managers may lack education and guidance about their roles and responsibilities that would benefit them.

As discussed in Chapter Four, emergency managers also tend to be oriented to response and preparedness rather than to mitigation. Not only does this affect which activities they focus on, but it also reflects their expertise. Mitigation requires a different skill set than response and preparedness, relationships with different stakeholders, different kinds of resources, and responsiveness to a different set of challenges (FEMA, 2018). When emergency management offices have only one emergency manager, it is impossible for that person to specialize in any of the phases. Moreover, when the emergency management profession draws so many of its practitioners from first response fields (in this study, 18 out of 42 participants had first response backgrounds), it is likely that any specialization they do have will be in response or preparedness. If emergency managers are to engage in mitigation, the response and preparedness orientation must shift. This could result from increasing the resources of emergency management

departments so that mitigation (and recovery) specialists may be hired, or from further professionalization which incorporates a focus on mitigation (and recovery) education.

Perhaps one of the reasons that emergency managers did not spend more time on mitigation, and were not more effective in getting mitigation implemented, is the fact that participants did not seem to have a robust understanding of mitigation as a concept. In fact, as discussed in Chapter Four, emergency managers defined mitigation in ways that differed significantly from the most commonly accepted definitions of mitigation. They also described activities that suggested they were thinking about mitigation in nonstandard ways. This is not necessarily their fault. Neither the academy nor the practitioner community has defined mitigation consistently, if they have defined it at all. As discussed above, Samuel and Siebeneck (2019), for example, offered a definition of mitigation more in line with the respondents in this research than the definition provided here.

Guidance and definitions from FEMA do not make matters much clearer. Unlike Comprehensive Emergency Management, FEMA now recognizes (apparently in some, but not all cases) five, rather than four, "mission areas." In addition to mitigation, response and recovery, FEMA has included prevention and protection, and removed preparedness. Here, prevention and protection are both oriented to terrorism and homeland security hazards. Moreover, a brief search of FEMA's website also revealed several significantly different definitions of mitigation, including not only the definition used in this study, but also, from the National Mitigation Framework, "the capabilities necessary to reduce the loss of life and property by lessening the impact of disasters" (Department of Homeland Security, 2016) and,

> Mitigation is the effort to reduce loss of life and property by lessening the impact of disasters. In order for mitigation to be effective we need to take action now—before the next disaster—to reduce human and financial consequences later (analyzing risk, reducing risk, and insuring against risk). It is important to know

> that disasters can happen at any time and any place and if we are not prepared, consequences can be fatal (Federal Emergency Management Agency, 2018).

These definitions are clearly related to the definition that has been roughly agreed upon by emergency management scholars. However, they are notably missing any reference to sustained or long-term efforts. If the definitions of mitigation being used do not include an element about actions being sustained or long-term, virtually any emergency management activity could be deemed a mitigation activity. For example, an effectively executed response could be considered mitigation, because there will likely be fewer impacts in a good response than in a poor response. To make matters worse, some of the "core capabilities" FEMA identifies as being mitigation include activities that would be described by most emergency management scholars as preparedness activities, including planning, and public information and warning. With these definitions from FEMA in place, it is no wonder that emergency managers displayed conceptual confusion about mitigation. Contributing to this confusion is the fact that FEMA, as one participant noted explicitly, provides mitigation funding for at least one preparedness activity, acquiring generators, through the Hazard Mitigation Grant Program (HMGP) (FEMA, 2015).

Likely as a result, one of the most notable features of emergency managers' responses to questions about the mitigation tasks they or their counties undertake is the fact that so many of their answers represent activities that the scholarly community does not consider mitigation. Of the at least 57 different activities reported, almost half represent preparedness, recovery, or non-emergency management related activities (n=24). At least eleven participants identified acquiring generators, and six identified hazard notification as mitigation activities they have undertaken or would like to undertake, both of which are preparedness activities. At least two respondents also identified damage assessments and debris management – both recovery activities – as mitigation activities. More than half of participants also identified education and

outreach as a mitigation activity. Indeed, in some cases this may constitute a mitigation activity, but, as discussed briefly in Chapter Four, in many cases is more likely a preparedness activity.

This definitional confusion leads to another set of questions: if emergency managers are uniformly describing mitigation in unconventional ways, what does this suggest about the definition of mitigation being used in this research? Is it wrong? If wrong, how should it be modified? Is it sufficiently common? Are the academic and practitioner communities using it consistently? Would calling the constellation of activities associated with mitigation something different be helpful? Should mitigation and preparedness be combined in order to reduce confusion?

It is beyond the scope of this research to evaluate the extent to which the current definition of mitigation is the best possible, or most complete, definition. Such a definition would lead researchers and practitioners to be able to categorize activities as being exclusively in the mitigation domain. Based on this study, it is clear that the definitions emergency managers are using does not meet this criterion. It seems likely that, were the 'correct' definition of mitigation in wider usage, fewer emergency managers would confuse mitigation and mitigation activities with other phases. Researchers and government agencies should certainly use a consistent definition and identify common activities when discussing mitigation. The definition and description of such a critical element of emergency management scholarship and practice should not be modified without significant support and justification. These factors and their implications will be discussed at greater length in the final section of this chapter.

Implications for Communities of Policy and Practice

The findings of this research suggest that emergency managers play a number of important roles in mitigation, but the extent to which they engage in these roles, and the

effectiveness of their participation in mitigation processes, seems to be limited. Limitations are, in turn, affected by a number of factors established in the findings chapter. Reducing barriers to county-level emergency managers' participation and effectiveness in mitigation will require stakeholders across emergency management functions to engage in a number of coordinated activities. Specifically, agreeing upon a definition of mitigation, recognizing mitigation as a critical function of local government, and rethinking current approaches to mitigation planning will be critical.

Implications for Policy

A key challenge to county-level emergency managers' ability to engage more often and more effectively in mitigation is the extent to which policy incentivizes and emphasizes the importance of mitigation. Not only must mitigation specifically be recognized as a critical element of emergency management, but emergency management must be recognized as a critical function of local government. This recognition should compel multiple levels of government to shift emergency management organization and resourcing through changes to policy.

Emergency management must first be recognized as a unique and important role within local government. Although other agencies or organizations, including response and planning agencies, have roles within emergency management, there are functions of emergency management that cannot effectively be done by other departments. It therefore impedes emergency management functions to locate emergency management agencies within other agencies or departments. Although doing so may create efficiencies in certain tasks and activities, it subordinates many other critical emergency management activities to other departmental priorities. An emergency management office located within the fire department is

more likely to be perceived as a response office; whereas an emergency management office located within the planning department is more likely to be perceived as a mitigation office.

Of course, in order to be an independent office, emergency management must have sufficient resources. Minimally, emergency management offices must have the resources to engage in all aspects of their role, and across all phases of the emergency management cycle. Without adequate staff resources, emergency managers may struggle to find the time necessary to meet the requirements for accreditation, which may be a prerequisite for state or federal funding. Staff resources are also important because different skill sets and knowledge bases are required for emergency management's various phases and activities. A planning expert, for example, may not also have expertise in running an emergency operations center, and cannot realistically be expected to do so. It is therefore important that there be enough staff with appropriate expertise to accomplish all the activities of emergency management.

Another dimension of recognition of emergency management as a critical function of local government is the way local government ranks community priorities. This is especially true with respect to development. Local governments certainly may have strong incentives for encouraging development at the expense of public safety, but this conflict will handicap emergency management's ability to encourage and implement mitigation. State and federal governments can help communities overcome some of these incentives for unsafe development by providing a greater amount of supplemental mitigation funding. Although in many cases this funding can and should come from local governments, state and federal governments must also commit to resourcing local emergency management. In many cases, there are not enough resources at the local level to go around, and state and federal governments can help bridge the gap.

Funding and increasing staff resources would also likely increase the quality of plans, by allowing emergency management agencies to take full control over the planning process, allowing it to proceed as it was designed to. At least one participant in a county in which the mitigation planning process was run independently acknowledged that they needed substantial staff time to do so, and they were lucky to be in such a position. If states and FEMA are going to continue to require an extensive planning process in order for communities to be eligible for mitigation funding, they must recognize the challenges inherent in such a process, and consider how to provide support that does not compromise its integrity. In the absence of changes to mitigation planning requirements or increases in resource availability, emergency management offices will almost certainly continue to rely on consultants. Although consultants may be able to meet the requirements of the planning process, their presence raises questions about the integrity of the process, especially with respect to plan generation and approval by the community.

Increasing availability of funding for local emergency management generally, and for mitigation specifically, may, however, require governments to change the way they make funding determinations. Criteria for funding that emergency managers interviewed for this research identified as challenging included establishing historical precedent and a favorable cost-benefit analysis. With respect to this first challenge, it is critical for funding programs to acknowledge the changing risk communities face. Where hazard risk has been identified, it is reasonable to fund mitigation, even in the absence of historical losses, especially because development pressures and climate change have affected the risk profile of many communities in ways that have not yet resulted in hazard events. With respect to the second challenge, the need to establish a favorable cost-benefit analysis for implementation of mitigation may result in low-density communities disproportionately failing to receive funding. Although a favorable return

on investment is frequently cited as a reason to engage in mitigation, this emphasis leaves communities where investments in mitigation have a low or negative return unprotected or under-protected from hazard risk. Thus, increasing the amount of available funding overall, and changing state and federal orientations to mitigation are both important for helping local governments implement mitigation.

There are a number of ways federal policy could be changed to accommodate increased mitigation, but one that emerged consistently from these interviews (n=8) was adjustments to the FEMA match for mitigation projects. Currently, for most Hazard Mitigation Assistance funds, FEMA requires local governments to fund 25% of mitigation projects themselves, but will cover the remaining 75% of costs. In some places, this match amount is unaffordable. Moreover, because many of the communities for which a 25% match is unaffordable reported broader community resource limitations, this requirement tends to exacerbate existing inequalities in vulnerability.

With respect to availability of funding, some progress appears to be being made. A few emergency managers (n=3) noted that FEMA policy appears to be shifting with the Disaster Recovery Reform Act (DRRA), which expands the number of mitigation activities eligible for federal funding assistance (Webster & Lindsay, 2019). Although the DRRA does not necessarily address some specific criticisms of federal mitigation programs, and it is unknown what the increase in funding availability will be, these changes are encouraging, and seemed particularly encouraging to some of the emergency managers interviewed for this research. It is hoped that FEMA will, in fact, meaningfully increase the amount of assistance available to counties for mitigation through the DRRA. Another resource communities are using to fund mitigation is the Department of Housing and Urban Development's (HUD) Community Development Block

Grant Mitigation (CDBG-MIT) funding program. In 2019, $6.875 billion was made available to communities that had experienced disasters in previous years for mitigation specifically designed with the effects of climate change in mind (HUD, 2019). Both the amount of funding and the emphasis on developing 'resilience' to hazards and climate change may represent a shift in thinking and future mitigation resource availability (Moore, 2019).

Implications for Education

The variation in emergency managers' definitions of mitigation echoes the variation in definitions provided by official sources. In 2008 for example, Wayne Blanchard identified at least 31 unique definitions for "mitigate" and "mitigation" (Blanchard, 2008). An examination of FEMA's website reveals at least seven definitions (FEMA 2001, 2005, 2011, 2013, 2018, 2019 & 2020), some of which capture all the important dimensions of mitigation (e.g., "Mitigation is defined as sustained action taken to reduce or eliminate long-term risk to people and property from hazards and their effects" (FEMA, 2011)), and some of which do not (e.g., "Flood hazard mitigation is defined as all actions that can be taken to reduce property damage and the threat to life and public health from flooding" (FEMA, 2013)). The literature, moreover, consistently fails to define mitigation, and occasionally (including by Samuel and Siebeneck, 2019) to accurately define mitigation. All parties involved in promoting, funding, and expecting mitigation must agree on how mitigation out to be defined, whether that definition is the same or similar to the one used here or not. It is unacceptable to continuously redefine mitigation, especially without good cause; to fail to define mitigation in literature, or to otherwise assume that the audience understands mitigation to mean what the author intends; or to include activities that do not meet the definition of mitigation in mitigation funding initiatives or programs. One dimension of this must be including an accurate and consistent definition of mitigation in education and training

for emergency managers. This effort will be undermined, however, if the mitigation programs that emergency managers interact with operationalize mitigation in incongruous or inaccurate ways.

Another dimension of education is providing emergency managers with the documents and resources they need to understand what their roles and responsibilities in mitigation are. Professional emergency management organizations like the National Emergency Management Association (NEMA) and the International Association of Emergency Managers (IAEM), or state and federal emergency management agencies like FEMA, could provide this guidance. If county-level emergency managers are expected to engage in mitigation by professional and governmental organizations, it is appropriate for these same organizations to specify how they are expected to engage.

Conclusion

This chapter has contextualized the findings from this research within the emergency management literature. It compared the theorized emergency management from previous scholarship to the emergency managers who participated in this study, and considered how and why their mitigation roles differed. It concluded with a discussion of the implications these findings have for education, practice and policy.

CHAPTER SIX: CONCLUSION

Although disaster researchers have studied mitigation along a number of important dimensions, little scholarship has specifically examined the county-level emergency management practitioner's role in mitigation. This study sought to address this gap in the literature. Interviews with 42 emergency managers across the United States revealed that, although they spent disproportionately little time on mitigation compared to other phases of emergency management, county-level emergency managers played several distinct roles in mitigation. These roles included a generic emergency management role, a support role, an administrative role, a promoter role, a public educator role, and a planner role. These roles, and the limited extent of emergency manager involvement in mitigation, were explained in part by several factors, including conceptual confusion, resource factors, competing priorities, stakeholder relationships to mitigation, structural factors, meeting requirements, and environmental factors.

This research suggests that, although emergency managers are engaged in many of the tasks, activities and roles that the mitigation literature might predict, there is room for improvement. Emergency managers could expand their role and improve their engagement in mitigation, but they cannot do it alone. Resourcing emergency management offices appropriately, earmarking funds for mitigation, and structuring emergency management agencies properly across levels of government would help eliminate some of the barriers to mitigation described by participants in this study.

Significance of Study for Emergency Management

A primary purpose of this study was to inform the emergency management discipline and profession about the roles that county-level emergency managers play within mitigation. Although the mitigation roles and activities emergency managers engage in may be inferred from

the literature to some degree, the precise nature of these roles and activities has not heretofore been thoroughly investigated. Not only did this study evaluate the roles played by emergency managers within mitigation, but it also considered the factors that help explain those roles, especially including barriers to mitigation. These factors largely conform to the factors identified by previous literature, providing important confirmatory information to researchers and practitioners alike.

Using this knowledge of both emergency manager roles and the factors that inform these roles, scholars, professionals, and policy makers can build on current researchers and practices. The challenges highlighted by emergency managers strongly suggest that policy makers and government officials ought to provide more resources for mitigation. All parties involved in formulating mitigation policy and programs, disseminating training and education, or engaged in research and scholarship must also be consistent and accurate in their definitions of mitigation. This research also suggests that, in order to more closely mirror the idealized emergency manager induced from the literature, actual emergency managers need more formal guidance from professional resources

Advancing mitigation practice is a critical goal, especially in the context of a rapidly changing climate and hazardscape. Although this study was exploratory, and therefore not generalizable, it provides an important foundation for future research on the ways in which emergency managers can (and should) engage in hazard mitigation. Moreover, in light of the similarities between the findings of this research and Samuel and Siebeneck's (2019) findings, it may be possible to begin to develop constructs, if not models, of emergency manager roles in mitigation. With these goals in mind, future scholars can address related questions and research topics that can inform practice and policy.

Recommendations for Future Research

Although this research helps to establish certain information about the role that emergency managers play within mitigation, it also raises a number of important questions that future research should address. To the extent that this research, in combination with Samuel and Siebeneck's (2019) research, suggests the presence of particular emergency manager roles in mitigation, strengthening and further supporting the presence of these roles will require more research. This research may include investigating whether emergency managers at other levels of government understand their roles as similar to or different from county-level emergency managers. It may also be appropriate to conduct quantitative research to help determine the prominence of each role, as well as their effects on mitigation. Furthermore, although emergency managers reported the amount of their time they spent on mitigation, it would be helpful to have a more specific accounting of precisely what they were doing and for how much time, so that scholars could have a more accurate understanding of how much mitigation is actually being done. Additionally, although this study touched on the location of the emergency management office within county government, a more rigorous analysis of how this location affects role or time spent on mitigation would be beneficial. Similarly, evaluating emergency manager role in the context of the structure of their county's government may explain some of the variation among responses (see for example: Benton, 2002; Benton, 2003).

In addition to understanding what is happening in emergency management within mitigation, a goal of research ought to be understanding how to increase the amount and effectiveness of mitigation that is taking place. With respect to this latter goal, research questions oriented to understanding which factors influence mitigation outcomes, potentially including emergency manager mitigation roles, but also factors like other emergency manager

characteristics, resource availability, socioeconomic characteristics of the community, hazard profile, and others. If indeed the goal of mitigation research is to increase the extent and effectiveness of mitigation, it will also be important to investigate how much the actions of emergency managers ultimately affect mitigation. It may also be appropriate to consider how other frameworks (e.g. disaster risk reduction, resilience, sustainable development) vary in effectiveness.

While exploratory and representing only a first step, this study addressed previously under-addressed questions about the role emergency managers play in mitigation, and also raised important new questions. It is hoped that, through this research, mitigation scholarship, practice and policy will be advanced.

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APPENDIX A: EXCERPTS OF FEDERAL POLICY RELATED TO MITIGATION

National Mitigation Framework Suggested Local Government Roles and Responsibilities

Roles and Responsibilities of Local Governments that Advance Mitigation
Work with the Federal Government to inform the assessment, development, and coordination of mitigation core capabilities
Provide leadership to promote, integrate, and enable an outcome of state and community empowerment to risk reduction and/or adaptation across all mission areas.
Use regulatory authorities and provide funds, incentives, expertise, and leadership to promote the development, implementation, and assessment of mitigation core capabilities. For example, use financial incentives and targeted capital improvement projects to reduce long-term vulnerabilities.
Contribute to the general understanding of risk through the collection, development, analysis, and sharing of information about threats, hazards, and vulnerabilities, as well as through constant evaluation and enhancement of risk assessment methodologies.
In coordination with other mission areas, develop, fund, and deliver training curricula for grades K-12, trade/technical schools, colleges and universities, continuing education, and the whole community to develop proficiency in understanding risks and mitigation.
Engage with local leaders and planners to share perspectives on localized threats and hazards, vulnerabilities, and priorities for incorporating mitigation into community planning and development, as well as continuity and recovery plans, therefore making achieving resilience a part of the community both before and after a disaster.
Assess risks and disaster resilience. Maintain awareness of threats, hazards, and vulnerabilities.
Incorporate resilience principles and priorities into ongoing activities, including family preparedness plans, economic and community planning and development, construction and assessment of infrastructure, comprehensive plans, disaster response and recovery support, homeland security research and development, training, and exercises. Identify leaders who will be responsible for applying mitigation capabilities to these areas and identify ways to incentivize integration into existing organizational processes.
Acquire funding or resources and take action to reduce risk through projects, such as home elevation, or processes, such as enforcing building codes.
Provide functional capacity and technical expertise to implement long-term vulnerability reduction projects across the whole community, whether engineering a bridge to withstand an earthquake, planning a future development for resilience, or building redundancies into critical infrastructure and lifeline systems.
Identify loss reduction and loss control methods and resources to develop mitigation strategies that reduce risks from threats and hazards to personnel, assets, and operations. Maintain continuity of government and/or continuity of operations/business continuity.
Become familiar with public information and warning systems, share information with friends and neighbors, build skills to enhance behavioral health resilience, plan ahead, and promote mitigation efforts within communities.
Conduct and fund outreach and education to effectively community successful practices, local mitigation priorities, and event-specific warnings and information in ways that are clear, consistent, accessible, and culturally and linguistically appropriate. Plan ahead and incorporate the needs of those with disabilities and others with access and functional needs.

From the Stafford Act:
Sec. 322 Mitigation Planning (42 U.S.C. 5165)

(a) Requirement of Mitigation Plan – As a condition of receipt of an increased Federal share for hazard mitigation measures under subsection (e) of this section, a State, local, or tribal government shall develop and submit for approval to the President a mitigation plan that outlines processes for identifying the natural hazards, risks, and vulnerabilities of the area under the jurisdiction of the government.
(b) Local and Tribal Plans – Each mitigation plan developed by a local or tribal government shall –
    (1) describe actions to mitigation hazards, risks and vulnerabilities identified under the plan; and
    (2) establish a strategy to implement those actions.

From the Disaster Mitigation Act of 2000:
42 USC 5133 Sec. 101 FINDINGS AND PURPOSE.

(a) Findings.—Congress finds that—
    (1) Natural disasters, including earthquakes, tsunamis, tornadoes, hurricanes, flooding, and wildfires, pose great danger to human life and to property throughout the United States;
    (2) Greater emphasis needs to be placed on—
        (A) Identifying and assessing the risks to States and local governments (including Indian tribes) from natural disasters;
        (B) Implementing adequate measures to reduce losses from natural disasters; and
        (C) Ensuring that the critical services and facilities of communities will continue to function after a natural disaster;
    (3) Expenditures for postdisaster assistance are increasing without commensurate reductions in the likelihood of future losses from natural disasters;
    (4) In the expenditure of Federal funds under the Robert T. Stafford Disaster Relief and Emergency Assistance Act (42 U.S.C. 5121 et seq.), high priority should be given to mitigation of hazards at the local level; and
    (5) With a unified effort of economic incentives, awareness and education, technical assistance, and demonstrated Federal support, States and local governments (including Indian tribes) will be able to—
        (A) Form effective community-based partnerships for hazard mitigation purposes;
        (B) Implement effective hazard mitigation measures that reduce the potential damage from natural disasters;
        (C) Ensure continued functionality of critical services;
        (D) Leverage additional non-Federal resources in meeting natural disaster resistance goals; and
        (E) Make commitments to long-term hazard mitigation efforts to be applied to new and existing structures.

APPENDIX B: INTERVIEW INVITATION LETTER

NOTE: THIS INVITATION WILL BE SENT BY EMAIL. IT WILL LOOK AS FOLLOWS:

From: North Dakota State University
Center for Disaster Studies and Emergency Management
Dept. 2351
P.O. Box 6050
Fargo, ND 58108-6050
(701) 231-5595

Dear [*Potential Participant Name*],

I am writing to request your input for an exploratory study on the role of emergency managers in disaster mitigation process at the county level. Disaster mitigation can be understood as the phase in which sustained action is taken to reduce or eliminate risk to people and property from hazards and their effects.

I am exploring this issue because not much is known about the county emergency manager's role in mitigation, even while there is reason to believe there are unique challenges and opportunities for counties during mitigation.

I am eager to learn about your mitigation experience in your community. If you would be willing to participate in this project, please contact me to schedule a convenient time for a short phone interview. The interview should take approximately one hour.

Please take a look at the attached document with information about the project. Afterwards, should you have any questions, feel free to contact me by phone at (339) 225-2281 or email at amanda.savitt@ndsu.edu. You may also contact Dr. Sarah Kirkpatrick, who is assisting with this project, by phone at (859) 539-0537 or by email at sarah.kirkpatrick@ndsu.edu.

I thank you in advance for your participation in this research project and look forward to speaking with you about your experiences.

Sincerely,

Amanda Savitt

APPENDIX C: INFORMATION SHEET

NDSU

North Dakota State University
Department of Emergency Management
Center for Disaster Studies and Emergency Management
Department 2351
P.O. Box 6050
Fargo, ND 58108-6050
(701) 231-5595

"The County Emergency Manager's Role in Disaster Mitigation"

INFORMATION SHEET

Research Study:
You are being invited to participate in an interview for a research project entitled "The County Emergency Manager's Role in Disaster Mitigation." This study is being conducted by Amanda Savitt from North Dakota State University, Department of Emergency Management.

Purpose of Study:
The purpose of this research is to explore the role of the county emergency manager during the disaster mitigation process. Disaster mitigation can be understood as the phase in which sustained action is taken to reduce or eliminate risk to people and property from hazards and their effects.

Basis for Participant Selection:
You are being invited to participate in this research project because of your role as a county emergency manager in FEMA Region III, V or X.

Explanation of Procedures:
Should you choose to participate, we will arrange a time of your choice between November 7, 2018 and February 1, 2019 for an interview. The interview will take approximately one hour unless you have more time and information to share.

The interviews will be conducted over the telephone and will be recorded using a digital recorder to assure that I accurately use the information you provide.

Potential Risks and Discomforts:
There should be no potential discomfort or physical, social, psychological, legal, or economic risk to you due to your participation in this study.

Potential Benefits:
Not much is known about the county emergency manager's role in disaster mitigation, even though there is reason to believe there are unique challenges and opportunities for county emergency managers during mitigation.

Your participation in this project will increase the information available to educate students and faculty in emergency management higher education as well as practicing emergency managers, other local elected officials, and members of local government about the realities associated with disaster mitigation.

Assurance of Confidentiality:
There are several important considerations that will be given to those who participate. First, anything you share in an interview will not be shared with any other interview participants.

Second, the interviews will be digitally recorded. Digitally recorded interviews will be uploaded to the interviewer's personal computer. The sound file will then be transcribed and codes assigned for identifying personal and geographic characteristics. The researchers for this project will be the only people in possession of the interviews, paper listing the codes, and their link to participant information. Once the recordings, transcriptions, and codes are no longer relevant to this research, they will be destroyed.

In interview transcriptions, researcher notes, and the final product, codes rather than identifying characteristics (personal or geographic) will be used. Your personal information will be kept confidential. Your name and jurisdiction will not be used in any reports. Aliases will be substituted instead (e.g. John Smith in County A).

Voluntary Participation and Withdrawal from the Study:
Your participation is voluntary and you may quit at any time. Your decision whether or not to participate will not affect your present or future relationship with North Dakota State University or any other benefits to which you are otherwise entitled. If you decide to participate, you are free to withdraw your consent and to discontinue participation at any time.

Offer to Answer Questions:
You should feel free to ask questions now or at any time. If you have any questions, you can contact me, Amanda Savitt, at amanda.savitt@ndsu.edu or by phone at (339) 225-2281, or my dissertation advisor, Dr. Sarah Kirkpatrick, at sarah.kirkpatrick@ndsu.edu. If you have any questions about the rights of human research participants, or which to report a research-related problem or injury, contact the NDSU Institutional Review Board (IRB) Office at (701) 231-8908 or ndsu.irb@ndsu.edu.

APPENDIX D: INTERVIEW GUIDE

County Emergency Managers in Disaster Mitigation

Interview Guide

Introduction Script: *Before we begin, I want to make sure that you are comfortable with a few things. Are you comfortable with the fact that you have been selected for participation in this research due to your role as a county emergency manager; that your participation in this project is voluntary; that you can let me know if you want to stop participating anytime; that while your confidentiality is not guaranteed, your name and your county's name will not be used in the final write-up of the data collected for this research; and that our conversation is going to be digitally recorded? Do you have any questions before we begin?*

1. Please tell me about your background and experience as a county emergency manager.
   Information sought:
   -Explanatory factors for understanding of role in mitigation
   -Disaster experience

2. Please tell me a little bit about your county.
   Information sought:
   -Contextual information, explanatory factors
   -Structure of government and distribution of authority
   -Hazards, vulnerabilities, and risks

3. How would you define 'mitigation'?
   Information sought:
   -Consistency/accuracy of EM conceptual understanding of mitigation

4. What has your county done to mitigate hazard risk?
   Information sought:
   -Mitigation activities that have been undertaken by the county
   -Consistency/accuracy of EM conceptual understanding of mitigation

5. What role did or do you play in mitigation efforts in your community?
   Information sought:
   -Perceived role of EM in mitigation

County Represented		Interview Date:	
State Represented:		Time Started:	Time Finished:
Gender:	Education:	Experience:	Background:

APPENDIX E: LIST OF POTENTIAL PROBING QUESTIONS

1. What did you do before you became [COUNTY NAME'S] emergency manager?
2. What do you view as your primary responsibility during disaster mitigation?
3. What is your vision for mitigation in your community?
4. What sources of funding have you used to finance mitigation?
5. What projects would you like to do if you had additional resources?
6. Which people or organizations have you partnered with on mitigation projects?
7. Do you feel you have regional or state support in your mitigation initiatives?
8. What has been your experience with the mitigation planning process?
9. Compared to other things you do day to day, how much time do you spend doing mitigation?
10. Are there any other groups in your community working on mitigation-related tasks or projects?
11. [If they have experienced a disaster] Have you tried to implement mitigation as part of the recovery process?
12. Do you feel the members of your community value disaster mitigation?
13. What sources of information have you used during mitigation? How did you use those information sources?

ID	Government Type	Population	Density (pop/mi^2)	Jurisdiction Type	2019 County Budget	Poverty Level	EM Office Location
1	Council-administrator	37,000	169	Large fringe metro	$115 million	9	Independent
2	Council-elected exec.	201,000	96	Small metro	$222 million	15	Sheriff's Office
3	Commission	12,000	18	Noncore	$20 million	16	Independent
4	Commission	105,000	167	Large fringe metro	$99 million	18	Independent
5	Council-elected exec.	102,000	141	Small metro	$163 million	9	Independent
6	Commission	8,000	26	Micropolitan	$18 million	14	Independent
7	Commission	40,000	97	Noncore	$21 million	20	Independent
8	Council-elected exec.	31,000	12	Micropolitan	$335 million	7	Independent
9	Commission	238,000	620	Large fringe metro	$285 million	5	Sheriff's Office
10	Commission	23,000	76	Noncore	$7 million	17	Independent
11	Council-administrator	316,000	747	Large fringe metro	$712 million	7	Independent
12	Council-administrator	435,000	676	Large fringe metro	$509 million	10	Emergency Svcs
13	Council-elected exec.	2,000	0	Noncore	$13 million	16	Independent
14	Council-administrator	321,000	360	Medium metro	$306 million	15	Independent
15	Commission	11,000	43	Noncore	$50 million	12	Emergency Svcs
16	Commission	28,000	75	Medium metro	$19 million	11	Independent
17	Commission	18,000	88	Large fringe metro	$43 million	5	Fire-Rescue
18	Commission	352,000	77	Medium metro	$357 million	19	Independent
19	Council-administrator	500,000	665	Large fringe metro	$476 million	7	Emergency Svcs
20	Council-administrator	65,000	101	Large fringe metro	$331 million	6	Fire-Rescue
21	Commission	20,000	22	Noncore	$41 million	11	Independent
22	Council-administrator	99,000	155	Small metro	$114 million	15	Planning
23	Commission	9,000	5	Noncore	$21 million	8	Independent
24	Commission	25,000	23	Noncore	$27 million	16	Sheriff's Office
25	Commission	40,000	67	Noncore	$18 million	18	Public Safety
26	Commission	83,000	75	Small metro	$66 million	18	Sheriff's Office
27	Commission	67,000	470	Large fringe metro	$206 million	8	Fire Department
28	Commission	28,000	68	Noncore	$32 million	9	Independent
29	Commission	172,000	409	Large fringe metro	$43 million	6	Independent
30	Council-elected exec.	1,930,000	913	Large central metro	$5.8 billion	10	Independent

ID	Government Type	Population	Density (pop/mi^2)	Jurisdiction Type	2019 County Budget	Poverty Level	EM Office Location
31	Council-elected exec.	98,000	13	Small metro	$173 million	8	Independent
32	Commission	37,000	35	Micropolitan	$21 million	23	Independent
33	Council-elected exec.	948,000	3926	Large central metro	$1.2 billion	21	Independent
34	Commission	11,000	86	Large fringe metro	$10 million	15	Independent
35	Commission	26,000	51	Noncore	$10 million	20	Independent
36	Commission	35,000	29	Noncore	$68 million	13	Independent
37	Council-elected exec.	713,000	342	Large fringe metro	$995 million	9	Public Safety
38	Commission	4,000	1	Noncore	$12 million	19	Independent
39	Commission	200,000	32	Medium metro	$341 million	15	Sheriff's Office
40	Council-elected exec.	166,000	612	Large fringe metro	$262 million	15	Sheriff's Office
41	Council-administrator	197,000	211	Medium metro	$178 million	12	Emergency Svcs
42	Commission	69,000	166	Micropolitan	$27 million	15	Emergency Svcs

APPENDIX G: INSTITUTIONAL REVIEW BOARD APPROVAL

NDSU NORTH DAKOTA STATE UNIVERSITY

December 6, 2018

Dr. Sarah Kirkpatrick
Emergency Management

Re: IRB Determination of Exempt Human Subjects Research:
Protocol #HS19112, "The Role of the County Emergency Manager in Disaster Mitigation"

Co-investigator(s) and research team: Amanda Savitt
Date of Exempt Determination: 12/6/2018 Expiration Date: 12/5/2021
Study site(s): varied
Sponsor: n/a

The above referenced human subjects research project has been determined exempt (category #2b) in accordance with federal regulations (Code of Federal Regulations, Title 45, Part 46, Protection of Human Subjects). This determination is based on the original protocol submission (received 11/30/2018) with updated information sheet (received 12/5/2018).

Please also note the following:
• If you wish to continue the research after the expiration, submit a request for recertification several weeks prior to the expiration.
• The study must be conducted as described in the approved protocol. Changes to this protocol must be approved prior to initiating, unless the changes are necessary to eliminate an immediate hazard to subjects.
• Notify the IRB promptly of any adverse events, complaints, or unanticipated problems involving risks to subjects or others related to this project.
• Report any significant new findings that may affect the risks and benefits to the participants and the IRB.

Research records may be subject to a random or directed audit at any time to verify compliance with IRB standard operating procedures.

Thank you for your cooperation with NDSU IRB procedures. Best wishes for a successful study.
Sincerely,

Kristy Shirley

Kristy Shirley, CIP, Research Compliance Administrator

For more information regarding IRB Office submissions and guidelines, please consult http://www.ndsu.edu/research/integrity_compliance/irb/. This Institution has an approved FederalWide Assurance with the Department of Health and Human Services: FWA00002439.

INSTITUTIONAL REVIEW BOARD
NDSU Dept 4000 | PO Box 6050 | Fargo ND 58108-6050 | 701.231.8995 | Fax 701.231.8098 | ndsu.edu/irb
Shipping address: Research 1, 1735 NDSU Research Park Drive, Fargo ND 58102

APPENDIX H: PARTICIPANTS' DEFINITIONS OF MITIGATION

I could quote a textbook but I don't want to do that. I'd say that, to help adapt to the environment. (Participant 1)

Mitigation is just lessening the impact of a disaster. (Participant 3)

I would say mitigation, the programs, it tries to mitigate the problem in the future. (Participant 4)

We always look at what we could do to make things better and not have the impact on a disaster that would come. (Participant 5)

Well, for me, mitigation is basically, kind of lessen the severity of any incident we have. (Participant 6)

An action taken to lessen the impact of an emergency (Participant 9)

Mitigation is reducing your vulnerabilities, to either reduce the impacts, or to completely remove it, so it doesn't happen again the next time. (Participant 11)

I define mitigation as, it's anything we can do to prepare for the risks we face. (Participant 13)

Mitigation, to me, it starts from prevention to providing a service during a disaster and continuing to provide that service after that disaster, and to plan, to have a plan, implement the plans, and once you get through with the disaster, reevaluate, after action report, see what you can do better, see what you need to improve on, what other resources we may need, identify those and make improvements in case we have another disaster. (Participant 15)

Well, it's working along other agencies and being able to get out there and try to inform, teach, and kind of like schooling people on, we need to do this in case this happens, or we need to do that in case that happens. Anything we can do for the county to help reduce the loss that might come out of any kind of a natural disaster, such as a tornado or straight line winds or anything like that. (Participant 16)

Mitigation essentially is actions necessary to defend against known hazards. And that could be things we do, things we build, things we change. (Participant 17)

I would define it as preparing for natural and manmade disasters, but it's more than preparing, it's almost preventing, putting in measures to prevent the loss or lessen the impact of an event. (Participant 18)

We're really looking at how we can find out the risk of – an ideal goal would be to reduce the impacts of the threat so we don't have to deal with them anymore, but we realize that things

like weather, that's not always a reality. So a lot of it is just being strategic for us, more so with funding, so we can reduce the impacts of the hazards we face here. (Participant 20)

Anytime we have a disaster, what can we do to limit the impacts of it. Now that we've focused on it, kind of one of those fields, that it still kind of goes by the wayside, no one really thinks of well, if we do this obviously it will save us money in the long run. (Participant 21)

It's actions you can take to reduce the amount of risk to your community. (Participant 22)

I guess mitigation, how I would define it, is to lessen impacts of future disasters, or doing projects to lessen impacts. (Participant 23)

Well, I look at it as a way to prevent damages and loss of life or injuries. So doing things like setting up programs, or ensuring that people aren't building and/or moving vulnerable-type facilities into hazardous areas. (Participant 25)

Mitigation to me, for a definition, is being able to reduce or eliminate any type of risk or hazard from occurring, or if it does minimizing that issue. But then also, there's two phases to mitigation, you have pre- and post-mitigation when a disaster occurs. So you can have the mitigation that occurs before the disaster, which the definition I just shared pertains to that, then you also have post-mitigation, after a disaster occurs, what do you do to eliminate that from occurring again? (Participant 26)

To me, mitigation is lessening the effects of a disaster. So, if you can take steps beforehand in order to prevent or lessen water or earthquake or damages caused by a hazard, that would be mitigation. (Participant 27)

So, fundamentally, mitigation is risk reduction. It's anything that strengthens things to reduce risk to that hazard. (Participant 30)

Mitigation is what emergency management should be primarily focused on. Just, reducing the risk to people. Property or structures by, it could be either adjustments to infrastructure, physically moving people, education. It's just anything to make the potential impact of a hazard less. (Participant 31)

I look at it as anything that reduces the severity towards life, property, and I add in the financial component, I can't get a business up and running, we're not going to make money in the county, so that's kind of how I look at it, literally in that order. But it's just trying to take the risk and severity and lessen it, is really how I look at it. (Participant 32)

We really consider mitigation steps that we can take to lessen the impact of future disasters. (Participant 33)

Mitigation, we know bad things are going to happen, we try to lessen the impact of those bad things. That mitigation, to me, in a nutshell. (Participant 34)

I look at mitigation as the efforts and steps we can take to minimize the impact of disaster events. (Participant 36)

Certainly we view it in the traditional sense of FEMA's definition of hazard mitigation, you know, reducing risk to people and property ahead of disasters. There's kind of the overarching FEMA definition hat is kind of the underpinning of most of what we do, but there are nuances that we look at in terms of how we're adapting to things like a changing climate and how we're actually addressing things that are manmade, that aren't naturally, or part of the natural ecosystem. (Participant 37)

Mitigation would be the planning and process of preventing disasters, planning for the disasters, and then going ahead and preparing to plan for the disasters and doing the mitigation work prior to, so it's a bridge. (Participant 38)

I would think of it as things we can do before the bad thing happens so we make it not so bad. (Participant 39)

Well mitigation, in my mind, is something that can be done to help prevent or alleviate any further hazards from happening, and that could be all hazards, for that matter. It can be something simple as a physical, something physically done to prevent something from happening, to having the right systems in place to better notifications or to prevent something from happening. (Participant 41)

You know, it's the preplanning. So, having plans in place for worst case scenario is something that would come to the top of my brain, whenever you ask me about mitigation. You want to always protect life and property, so to always think of what worst case scenario could happen and what plans or what training do we have to reduce that? It's something we work on constantly. (Participant 42)