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**MONTEREY, CALIFORNIA**

**THESIS**

**DOES THEORY MATTER? APPLYING ORGANIZATIONAL  
THEORY TO DEVELOP EFFECTIVE LOCAL GOVERNMENT  
EMERGENCY MANAGEMENT PROGRAMS**

by

Jason M. Sirney

March 2019

Co-Advisors:

Glen L. Woodbury  
Mitchell S. Friedman

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DEVELOP EFFECTIVE LOCAL GOVERNMENT EMERGENCY  
MANAGEMENT PROGRAMS**

Jason M. Sirney  
Emergency Manager, City of Sacramento  
BA, California State University San Bernardino, 1995  
MPA, California State University San Bernardino, 1998  
MS, Jacksonville State University, 2006

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March 2019**

Approved by: Glen L. Woodbury  
Co-Advisor

Mitchell S. Friedman  
Co-Advisor

Erik J. Dahl  
Associate Chair for Instruction  
Department of National Security Affairs

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## **ABSTRACT**

Emergency management has developed into a profession with demands and expertise separate from other professional disciplines in government service. Coordination issues before, during, and after a disaster have continually been a challenge for emergency management. Although the organizational placement of local government emergency management agencies varies extensively across the United States, public administration organizational theory provides a foundation for considerations that inform the design of these bureaucratic structures. Structure influences essential emergency management functions such as interagency coordination, resource allocation, program prioritization, decision making, information flow, and collaboration. Organizational design also significantly affects program characteristics, including culture development, professional identity, and employee engagement—all of which have direct relationships with program effectiveness. This thesis supports the notion that jurisdictions need to carefully consider the organizational placement of their emergency management programs to support effective service delivery. Jurisdictions should ensure that programs are structured in a way that promotes program empowerment, limits hierarchical layers, promotes executive sponsorship, enhances collaboration, and develops an emergency management culture.

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## **LIST OF ACRONYMS AND ABBREVIATIONS**

CDM	collaborative disaster management
DHS	U.S. Department of Homeland Security
EMAP	Emergency Management Accreditation Program
FEMA	Federal Emergency Management Agency
FES	Fire & Emergency Services Department (Sonoma, CA)
ICMA	International City/County Management Association
NFPA	National Fire Protection Association

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## EXECUTIVE SUMMARY

One of the most fundamental responsibilities of local government is to provide the community with protection and safety. Included in this service is emergency management functions, which address disaster preparedness, response, recovery, and mitigation activities to improve resiliency. Local emergency management is particularly in the forefront of these services, as local government typically is the first to respond and the last to leave the scene when disaster strikes. Local government also is the level of public service in closest proximity to the population it serves, resulting in significant interaction. How, then, should local government design its organizational structure to best implement critical emergency management services?

A local government's emergency management function has unique characteristics; as such, it takes focused attention to determine how the organization should be designed to successfully manage crises. Emergency management programs do not show measurable value until disaster strikes, or an emergency exposes the community to the gaps or successes of the program; jurisdictional leadership has few opportunities to truly see the emergency management program demonstrate its diverse capabilities. Jurisdictions therefore give higher priority to programs that show more immediate concerns. The International City/County Management Association observes that "because the need for emergency management may be neither self-evident nor readily financed by elected officials, it is imperative that local government administrators take the initiative to establish an emergency management program as an ongoing community function."<sup>1</sup>

The organizational structure and placement of the emergency management program within the local government influences several factors that drive mission effectiveness. A particular organizational construct may ultimately increase disaster-generated casualties, escalate community economic losses, and erode public confidence. These outcomes often result from policy implications that challenge effective interagency coordination,

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<sup>1</sup> International City/County Management Association, *Managing Small Cities and Counties* (Washington, DC: ICMA Training Institute, 1994), 177.

collaborative disaster management, human behavior, personnel capabilities, and program management. Design considerations have tremendous potential to influence employee engagement and the culture of the organization.

Government organizations commonly employ a bureaucratic model with a hierarchical structure to manage operations. When the organization is properly structured, hierarchy can release tremendous energy and creativity, can rationalize productivity, and can even improve the organization's morale.<sup>2</sup> However, a hierarchical model can constrain emergency management business practices. Several public administration theories and models offer organizational characteristics that can be incorporated into the structural design process. Professor Charles Wise found that "policymakers too often structure public organizations without adequate consideration of the larger environment in which the organization will operate."<sup>3</sup> Understanding these broader dynamics at work in organizational theory is important to effectively structuring the organization.

After reviewing local governments across the United States, this thesis found that emergency management operations are organized in a wide variety of ways. Some are organized under a hierarchy of several different professional disciplines, and each discipline brings with it differing cultures, traditions, priorities, and understandings of the emergency management mission. The comparative review also found that other disciplines do not generally follow the same trend of diverse reporting relationships; other local government disciplines have more consistent organizational placement. Without a consistent approach to organization, the emergency management discipline will continue to suffer from a weak professional identity, which makes it more difficult for those outside of the emergency management profession to assemble a meaningful understanding of what the discipline is.

Professional identity further helps to provide recognition of program roles and responsibilities that promote inter-organizational understanding. Emergency management

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<sup>2</sup> Jay Shafritz, J. Steven Ott, and Yong Suk Jang, *Classics of Organization Theory*, 6th ed. (Belmont, CA: Thomson Wadsworth, 2005), 231.

<sup>3</sup> Charles Wise, "Public Service Configurations and Public Organizations: Public Organization Design in the Post-privatization Era," *Public Administration Review* 50, no. 2 (March/April 1990): 142.

programs operate within two distinct capacities: routine activities and crisis response. The organizational construct must be adaptable to address the needs of each while portraying a clear message about where the program fits in relation to other stakeholders. Jurisdictions can most effectively prepare for disasters and build response capacity when emergency management is an integral part of everyday local government operations.<sup>4</sup> Integrating everyday activities with the flexibility to address emergent situations in an organizational context enhances the emergency management field's professional identity.

A local jurisdiction's organizational structure has considerable consequences for its overall effectiveness. It is particularly difficult to establish metrics for emergency management programs, as many objectives may not be realized until disaster strikes. However, organizational health and stability, the program's ability to acquire resources, and the degree to which stakeholders' needs are met all help to establish program effectiveness.<sup>5</sup> Both organizational theory and post-incident organizational evaluations have demonstrated connections between these characteristics and program success.

Collaboration—along with meaningful communication processes, organization-wide access, and clear priorities from executives—should be incorporated in structural design considerations. Collaborative relationships within and across organizations are central to the emergency management mission. Organizational design encourages social processes such as professional discourse and knowledge enhancement, which allow members to collectively organize, facilitate positive benefits, and normalize contributing behaviors among the workforce.<sup>6</sup> In addition to collaborative relationship building, a conscious design provides the environment that encourages professional discourse, technical competence, and knowledge sharing.

Like the field of public administration, emergency management benefits from harnessing both lessons in practical application and theory. Barry Bozeman explains that

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<sup>4</sup> International City/County Management Association, *Managing Small Cities and Counties*, 217.

<sup>5</sup> Joseph R. Matthews, "Assessing Organizational Effectiveness: The Role of Performance Measures," *Library Quarterly* 81, no. 1 (January 2011): 84.

<sup>6</sup> Kim Cameron et al., "Effects of Positive Practices on Organizational Effectiveness," *The Journal of Applied Behavioral Science* 47, no. 3 (2011): 289.

creating public policy ignorant of studies in organization normally is “just as feckless” as studying organization without considering policy research.<sup>7</sup> Without this conscious effort, theory may not be relevant to practical application and practice, as it does not benefit from rich, knowledge-based research. The theory has proven to add value to inter-organizational coordination, information flow, executive decision making, resource allocation, and planning.

After analyzing the practical and theoretical considerations, this thesis provides several recommendations for enhancing organizational design considerations. Organizational structure must consider the multiple variables that emergency management programs contend with, both routinely and during crisis management scenarios. Communication pathways must exist horizontally and vertically, as well as external to the organization, with minimal barriers. By incorporating the following organizational design elements, local government leadership can take direct actions to improve the effectiveness of their emergency management programs: 1) empowering the local emergency management program to implement its assigned responsibilities; 2) limiting the number of hierarchical layers that exist between the jurisdiction executives and the emergency management program; 3) demonstrating executive-level sponsorship that prioritizes the emergency management program; 4) incorporating collaborative efforts for the emergency management program; and 5) promoting an enduring legacy and developing a culture of emergency preparedness and inter-function collaboration.

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<sup>7</sup> Barry Bozeman, “What Organization Theorists and Public Policy Researchers Can Learn from One Another: Publicness Theory as a Case-in-Point,” *Organization Studies* 34, no. 2 (February 2013): 182.

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It is hard for me to believe that we have reached the conclusion of this journey. It was two years ago that I was authoring my application essays, and I am now closing out this academic adventure. There are so many people that deserve acknowledgement and my sincere appreciation for allowing me this tremendous opportunity.

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Throughout our journeys, special people come into our lives, helping to shape who we are. I am especially grateful to have been afforded the good timing to be placed among the professional men and women that made up Cohort 1703/04. To my fellow Cohortians, I will always cherish and miss the many weeks we spent together in Hagerstown. You continually educated me, supported me, and, more often than not, humbled me. This unique experience provided us tremendous opportunities to learn from one another, to be tested in unfamiliar environments, and to develop close bonds through our shared experiences. I

look forward to our ongoing relationships as we venture down the various pathways life will present to us.

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Thank you all so very much!

## I. INTRODUCTION

All knowledge of cultural reality, as may be seen, is always knowledge from particular points of view.

—Max Weber<sup>1</sup>

### A. PROBLEM STATEMENT

One of the fundamental responsibilities of local government is to provide safety services to the community. This includes managing disasters—which, in turn, includes activities dedicated to preparedness, response, recovery, and mitigation to improve disaster resiliency. Throughout the nation, a variety of organizational frameworks at the local level assume these responsibilities. However, the organizational models vary across emergency management programs, which creates inconsistencies among programs that are meant to cultivate coordination and collaboration. To compound the problem, there is little current research analyzing emergency management program effectiveness. In particular, little if any research addresses how classical organization theories may be used to improve program effectiveness in disaster management. This thesis explores the effectiveness of local emergency management programs by applying classical organizational theory and design used in public administration.

An emergency management program’s design, and its placement within the local government, influences several factors that drive mission effectiveness. Different organizational structures have different advantages and disadvantages, and a particular construct can limit the overall effectiveness of emergency management. For instance, policy implications can challenge effective interagency coordination, collaborative disaster management, human behavior, personnel capabilities, and program management. When developing disaster management policy, government leaders must consider consequences such as additional human casualties, greater economic loss, and erosion of public confidence. Careful consideration is necessary when policymakers determine where

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<sup>1</sup> “Max Weber (1864–1920),” Generation Online, accessed January 5, 2019, <http://www.generation-online.org/p/pweber.htm>.

emergency management programs fit within the organizational structure. Absent this organizational evaluation, leaders unknowingly increase the risk to the agencies and communities they serve.

## **B. BACKGROUND**

The emergency management field, with a background in emergency services and civil defense, has evolved into a relatively new profession. What is known today as emergency management is rooted in the *civil emergency preparedness* concept that originated following World War II, which focused on continuity of government, local industrial mobilization, and civil defense due to nuclear attack.<sup>2</sup> The inclusion of natural disasters into the national civil defense policy began in 1970 under the Richard Nixon administration; in 1979, the mission was expanded to include disaster recovery and relief with the creation of the Federal Emergency Management Agency (FEMA).<sup>3</sup>

Over time, emergency management has developed into a profession with demands, expertise, and knowledge separate from other professional disciplines in government service. The specialized skill sets and knowledge required of emergency management practitioners demonstrate an independent professional discipline. A practitioner's perspective on public policy will vary from discipline to discipline. Thus, we must consider the following question: What effect does perspective have on resourcing, setting objectives, and setting priorities in an emergency management program?

Coordination issues before, during, and after a disaster have continually been a challenge for emergency management professionals. Disaster events are complex; they typically affect widespread areas, multiple communities, and different demographics. The scope of the incident tends to be so broad that single issues bleed over into other areas,

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<sup>2</sup> Henry Hogue and Keith Bea, *Federal Emergency Management and Homeland Security Organization: Historical Developments and Legislative Options*, CRS Report No. RL33369 (Washington, DC: Congressional Research Service, 2006), 6, <https://fas.org/sgp/crs/homesecc/RL33369.pdf>.

<sup>3</sup> Homeland Security National Preparedness Task Force, *Civil Defense and Homeland Security: A Short History of National Preparedness Efforts* (Washington, DC: U.S. Department of Homeland Security, 2006), 18, <https://training.fema.gov/hiedu/docs/dhs%20civil%20defense-hs%20-%20short%20history.pdf>.

magnifying the coordination complexities.<sup>4</sup> When coordination breaks down, it poses a substantial threat to those managing and working disaster incidents. To address coordination challenges, emergency management must have access to stakeholders to develop plans and procedures. In addition to conventional emergency services practitioners, stakeholders include a broad array of participants, such as representatives from non-governmental organizations, utilities, critical infrastructure agencies, and others who are typically unfamiliar with each other's practices.<sup>5</sup>

Humans have limited information processing and memory capabilities; ultimately, these limitations alter decision-making and managerial judgement.<sup>6</sup> In the midst of rapidly evolving emergency events, emergency managers have little time to make decisions, they face tremendous uncertainty, and they are surrounded by chaos. During crises, decision makers tend to work from a mental model of the incident and rely on prior personal experience.<sup>7</sup> Thus, a critical question emerges: Does structuring the emergency management program within a part of the organization focused on other primary responsibilities alter decision-making capabilities if experience weighs heavily on decision makers during critical incidents? This impact is magnified as comprehensive emergency management concepts extend well beyond the focus of other local government departments—to include everything from incident intelligence gathering to debris management—and from economic disaster recovery to evacuation. The complexity and diversity of emergency management issues drive the need for careful consideration when structuring the local government organization.

Emergency management programs do not show measurable value until disaster strikes, or an emergency exposes the community to the gaps or successes of the program;

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<sup>4</sup> David A. McEntire and John R. Lindsay, "One Neighborhood, Two Families: A Comparison of Intergovernmental Emergency Management Relationships," *Journal of Emergency Management*, 10, no. 2 (March/April 2012): 94.

<sup>5</sup> Steven Curnin et al., "A Theoretical Framework for Negotiating the Path of Emergency Management Multi-agency Coordination," *Applied Ergonomics*, 47 (2015): 300.

<sup>6</sup> Patricia A. Jacobs and Donald P. Gaver, *Human Factors Influencing Decision Making*, NPS-OR-98-003 (Monterey, CA: Naval Postgraduate School, 1998), i.

<sup>7</sup> Roger C. Huder, *Disaster Operations and Decision Making* (Hoboken, NJ: John Wiley & Sons, 2012), 22.

jurisdictional leadership has few opportunities to truly see an emergency management program demonstrate its diverse capabilities. This may mean that decisions about how the emergency management component is organized fall on assumptions, instead of on a carefully planned mission and responsibilities analysis. Organizational theory—combined with analysis of past case studies—presents tremendous opportunities to develop organizational structures to promote optimal organizational effectiveness.

### **C. RESEARCH QUESTION**

How can organizational theory and design principles be used to enhance the effectiveness of a local jurisdiction’s emergency management program?

This thesis provides a starting point to evaluate whether classical organizational theory and design principles can be employed to help develop a strategy for organizing local government emergency management. Currently, emergency management programs throughout the country are structured differently, which has created inconsistency in mission delivery from program to program. If emergency management programs are expected to coordinate across multiple entities and facilitate activities such as mutual aid, they must be able to communicate clearly and have consistent missions. Could elements of classical organizational theory help a local government emergency management program successfully integrate efforts? Examining organizational effectiveness from within is one way to mitigate inter-organizational coordination.

### **D. SIGNIFICANCE OF THE RESEARCH**

This research examines emergency management program design at the local government level. The findings and evaluation will help jurisdiction leadership with organizational development and structuring efforts. Unlike other government programs, which address immediate and visible problems, emergency management programs prepare policies and plans for incidents that might not occur.<sup>8</sup> Jurisdiction leadership must therefore have a greater awareness of emergency management–specific organizational

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<sup>8</sup> Daniel Henstra, “Evaluating Local Government Emergency Management Programs: What Framework Should Public Managers Adopt?” *Public Administration Review* 70, no. 2 (March/April 2010): 237.

characteristics. If key activities are structured incompatibly within the organization, there are often consequences; public administration organizational theories and models can enhance structure design and deliberate administrative decision making. Certain organizational characteristics and requirements, such as communication flow and access to decision makers, demand special consideration when determining organizational configuration. This thesis helps to identify these characteristics to determine optimal organizational design.

Thus far, there has been minimal research specifically examining the organizational effectiveness of emergency management programs in local government. While there is research about effectiveness during crisis response, there is little by way of analysis during routine emergency management contexts. As the emergency management profession continues to evolve and define itself, this thesis provides a foundation for the inclusion of inter-organizational dynamics in emergency management doctrine. Additionally, this work helps to explain how organizational models can meet the demands of emergency management programs to best prepare for crisis management.

## **E. RESEARCH DESIGN AND METHODOLOGY**

This thesis employs qualitative analysis to evaluate current organizational frameworks in local emergency management programs. A comparative analysis demonstrates the current trends concerning where emergency management programs are situated within local municipal structures. A review of academic literature and organizational behavior provides the framework for evaluating program structure. The case studies also illustrate key organizational characteristics used for internal programmatic evaluations.

### **1. Objects and Selection Criteria**

This thesis explores emergency management programs contained within local government. The research examines how the emergency management programs' organizational design alters program effectiveness. At the local government level, emergency management programs tend to be small components housed in any number of locations within the agency structure. The emergency management programs' size,

location, mission, and overall organizational influence vary considerably across U.S. local governments. This thesis looks to understand organizational theory as it applies to public administration and to identify relationships between the theory and practical application. At the same time, this research examines how these organizational dynamics influence the effectiveness of the emergency management program. This research further seeks to reveal which organizational traits lead to more effective emergency management programs and to compare patterns of organizational structure currently in use.

The local government emergency management programs reviewed in this thesis were selected based on how the programs are built into their jurisdictional organizations. The initial research for this paper identified a wide range of methodologies for organizational placement and management among local emergency management programs across the United States. Larger local agencies are included in the comparative analysis to demonstrate current organizational conditions. The programs are further evaluated against the selected organizational theories and models.

There are a wide range of organizational models and theories within the public administration realm. The analysis—in an effort to apply the organizational theories to emergency management programs—focuses on three applicable theories: power and politics, systems, and scientific management. These theories each have direct relationships to organizational effectiveness in practical government applications, including emergency management. To develop greater context, the comparative analysis examines practical examples of local governments’ organizational restructuring and design evaluation. These case studies are limited to examples from the list of jurisdictions identified as comparable entities (described in Chapter IV).

## **2. Study Scope and Limitations**

This study is limited to emergency management programs at the local government level throughout the United States. Municipal and county emergency management programs are both included in the comparative analysis. Federal, state, and regional (such as councils of government) emergency management programs are excluded from this analysis. The chosen programs are those within the jurisdiction that are tasked with

managing the comprehensive emergency management program delivery—such as those responsible for emergency/disaster preparedness, planning, response coordination, recovery, and mitigation activities.

To best maintain an apples-to-apples comparison (i.e., to examine similar jurisdictions), only the largest entities—municipalities with populations of greater than 275,000 and counties with populations greater than 800,000—are evaluated within the comparative analysis. There are simply too many smaller jurisdictions to cover, and they vary significantly in size and resource capabilities. Additionally, emergency management is often not specifically identified as a function in organizational design for smaller agencies.

### **3. Data Instrumentation**

The data and research material for this thesis was acquired from multiple sources. Academic literature covering organizational theory and design provides a framework for analyzing existing programs. Findings from the academic literature also demonstrate recommended courses of action and the significance of organizational design. Federal requirements, national incident management standards, and other regulatory mandates are explored as well. Additionally, industry standards such as the Emergency Management Accreditation Program and National Fire Protection Association (NFPA) 1600 are included to establish roles and responsibilities, which helps determine effectiveness.

Jurisdictional annual budget documents and other organizational documentation demonstrates current trends and patterns in emergency management organizational structure. These documents help to compare the various program configurations and home in on the differences in organizational consistency between emergency management and other government services. The case study analysis also draws from incident after-action reports, program audits, progress reports to governing bodies, and other public documents.

### **4. Steps of Analysis**

To arrive at conclusions and recommendations, this thesis thoroughly reviews academic literature to identify pertinent organizational studies. The public administration—

based organizational theories—of which there are many, as previously mentioned—are narrowed down to those most relevant to emergency management responsibilities. The three selected organizational theories (power and politics, systems, and scientific management) are analyzed against current emergency management organizational practices. Regulations, legal requirements, national standards, and other relevant policies driving emergency management programs are also explored. Primary responsibilities most commonly assigned to emergency management programs are analyzed against the organizational theory-based academic literature, assessing structural implications.

The current state of emergency management program placement in the United States is inventoried and statistically categorized. This data is examined comparatively to describe how consistent the programs are across the country, and to identify patterns and trends. Specific case studies further aid in the analysis of organizational design implications and show links between tangible examples and public administration organizational theories and models. Ultimately, this thesis produces a best practice for inclusion into the organizational design of emergency management programs.

## **5. Output**

This thesis provides decision makers with an understanding of the relationship between organizational theories and the models employed by local governments—and how organizational design affects emergency management programs' ability to fulfill their mission. This research establishes a body of knowledge, based on both public administration organizational theories and analysis of practical application, that policymakers can use when considering organizational design. The research and analysis contained within this thesis provide local government with an inventory of considerations to enhance the decision-making, budget development, and policy creation that guide emergency management programs. Additionally, this thesis contributes to the current national discussion surrounding the professionalization of the emergency management discipline. It is important to remember, however, that there are numerous features of this dialogue about the discipline's professionalization; emergency management's ability to stand as an independent discipline is just one facet.

## **F. CHAPTER OVERVIEW**

This introductory chapter has identified the problem space and research question investigated in this thesis. Further, it has demonstrated the importance this research holds in local governments. It outlined the approach to data collection and the scope of the research, and discussed the steps taken in the data analysis.

Chapter II includes a review of the literature on organizational theories, public administration structural models, existing emergency management doctrine, and organizational effectiveness. The principles identified in the literature serve as a basis for analyzing existing organizational models and developing recommendations.

Chapter III provides the framework upon which the research builds. This chapter illustrates the roles and responsibilities of the local emergency management function to explain the relationship between mission needs and organizational design. One function specifically addresses the fundamental need for emergency management to collaborate with a wide variety of entities. Organizational effectiveness is addressed, linking characteristics of effective programmatic practices to organizational design elements.

Chapter IV examines local government organizational models that currently exist throughout the United States. It also presents data comparing other local government disciplines to reveal if similar structures share common features. This chapter looks at three case studies in which the organizational structure of the emergency management program was central to corrective actions following disaster events. This evaluation of current trends develops a frame of reference of existing organizational influences and an understanding of whether emergency management is unique to other disciplines.

Chapter V provides an analytical perspective of the different organizational models currently used in local government. The analysis illustrates the impact of organizational design on mission effectiveness for emergency management programs. Public administration theories are used to bridge the theoretical findings with practical applications using standard emergency management attributes, including coordination, information flow, decision making, resource allocation, and emergency planning.

The summary and recommendations, presented in Chapter VI, draw conclusions based on the analysis of current organizational trends, case studies, and application of public administration theories to practical functions.

## II. LITERATURE REVIEW

This chapter explores several key organizational theories that help frame the factors influencing the field of emergency management. These dynamics include structural models, considerations of effectiveness, and behavioral influences. The review examines classical organizational models frequently used in public administration. Additionally, the literature review examines emergency management doctrine and concepts of crisis management. The intent is to analyze the role these models play in organizational behavior and the resulting consequences of each model. This review further analyzes research on the effective structural placement of an emergency management program within the local government organization.

### A. DEFINING KEY CONCEPTS

Organization scholars have examined the study of modern organizations since the early 1900s. Louis Brandeis and Frederick Taylor pioneered the concepts of *scientific management* and *classical organizational management theory*.<sup>9</sup> Numerous scholars have researched, adopted, and described these principles of organizational dynamics. Gareth Morgan provides a set of common principles in capturing the essence of classical organizational theory. These principles, derived from the works of classical theorists such as Henri Fayol, F. W. Mooney, and Lyndall Urwick, include planning, organization, command, coordination, and control.<sup>10</sup> The literature review does not extend beyond this framework.

There have been multiple attempts to define emergency management, and the resulting definitions vary in scope and understanding. For instance, industry and academic sources often define—and apply—the concept differently. Academic research has used definitions of emergency management to provide a foundation for empirical writing; for example, Daniel Henstra describes emergency management “as the policy field that

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<sup>9</sup> Jay M. Shafritz, J. Steven Ott, and Yong Suk Jang, *Classics of Organization Theory*, 6th ed. (Belmont, CA: Thomson Wadsworth, 2005), 17.

<sup>10</sup> Gareth Morgan, *Images of Organization*, 2nd ed. (Thousand Oaks, CA: SAGE, 1997), 18.

involves courses of action to prevent, prepare for, respond to, and recover from emergencies.”<sup>11</sup> Jeanne-Marie Col, on the other hand, describes the concept as having two distinct components, “comprehensive emergency management” and “integrated emergency management.”<sup>12</sup> Emergency management scholars Heriberto Urby and David McEntire have found that the young discipline and its evolving disposition have resulted in problems with professional identity and growth.<sup>13</sup>

Practitioners and professional organizations offer definitions of emergency management similar to those found in academia, but the definitions deviate depending on the perspective of the discipline. Government organizations such as FEMA define emergency management as “a managerial function within which communities reduce vulnerabilities to hazards and cope with disasters.”<sup>14</sup> The International City/County Management Association (ICMA) explains that emergency management is the “integrated effort to prevent, or minimize the seriousness, of emergencies and disasters and to plan and coordinate the community’s response to them should they occur.”<sup>15</sup> Moreover, the definition of emergency management has evolved over time. As demonstrated by the Homeland Security Preparedness Task Force, over the past 70 years the concept has evolved from a civil defense–focused definition to FEMA’s current emergency management definition.<sup>16</sup>

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<sup>11</sup> Henstra, “Evaluating Local Government Emergency Management Programs,” 236.

<sup>12</sup> Jeanne-Marie Col, “Managing Disasters: The Role of Local Government,” *Public Administration Review* 67, no. s1 (December 2007): 114.

<sup>13</sup> Heriberto Urby and David McEntire, “Field, Discipline, and Profession: Understanding Three Major Labels of Emergency Management,” *Journal of Emergency Management* 13, no. 5 (September/October 2015): 394.

<sup>14</sup> “Emergency Management Definition, Vision, Mission, Principles,” Federal Emergency Management Agency, accessed December 16, 2018, [https://training.fema.gov/hiedu/docs/emprinciples/0907\\_176%20em%20principles12x18v2f%20johnson%20\(w-o%20draft\).pdf](https://training.fema.gov/hiedu/docs/emprinciples/0907_176%20em%20principles12x18v2f%20johnson%20(w-o%20draft).pdf).

<sup>15</sup> International City/County Management Association, *Managing Small Cities and Counties* (Washington, DC: ICMA Training Institute, 1994), 177.

<sup>16</sup> Homeland Security National Preparedness Taskforce, *Civil Defense and Homeland Security*, 29.

## B. CLASSICAL ORGANIZATIONAL THEORIES

The study of modern organizations rose to prominence starting in the late nineteenth and early twentieth centuries. Research into modern organizational theories and models has been quite extensive and has resulted in numerous theories supporting elements of the broader scientific management and classical organizational management theories. Authors have elaborated on the concepts embedded in systems, complexity, and power and politics theories. Scholars tend to come to a consensus with these frames of thought in their application to organizational dynamics.

Efficiency and effectiveness have been key evaluation criteria for organizational performance in bureaucratic environments. Organizational scholars such as Henri Fayol, Frederick Taylor, and Max Weber have similarly described efficiency and effectiveness as the essence of organizational rationality.<sup>17</sup> However, Taylor, unlike Weber, views bureaucracy as essential to an effective organization. Weber describes how bureaucracies create social consequences within the organization; this erodes the human spirit and spontaneous interaction.<sup>18</sup> The organizational structure can also alter performance and influence the mission. Researchers Tom Christensen, Per Laegreid, and Lise Rykkja describe how “specific organizational arrangements may exacerbate crises or limit loss or damage.”<sup>19</sup> While these scholars may have differing views on the virtues of the bureaucratic model, it remains the primary basis for government organizations in the twenty-first century.

Researchers such as Alfred Nhema contend that Taylor’s scientific management perspective remains valid today in routine organizational processes.<sup>20</sup> Research has continued to demonstrate an additional focus on particular elements of the classic theories

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<sup>17</sup> Shafritz, Ott, and Jang, *Classics of Organization Theory*, 193.

<sup>18</sup> Morgan, *Images of Organization*, 17.

<sup>19</sup> Tom Christensen, Per Laegreid, and Lise H. Rykkja, “Organizing for Crisis Management: Building Governance Capacity and Legitimacy,” *Public Administration Review* 76, no. 6 (November/December 2016): 889.

<sup>20</sup> Alfred G. Nhema, “Relevance of Classical Management Theories to Modern Public Administration,” *Journal of Public Administration and Governance* 5, no. 3 (2015): 169.

and their effect on organizational dynamics. These dynamics, including such aspects as information flow and human behavior, affect an organization's functions. Markus Reitzig and Boris Maciejovsky describe how information flow and coordination between employees within hierarchical organizations ultimately affect decision making.<sup>21</sup> This research describes a correlation between organizational hierarchy and the volume of information disseminated up and down the chain.

Other research has added to the basic tenets of classical organizational theory by examining more specific theories and models. Neo-classical theories of organization have incorporated human elements into the science of organization. In this approach, Nhema describes that “group dynamics, leadership, motivation, participation, access to decision making and job environment are important variables.”<sup>22</sup> Kenneth Potocki and Richard Brocato provide additional theories, such as systems theory, examining how “an integrated assembly of interacting elements or components designed to carry out cooperatively a predetermined function” effectively addresses the people, processes, technologies, and materials within the organization.<sup>23</sup> Several authors provide analytical assessments of each of these theories and demonstrate their relationships in organizational applications. For example, Christensen, Laegreid, and Rykkja explain that organizational theory contributes to “understanding how governments deal with wicked crises that are transboundary, unique, and characterized by a high degree of uncertainty.”<sup>24</sup> Furthermore, Donata Francescato and Mark Aber found that applying organizational theory and empowerment results in “increased knowledge and appreciation of the various kinds of contributions different stakeholders make to the organization.”<sup>25</sup>

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<sup>21</sup> Markus Reitzig and Boris Maciejovsky, “Corporate Hierarchy and Vertical Information Flow Inside the Firm—A Behavioral View,” *Strategic Management Journal* 36 (2015): 1979.

<sup>22</sup> Nhema, “Relevance of Classical Management Theories,” 174.

<sup>23</sup> Kenneth Potocki and Richard Brocato, “A System of Management for Organizational Improvement,” *Johns Hopkins APL Technical Digest* 16, no. 4 (1995): 403.

<sup>24</sup> Christensen, Laegreid, and Rykkja, “Organizing for Crisis Management,” 889.

<sup>25</sup> Donata Francescato and Mark S. Aber, “Learning from Organizational Theory to Build Organizational Empowerment,” *Journal of Community Psychology* 43, no. 6 (2015): 732.

Another organizational theory to consider in evaluating emergency management programs is complexity theory. Emergency management programs are elements of public service that exhibit tremendous linear and nonlinear interactions and behaviors within and between organizations. Philip Anderson states that using complexity theory tools such as complex adaptive system theory can “model nonlinear, dynamic behavior in organizations ... having rich implications for the strategic management of organizations.”<sup>26</sup> Additionally, Dale Fitch and Noel Jagolino demonstrate that “complexity theory offers an alternative perspective whereby the forces that influence and that can be influenced are identified with the ability in describing how the organization works.”<sup>27</sup> However, other research has argued that complexity theory is not a straightforward approach to management analysis. Marguerite Schneider and Mark Somers claim that “it is difficult to ascertain how complexity theory-based models of leadership could be developed and tested.”<sup>28</sup>

### **C. PUBLIC ADMINISTRATION ORGANIZATIONAL THEORIES AND MODELS**

In addition to the extensive research examining the broader organizational theories and development of models, there has been substantial research into how these models apply to public service organizations. Beth Bechky analyzes the impact that occupations have and the work people do within organizations based on the established organizational theories.<sup>29</sup> This occupation–organization relationship demonstrates an example of internal variables that potentially alter organizational dynamics. Similarly, Michael McGuire and

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<sup>26</sup> Philip Anderson, “Complexity Theory and Organization Science,” *Organization Science* 10, no. 3 (May–June 1999): 228.

<sup>27</sup> Dale Fitch and Noel C. Jagolino, “Examining Organizational Functioning through the Lens of Complexity Theory Using System Dynamic Modeling,” *Journal of Social Service Research* 38, no. 5 (2012): 593.

<sup>28</sup> Marguerite Schneider and Mark Somers, “Organizations as Complex Adaptive Systems: Implications of Complexity Theory for Leadership Research,” *The Leadership Quarterly* 17, no. 4 (August 2006): 352.

<sup>29</sup> Beth A. Bechky, “Making Organizational Theory Work: Institutions, Occupations, and Negotiated Orders,” *Organizational Science* 22, no. 5 (September–October 2011): 1163.

Chris Silva show that the internal organizational structure affects the manager's capability to perform collaboratively and network through external links.<sup>30</sup>

Barry Bozeman presents a conflicting analysis, stating that while organization theory and public policy share many commonalities, "little cross-fertilization" has resulted in a mutual intellectual disregard.<sup>31</sup> Administrators responsible for the establishment of public policy frequently do not consider principles of organizational theory when building the structure that ultimately provides crisis and disaster management. Authors seem to agree regarding disconnects between theory and application. Bechky recognizes that "theoretical images of organizations are not well grounded, [and] they often do not successfully capture the realities of organizational life."<sup>32</sup> The practical application of organizational theory has resulted in a number of business enhancements; for instance, it is "steering leaders through ambiguous and uncertain circumstances" and "helping to reveal countervailing forces" within and between organizations.<sup>33</sup>

Public administration organizational models and theories are commonly applied to local government. However, there is little research on applying these models specifically to the emergency management component. Daniel Henstra uses a framework composed of elements from organizational theory and defined emergency management components to develop a methodology for organizational effectiveness. But because emergency management measures are infrequently activated by local government, there is limited ability to assess the application. Rather than relying on classical organizational theory, John Weaver examines the organizational effectiveness of emergency management using defined roles based on the definitions provided by the practitioner community. He

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<sup>30</sup> Michael McGuire and Chris Silva, "The Effect of Problem Severity, Managerial and Organizational Capacity, and Agency Structure on Intergovernmental Collaboration: Evidence from Local Emergency Management," *Public Administration Review* 70, no. 2 (March–April 2010): 281.

<sup>31</sup> Barry Bozeman, "What Organization Theorists and Public Policy Researchers Can Learn from One Another: Publicness Theory as a Case-in-Point," *Organization Studies* 34, no. 2 (February 2013): 169.

<sup>32</sup> Bechky, "Making Organizational Theory Work," 1157.

<sup>33</sup> S. David Brazer, Sharon D. Kruse, and Sharon Conley, "Organizational Theory and Leadership Navigation," *Journal of Research on Leadership Education* 9, no. 3 (2014): 257.

specifically evaluates networked relationships, finding that organizations that extend beyond their internal structures to collaborate externally are more successful.<sup>34</sup>

Several authors have noted that complex and diverse environments—which are always changing—force organizations to adjust strategic management and ultimately deviate from classical organization theories. Heather Larkin describes how, for human services organizations, success within a complex environment requires operational and transformational changes.<sup>35</sup> Lee Bolman and Terrence Deal developed a set of four frames (structural, human resource, political, and symbolic) complementing organizational theory to better adapt to changing organizational and leadership challenges.<sup>36</sup> Organizations face changes from several directions, requiring an understanding of how best to adapt.

#### **D. EMERGENCY MANAGEMENT DOCTRINE**

Just as is the case with other disciplines, professional doctrine drives the direction of emergency management. Doctrine has different definitions and applications; in general, this thesis applies doctrine as a set of principles or policies that are collectively taught as a standard expectation. In the field of emergency management, it is government that typically establishes the doctrine-based principles. However, professional organizations or academia can further guide doctrine development. Emergency management doctrine in the United States covers a wide variety of activities and principles facing the management of disasters and other complex emergencies. These guiding principles serve as the basis for defining the discipline of emergency management and set the stage for the analysis of organizational design principles and operational effectiveness.

A substantial portion of doctrinal development has occurred at the federal government level in the United States. The *National Preparedness Goal* defines the

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<sup>34</sup> John Weaver, “Quantifying Effectiveness in Emergency Management,” *Journal of Emergency Management* 12, no. 5 (September/October 2014): 380.

<sup>35</sup> Heather Larkin, “Integral Management and the Effective Human Service Organization,” *Journal of Integral Theory and Practice* 1, no. 3 (Fall 2005): 4.

<sup>36</sup> Lee G. Bolman and Terrence E. Deal, *Reframing Organizations*, 2nd ed. (San Francisco: Jossey-Bass, 1997), 15.

national approach to whole-community preparedness for all types of disasters.<sup>37</sup> The *National Response Framework* serves as a national guide for responding to all types of disasters and emergencies.<sup>38</sup> This framework addresses emergency management principles such as the integration of diverse response capabilities and the delivery of coordinated resources to an incident. The *National Incident Management System* establishes a nationwide system to manage all threats and hazards under a common approach to incident response, and the *National Disaster Recovery Framework* provides an approach to managing effective recovery efforts following disasters.<sup>39</sup> These recovery efforts include such activities as restoring community economic capacity, rebuilding critical infrastructure, and providing social and health services. The federal government has also developed planning doctrine for use by all levels of government to encourage consistent approaches to emergency planning. The *Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101* explains how the planning process should be conducted and how the jurisdiction's emergency plan should be formatted.<sup>40</sup>

In addition to significant volumes of existing emergency management doctrine developed by the federal government, state and local entities have developed doctrine as well. One such example is the California-based Standardized Emergency Management System. This statewide system was developed to address disasters occurring anywhere in the state using common and consistent emergency management processes to facilitate

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<sup>37</sup> U.S. Department of Homeland Security (DHS), *National Preparedness Goal*, 2nd ed. (Washington, DC: DHS, 2015), [https://www.fema.gov/media-library-data/1443799615171-2aae90be55041740f97e8532fc680d40/National\\_Preparedness\\_Goal\\_2nd\\_Edition.pdf](https://www.fema.gov/media-library-data/1443799615171-2aae90be55041740f97e8532fc680d40/National_Preparedness_Goal_2nd_Edition.pdf).

<sup>38</sup> DHS, *National Response Framework*, 2nd ed. (Washington, DC: DHS, 2013), [https://www.fema.gov/media-library-data/1466014682982-9bcf8245ba4c60c120aa915abe74e15d/National\\_Response\\_Framework3rd.pdf](https://www.fema.gov/media-library-data/1466014682982-9bcf8245ba4c60c120aa915abe74e15d/National_Response_Framework3rd.pdf).

<sup>39</sup> Federal Emergency Management Agency (FEMA), *National Incident Management System*, 3rd ed. (Washington, DC: DHS, 2017), [https://www.fema.gov/media-library-data/1508151197225-ced8c60378c3936adb92c1a3ee6f6564/FINAL\\_NIMS\\_2017.pdf](https://www.fema.gov/media-library-data/1508151197225-ced8c60378c3936adb92c1a3ee6f6564/FINAL_NIMS_2017.pdf); FEMA, *National Disaster Recovery Framework*, 2nd ed. (Washington, DC: DHS, 2016), [https://www.fema.gov/media-library-data/1466014998123-4bec8550930f774269e0c5968b120ba2/National\\_Disaster\\_Recovery\\_Framework2nd.pdf](https://www.fema.gov/media-library-data/1466014998123-4bec8550930f774269e0c5968b120ba2/National_Disaster_Recovery_Framework2nd.pdf).

<sup>40</sup> FEMA, *Developing and Maintaining Emergency Operations Plans: Comprehensive Preparedness Guide (CPG) 101*, Version 2.0 (Washington, DC: DHS, 2010), [https://www.fema.gov/media-library-data/20130726-1828-25045-0014/cpg\\_101\\_comprehensive\\_preparedness\\_guide\\_developing\\_and\\_maintaining\\_emergency\\_operations\\_plans\\_2010.pdf](https://www.fema.gov/media-library-data/20130726-1828-25045-0014/cpg_101_comprehensive_preparedness_guide_developing_and_maintaining_emergency_operations_plans_2010.pdf).

interagency cooperation and efficient flow of resources.<sup>41</sup> The state of Colorado produced the *Colorado Emergency Management Program Guide*, which outlines responsibilities for state and local emergency management personnel to adhere to during the disaster management cycle.<sup>42</sup> Similarly, Texas produces an *Emergency Management Executive Guide* to help state and local entities with emergency management service delivery.<sup>43</sup> While states have developed specific doctrinal products, they must also remain aligned to the federal emergency management doctrine described previously.

Emergency management doctrine has been reinforced, studied further, and evaluated through the application of academic analysis and development of standards. Urby and McEntire explain that as doctrine and professionalization progress, scholarship should examine “future ideas and implementation strategies that will help make emergency managers more effective and efficient.”<sup>44</sup> Much of the doctrine available today relies on a bureaucratic model of implementation, as seen in command-and-control environments. However, the work of Thomas Drabek and David McEntire describes the need to “open up alternative ways of looking at emergent phenomena and the appearance, existence, and disappearance of organizations.”<sup>45</sup> This ongoing evaluation of doctrine and disaster management strategies allows for enhanced adaptation to changes in political, environmental, demographic, climatic, bureaucratic, and threat conditions. To this end, the National Fire Protection Association has produced *NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Programs*, which establishes

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<sup>41</sup> California Emergency Management Agency, *SEMS Guidelines* (Sacramento: California Emergency Management Agency, 2009), <http://www.caloes.ca.gov/PlanningPreparednessSite/Documents/12%20SEMS%20Guidelines%20Complete.pdf>.

<sup>42</sup> Colorado Division of Homeland Security & Emergency Management, *Colorado Emergency Management Program Guide* (Denver: Colorado Division of Homeland Security & Emergency Management, 2016), <https://www.colorado.gov/pacific/dhsem/atom/75516>.

<sup>43</sup> Texas Division of Emergency Management, *Texas Emergency Management Executive Guide, FY 2017 Edition* (Austin: Texas Department of Public Safety, 2017), <http://www.dps.texas.gov/dem/GrantsResources/execGuide.pdf>.

<sup>44</sup> Urby and McEntire, “Field, Discipline, and Profession,” 394.

<sup>45</sup> Thomas E. Drabek and David A. McEntire, “Emergent Phenomena and the Sociology of Disaster: Lessons, Trends and Opportunities from the Research Literature,” *Disaster Prevention and Management* 12, no. 2 (2003): 108.

recommended standards for the preparedness, response, and recovery from disasters.<sup>46</sup> The Emergency Management Accreditation Program (EMAP) has developed a similar set of sixty-four national standards emergency management programs must subscribe to in order to obtain and maintain accreditation.<sup>47</sup>

## E. CRISIS MANAGEMENT AND STRATEGIC MANAGEMENT

Local government officials are routinely faced with varying degrees of crisis to manage and overcome. Crises come in numerous forms. Christine Pearson and Amy Sommer define crises as “events or trends that threaten the viability of the organizations within which they occur.”<sup>48</sup> Local officials face pressures when attempting to resolve crisis events, which demand a focused organizational strategy. Elizabeth Johnson Avery, Melissa Graham, and Sejin Park provide that “the severity of the impact of a crisis, regardless of type, is likely to ultimately determine reputational repercussions in public evaluations of governments’ management.”<sup>49</sup> The crises facing local emergency managers are complex and present a host of challenges not yet experienced. FEMA notes that “these and other forces of change produce a difficult, highly uncertain future, the complexity of which will test the ability of the emergency management community to execute our mission.”<sup>50</sup>

Crisis management encompasses a variety of attributes the emergency management program would be required to engage in to be effective. Research conducted by Sooho Lee and Ryan T. Fleming found that “local managers perceive collaboration as an essential tool

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<sup>46</sup> National Fire Protection Association, *NFPA 1600: Standard on Disaster/Emergency Management and Business Continuity Programs*, 2013 Edition (Quincy, MA: National Fire Protection Association, 2013), <https://www.nfpa.org/assets/files/AboutTheCodes/1600/1600-13-PDF.pdf>.

<sup>47</sup> Emergency Management Accreditation Program, *2016 Emergency Management Standard* (Lexington, KY: Emergency Management Accreditation Program, 2016), i, <https://www.emap.org/index.php/root/about-emap/96-emap-em-4-2016/file>.

<sup>48</sup> Christine M. Pearson and S. Amy Sommer, “Infusing Creativity into Crisis Management: An Essential Approach Today,” *Organizational Dynamics* 40, no. 1 (January-March 2011): 27.

<sup>49</sup> Elizabeth Johnson Avery, Melissa Graham, and Sejin Park, “Planning Makes (Closer to) Perfect: Exploring United States’ Local Government Officials’ Evaluations of Crisis Management,” *Journal of Contingencies and Crisis Management* 24, no. 2 (June 2016): 79.

<sup>50</sup> FEMA, *Crisis Response and Disaster Resilience 2030: Forging Strategic Action in an Age of Uncertainty* (Washington, DC: DHS, 2012), 1, [https://www.fema.gov/media-library-data/20130726-1816-25045-5167/sfi\\_report\\_13.jan.2012\\_final.docx.pdf](https://www.fema.gov/media-library-data/20130726-1816-25045-5167/sfi_report_13.jan.2012_final.docx.pdf).

in handling disasters and also act collaboratively due to both their needs and government regulations.”<sup>51</sup> Much like collaboration, interpersonal and inter-organizational communication is critical in crisis management. Researchers Caroline Bergeron and Francois Cooren state that “without the cooperation, participation, and involvement of every member in the crisis management team, some key issues may be ignored.”<sup>52</sup> Frederick Benaben includes additional considerations to the requirements for effective crisis management, claiming that “to perform a relevant and efficient crisis management, the three main objectives are: to define the response, to realize the response, and to maintain the response” to define the functional actions that need to be taken.<sup>53</sup>

The low-probability, high-consequence nature of crises poses unique challenges for public administrators. Christensen, Laegreid, and Rykkja provide that “crises strike at the core of both democracy and governance” and create challenges with “accountability, legitimacy, representation, and citizens’ ability to get their demands met effectively.”<sup>54</sup> Experience proves invaluable when confronting the complex nature of demands posed by evolving crises. Jeffrey Glick and Joseph Barbara observe that “having more extensive disaster knowledge and experience provides benefits in understanding and interpreting these new paradigm situations.”<sup>55</sup> In addition, crisis management systems must be able to adapt to evolving and complex incidents. Kimberly Stambler and Joseph Barbera, for example, note that “the emergency and disaster situations faced by responders today are

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<sup>51</sup> Sooho Lee and Ryan T. Fleming, “Collaborative Disaster Management in Local Governments: Perception, Performance, and Challenges,” *International Journal of Emergency Management* 11, no. 4 (2015): 351.

<sup>52</sup> Caroline D. Bergeron and Francois Cooren, “The Collective Framing of Crisis Management: A Ventriloquial Analysis of Emergency Operations Centers,” *Journal of Contingencies and Crisis Management* 20, no. 3 (September 2012): 135.

<sup>53</sup> Frederick Benaben, “A Formal Framework for Crisis Management Describing Information Flows and Functionable Structure,” *Procedia Engineering* 159 (2016): 354.

<sup>54</sup> Christensen, Laegreid, and Rykkja, “Organizing for Crisis Management,” 887.

<sup>55</sup> Jeffrey A. Glick and Joseph A. Barbara, “Moving from Situational Awareness to Decisions during Disaster Response: Transition to Decision Making,” *Journal of Emergency Management* 11, no. 6 (November/December 2013): 431.

commonly novel, increasingly complex, and require an extensive multidisciplinary response.”<sup>56</sup>

## **F. ORGANIZATIONAL EFFECTIVENESS**

Significant academic research has been conducted in the study of organizational effectiveness. The research has pointed to various relationships that produce both enhancements and obstacles to effective organizational practices. Organizational design and culture have been shown to both enhance and detract from organizational effectiveness. Researchers Colette Taylor, Casey Cornelius, and Kate Colvin describe visionary leaders as being “instrumental in activating organizational vision”; further, “those in authority positions will need to have better understanding of leadership, organizational change, and effectiveness.”<sup>57</sup>

The fundamental strategies developed by the organization have been shown to directly shape how effectively it will accomplish its mission. One such consideration examined by researchers is the transfer and management of knowledge within the organization. Trevor Smith, Annette Mills, and Paul Dion found that “business strategy together with knowledge management capabilities impact organizational effectiveness.”<sup>58</sup> Their study identifies that the knowledge infrastructure created within the organization and the ability to distribute knowledge influences organizational processes and capabilities. However, Smith, Mills, and Dion also point out that while organizational strategy and culture affect the organization’s knowledge process capabilities, “the enablers and processes that make up these capabilities may be differentially impacted.”<sup>59</sup> Additional studies point out another variable that promotes organizational effectiveness: knowledge

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<sup>56</sup> Kimberly S. Stambler and Joseph Barbera, “The Evolution of Shortcomings in Incident Command System: Revisions Have Allowed Critical Management Functions to Atrophy,” *Journal of Emergency Management* 13, no. 6 (November/December 2015): 518.

<sup>57</sup> Colette M. Taylor, Casey J. Cornelius, and Kate Colvin, “Visionary Leadership and its Relationship to Organizational Effectiveness,” *Leadership & Organization Development Journal* 35, no. 6 (2014): 576.

<sup>58</sup> Trevor A. Smith, Annette M. Mills, and Paul Dion, “Linking Business Strategy and Knowledge Management Capabilities for Organizational Effectiveness,” *International Journal of Knowledge Management* 6, no. 3 (2010): 39.

<sup>59</sup> Smith, Mills, and Dion, 39.

management and transformational leadership both have positive effects on organizational effectiveness, but the effects from transformational leadership are more pronounced.<sup>60</sup>

Emergency management programs must coordinate information and efforts across a variety of stakeholders. This responsibility demands communication and collaboration to drive mission effectiveness. Chun Wei Choo describes a model of incorporating information management to better understand organizational effectiveness. Choo provides four organizational cultures (Clan/Collaborate, Adhocracy/Create, Hierarchy/Control, Market/Compete) and four information management–based cultures (Relationship-Based, Risk Taking, Rule Following, Result-Oriented) that can be applied to organizational effectiveness.<sup>61</sup> Each of these cultures varies in control, information flow, process, and values as they relate to information management. While government entities demonstrate values within each of these cultures, they tend to reflect the hierarchy organizational and rule following information culture dominantly.

Organizational culture has been found to contribute significantly to effectiveness. Chad Hartnell, Amy Yi Ou, and Angelo Kinicki highlight that “culture types are significantly associated with organizational effectiveness” and that “organizational culture is an important organizational variable.”<sup>62</sup> Others have described culture within an organization as encompassing such concepts as “fundamental beliefs, assumptions, attitudes, values, artefacts, and behaviors of organizational members.”<sup>63</sup> Finally, a sense of a culture in an organization alters effectiveness, and separate institutional cultures exist within professional disciplines. In support of this point, Jackie Deem, Pam DeLotell, and Kathryn Kelly found that, in academic settings, organizational culture also influences

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<sup>60</sup> Hsin-Kuang Chi, Chun-Hsiung Lan, and Battogtokh Dorjgotov, “The Moderating Effect of Transformational Leadership on Knowledge Management and Organizational Effectiveness,” *Social Behavior and Personality* 40, no. 6 (2012): 1021.

<sup>61</sup> Chun Wei Choo, “Information Culture and Organizational Effectiveness,” *International Journal of Information Management* 33 (2013): 777.

<sup>62</sup> Chad A. Hartnell, Amy Yi Ou, and Angelo Kinicki, “Organizational Culture and Organizational Effectiveness: A Meta-analytic Investigation of the Competing Values Framework’s Theoretical Suppositions,” *Journal of Applied Psychology* 96, no.4 (2011): 686.

<sup>63</sup> Jyotiranjan Gochhayat, Vijai N. Giri, and Damodar Suar, “Influence of Organizational Culture on Organizational Effectiveness: The Mediating Role of Organizational Communication,” *Global Business Review* 18, no. 3 (2017): 691.

effectiveness; on the other hand, the status of part-time versus full-time employees within the organization has little to no effect on culture or effectiveness.<sup>64</sup>

## **G. SUMMARY OF LITERATURE**

The literature review for this thesis focused on selected organizational theories that analyze the characteristics and effectiveness of the emergency management program mission. The exploration of literature encompassing organizational behavior and the many facets of the emergency management discipline provide a necessary vantage point determining program effectiveness. Key concepts were introduced to provide a basic understanding of what constitutes emergency management and its mission objectives.

As the fundamental purpose of this study is to use established and tested organizational theories and models, the review of the literature provides the basis for the analysis. The organizational models described in this chapter demonstrate how the effects of an organizational structure impact overall effectiveness. Particularly useful is systems theory, which applies to the multi-functional/multi-discipline nature of emergency management; power and politics theory helps to define organizational behavior in the government context. Additionally, the models provide a perspective on how structure and bureaucratic design may alter the functional capabilities of the emergency management program.

Government entities and emergency management programs are guided by established doctrine. This literature review looked at examples of federal and state doctrinal products that direct emergency management process and behavior. In many cases, the doctrine was developed as a result of post-incident reviews and improvement plans. The examined doctrine provide consistency in incident management and emergency planning. The federal and state doctrine are also used as a baseline to help determine if a program is effectively meeting its responsibilities.

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<sup>64</sup> Jackie W. Deem, Pam J. DeLotell, and Kathryn Kelly, "The Relationship of Employee Status to Organizational Culture and Organizational Effectiveness," *International Journal of Education Management* 29, no. 5 (2015): 576.

To provide a better illustration of the emergency management program's role in preparing and responding to crisis scenarios, this review also explored how crisis influences organizational output. The relationship between crisis and organizational behavior also demands careful consideration when it comes to policy decisions that drive the administrative structure of government—particularly considering the chaotic nature of crises and the unique demands placed on the participants within government. Studies in crisis management have demonstrated the necessity of interpersonal and inter-organizational collaboration to ensure that the program remains relevant and effective.

In addition to the examination of theory and modeling, multiple agency-specific documents were included in this review to provide a side-by-side comparison of emergency management organizational strategies. This comparative analysis paints a picture of current trends or patterns of organizational behavior nationwide. The agency-specific documents include local jurisdiction annual budget documents, which incorporate organizational configuration, budget, and personnel counts. Other agency documents include emergency management program strategic plans, policy documents, governing body hearing reports, and incident after-action reviews. All of the documents analyzed are publicly available.

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### **III. ANALYTICAL FRAMEWORK**

To determine the best organizational construct, it is first necessary to synthesize the complex, unique characteristics of the emergency management field, which differ significantly from those of counterpart programs within the local government structure. Inter-jurisdictional and inter-organizational collaborative efforts required to effectively address the demands of disaster management present distinctive challenges. Additionally, the frequent, prolonged periods between emergency events may lead to greater complacency. All too often after a disaster, jurisdictions recognize the need for these considerations to have been incorporated within their organizational construct. Problems often experienced during crisis may be mitigated through deliberate organizational design strategies. These frameworks are essential to developing informed organizational recommendations going forward.

#### **A. CHARACTERISTICS OF EMERGENCY MANAGEMENT**

To adequately analyze organizational structure and design, we must first understand the primary mission of this organizational component. As previously mentioned, it is often difficult to see the value of an emergency management program—or its inefficiencies—until a disaster strikes. This means that jurisdiction leadership often does not see the diverse capabilities of its emergency management program; the program’s routine accomplishments—such as interagency collaboration, coordination, and public preparedness—are not easily quantifiable in visible metrics. This may mean that decisions about how the emergency management component is organized fall on assumptions instead of on a carefully planned mission and responsibilities analysis. It also means that the decision makers may prioritize other, more apparent, needs over the emergency management program. Along these lines, the International City/County Management Association (ICMA) observes: “[B]ecause the need for emergency management may be neither self-evident nor readily financed by elected officials, it is imperative that local government administrators take the initiative to establish an emergency management

program as an ongoing community function.”<sup>65</sup> Often, following the response and recovery resulting from a large emergency incident, after-action reviews will influence jurisdictions to place a higher priority on the emergency management program.<sup>66</sup>

The local emergency management program confronts continuous demands due to regulations, community needs, threats, or other triggers. In most cases, the emergency management discipline represents a small component of a larger organization, while having a substantial set of expectations placed on it. Creativity is often necessary, and practitioners must rely on partners to accomplish routine tasks in addition to incident response activities. Collaboration before, during, and after a disaster is essential to address the intergovernmental response that a disaster generates. The ability to effectively engage in information exchange, resource support, and incident activity coordination is essential for successful disaster management.<sup>67</sup>

As previously mentioned, the emergency management field has evolved into a relatively new profession—beyond its roots in emergency services and civil defense. The term *profession* infers that the field has specialized knowledge, contains professional experts serving in its occupations, is a recognized discipline, and generates an income for its participants.<sup>68</sup> The profession label also means that the occupation requires theoretical knowledge, skill, and judgment not easily understood by others and usually obtained through higher education.<sup>69</sup> These specialized skill sets are important when considering the appropriate placement of the professional program.

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<sup>65</sup> International City/County Management Association, *Managing Small Cities and Counties*, 177.

<sup>66</sup> The case studies presented in Chapter IV demonstrate three examples of organizational changes resulting from large-scale incidents.

<sup>67</sup> Thomas Currao, “A New Role for Emergency Management: Fostering Trust to Enhance Collaboration in Complex Adaptive Emergency Response Systems” (master’s thesis, Naval Postgraduate School, 2009), 3.

<sup>68</sup> Urby and McEntire, 394.

<sup>69</sup> Laurence Lynn, *Public Management as Art, Science and Profession, Public Administration and Public Policy* (Chatham, NJ: Chatham House, 1996), 31.

## 1. Defining Comprehensive Emergency Management Programs

*Emergency management* is defined differently by different people—and, importantly, by different decision makers—based on their background and experiences. The varying interpretations influence how emergency management is prioritized, embraced, and organizationally structured. As the threats and hazards that face local jurisdictions are wide-ranging, so too must be the approaches to managing them. To effectively evaluate multiple emergency management organizations, it is important to first establish common terminology and concepts.

This thesis employs the principles of *comprehensive emergency management* in evaluating organizational structure as it applies to the local emergency management program. In an attempt to clarify the many existing emergency management definitions introduced in recent years, FEMA’s Higher Education Project produced a streamlined description; according to this definition, comprehensive emergency management includes “the preparation for and the carrying out of all emergency functions necessary to mitigate, prepare for, respond to, and recover from emergencies and disasters caused by all hazards, whether natural, technological, or human-caused.”<sup>70</sup>

## 2. Roles of Emergency Management

How does emergency management differ from other, traditional public safety disciplines? Local fire departments were created to suppress fires but over time have expanded their activities to include fire prevention, hazardous material protection, emergency medical services delivery, and specialized rescue services.<sup>71</sup> All of these efforts are field-based and tactical in nature. Local police departments, similarly, fill many roles, including enforcement of laws, preservation of peace, crime prevention, traffic control, and protection of civil rights.<sup>72</sup> Emergency management, on the other hand, harnesses these

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<sup>70</sup> Wayne Blanchard, *Principles of Emergency Management Supplement* (Emmitsburg, MD: Federal Emergency Management Agency Higher Education Project, 2007), 5, [https://www.fema.gov/media-library-data/20130726-1822-25045-7625/principles\\_of\\_emergency\\_management.pdf](https://www.fema.gov/media-library-data/20130726-1822-25045-7625/principles_of_emergency_management.pdf).

<sup>71</sup> International City/County Management Association, *Managing Small Cities and Counties*, 217.

<sup>72</sup> International City/County Management Association, 195.

efforts along with the efforts of other government and non-government disciplines to produce an effective broader jurisdictional response. Organizational structure has a direct relationship to the parts or roles contained within the system, and an effective organizational structure should heed the interplay between those roles.<sup>73</sup>

The International City/County Management Association advises that preparing for crises and building response capacity “is most effective when emergency management is an integral part of everyday local government operations.”<sup>74</sup> This integration is broad and inclusive of numerous if not all elements of the organization. For example, the agency responsible for managing mass care and shelter must coordinate with community planning and building components, as well as with external groups such as the American Red Cross, all while implementing American Disabilities Act requirements. Furthermore, this integration extends beyond the home agency to neighboring entities, not-for-profit organizations, community groups, private businesses, education facilities, and others.

The emergency manager engages in preparedness activities such as hazard identification, threat assessments, emergency planning, plan reviews, emergency training for staff, exercise development, mutual aid agreements, special needs population preparation, and business–community engagement. Examples of planning activities for emergencies include hazard mitigation, notification/warning, evacuation, volunteer/donations management, and risk-based land use planning. Following a disaster, the program will be heavily involved in recovery activities such as damage assessment, debris management, rehabilitation, and disaster cost recovery, to name a few.<sup>75</sup> This partial list demonstrates the cross-discipline reach the emergency management program must engage in to be effective.

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<sup>73</sup> Mary Uhl-Bien and Russ Marion, “Complexity Leadership in Bureaucratic Forms of Organizing: A Meso Model,” *The Leadership Quarterly* 20 (2009): 633.

<sup>74</sup> International City/County Management Association, *Managing Small Cities and Counties*, 177.

<sup>75</sup> Henstra, “Evaluating Local Government Emergency Management Programs,” 241.

### 3. Collaboration and Inter-organizational Coordination Demands

A fundamental responsibility of any emergency management program is to coordinate efforts among the multiple organizations that participate in the disaster management cycle. Kimmo Laakso and Jari Palomaki note that disaster events involve tremendous heterogeneity—in agencies involved, the complexity of issues, and the diversity of information available.<sup>76</sup> When pre-incident coordination efforts are deficient, stakeholders fail to understand how they fit into the complex system built in response to a disaster. Most effort in developing processes, relationships, and cultures in support of effective inter-organizational coordination occurs well before an emergency occurs. The component of the responsible jurisdiction that leads these efforts, typically the emergency management program, can be supported or hampered by organizational dynamics.

John Pine points out that emergency management cannot function effectively if isolated from the cooperation and collaboration of the broader system of communitywide resources when engaging in response and recovery efforts.<sup>77</sup> This system utilizes a diverse network of stakeholders, most of whom fall outside of traditional public safety circles. The effectiveness of an emergency management organization can be determined based on its ability to obtain information inputs, manage the inputs, and then direct the outputs.<sup>78</sup> Researchers have found that hierarchical organizations that rely on a layered command structure experience even greater screening omissions from influences within the organization than omission errors from external factors.<sup>79</sup> Can the emergency management program’s placement within the wider organization hinder lines of communication outside the traditional chain of command if the structure does not support a collaborative framework?

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<sup>76</sup> Kimmo Laakso and Jari Palomaki, “The Importance of a Common Understanding in Emergency Management,” *Technological Forecasting and Social Change* 80 (2013): 1704.

<sup>77</sup> John Pine, “The Contributions of Management Theory and Practice to Emergency Management,” (training document, FEMA, 2007), 7, <https://training.fema.gov/hiedu/docs/emt/contributions%20of%20manage.doc>.

<sup>78</sup> Pine, 10.

<sup>79</sup> Reitzig and Maciejovsky, “Corporate Hierarchy and Vertical Information Flow,” 1996.

Local emergency managers need to collaborate regularly with disciplines across the spectrum, such as building officials who oversee code issues, land use, general planning, and risk reduction.<sup>80</sup> Collaborative disaster management (CDM) is a model for how organizations cooperate to complete a shared mission. Lee and Fleming describe CDM as how government agencies interact with one another, in addition to other non-governmental organizations, to address disaster events and problems resulting from emergency conditions.<sup>81</sup> Collaboration implies that the process includes effective communication, honest partnerships, trust, and access to stakeholders. Jared Grunwald and Chris Bearman believe that establishing a cooperative culture fosters the collaborative disaster management strategy because it allows partners to embrace inter-organizational acceptance, trust, assistance, and open dialogue.<sup>82</sup>

## **B. CONSIDERATIONS OF ORGANIZATIONAL DESIGN**

To adequately analyze organizational structure and design, we must first understand the primary mission of the organizational component. Local government emergency management programs typically adhere to the organizational construct provided by their host government agency. The public sector, including emergency management, commonly falls into a hierarchical organizational structure. This structure is supported by tradition and the demand for accountability and effectiveness.

When implementing a comprehensive emergency management program, what is the jurisdiction leadership's objective? A hierarchical structure lends itself to authoritarian control and stresses accountability.<sup>83</sup> The paramilitary models employed by public safety agencies to facilitate their tactical business needs stress this hierarchical approach. However, the structural design process should consider the extensive collaborative efforts

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<sup>80</sup> William L. Waugh and Gregory Streib, "Collaboration and Leadership for Effective Emergency Management," *Public Administration Review* 66, no. s1 (December 2006): 132.

<sup>81</sup> Lee and Fleming, "Collaborative Disaster Management in Local Governments," 344.

<sup>82</sup> Jared Grunwald and Chris Bearman, "Identifying and Resolving Coordinated Decision Making Breakdowns in Emergency Management," *International Journal of Emergency Management* 13, no. 1 (2017): 81.

<sup>83</sup> Morgan, *Images of Organization*, 57.

that frequently extend outside the scope of that hierarchical model. Bolman and Deal explain that when organizational roles contain complex interconnections, it is more difficult for the individuals to integrate into tightly controlled parts of the enterprise.<sup>84</sup> Emergency management programs that rely on complex collaborative networks and systems may find it difficult to integrate into strict hierarchical models.

Two organizational design elements influence the operation of a local emergency management program. First is the internal organizational structure of the program, which includes how the staffing complement is structured. The second is the organizational placement of the emergency management program within the broader jurisdiction construct. Understanding the culture and potential professional biases that could exist will help frame either an organizational misalignment or an organizational structure that promotes effectiveness.

Organizational design considerations that drive local government operations come together from different angles. According to Morgan, designing the organizational structure presents an opportunity for power plays and instruments of control.<sup>85</sup> The merits of the mission can be disregarded for other agendas and authoritarian power can disrupt collaborative lateral information flow. Bolman and Deal describe the need for lateral communication, which requires less formalized and increasingly flexible structures.<sup>86</sup>

In government, “it is not overly difficult to find numerous illustrations of unsatisfactory results of non-homogeneous administrative combinations.”<sup>87</sup> Homogeneity of work groups in organizations is key to effectiveness and efficiency. A non-homogeneous organizational structure is one that brings together work divisions that perform different tasks, and that are overseen by laymen from outside the discipline; this compromises effectiveness.<sup>88</sup> Is placing the emergency management program within the structure of

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<sup>84</sup> Bolman and Deal, *Reframing Organizations*, 60.

<sup>85</sup> Morgan, *Images of Organization*, 176.

<sup>86</sup> Bolman and Deal, *Reframing Organizations*, 44.

<sup>87</sup> Shafritz et al., *Classics of Organization Theory*, 84.

<sup>88</sup> Shafritz et al., 84.

another discipline a non-homogeneous combination? There are a number of potential consequences that must be considered when making these administrative organization assignments.

### C. DEFINING ORGANIZATIONAL EFFECTIVENESS

Organizational effectiveness can be defined differently across different business types and professional disciplines, and it can be measured in many ways depending on the product or service being evaluated. Effectiveness is not a concrete aspect of any organization; instead, it is a description that people use with varying levels of consensus.<sup>89</sup> Evaluating effectiveness means determining if an organization is achieving its goals—including the conditions under which it is doing so, and with what results. Heather Tomsic acknowledges that senior leaders who incorporate standards into their programs allow for requirements to become an ongoing part of the management strategy and establish an internal measurement process.<sup>90</sup> It is particularly difficult to establish metrics for emergency management programs, as many of the programs' objectives may not be realized until disaster strikes. However, organizational health and stability, the program's ability to acquire resources, and the degree to which stakeholders' needs are met all help to establish program effectiveness.<sup>91</sup>

**Influential Forces:** Internal and external factors determine organizational effectiveness. Michael Lindell and David Whitney found that constraints on resources, social environments, procedures, technical capabilities, and organizational structure all may present challenges to effective operations.<sup>92</sup> Each of these factors, either independently or in combination, has the potential to alter motivation and the organization's ability to realize its goals. Internal forces, such as resistance to change,

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<sup>89</sup> Taylor, Cornelius, and Colvin, "Visionary Leadership," 568.

<sup>90</sup> Heather Tomsic, "Auditing Emergency Management Programmes: Measuring Leading Indicators of Programme Performance," *Journal of Business Continuity & Emergency Planning* 10, no. 1 (2016): 60.

<sup>91</sup> Joseph R. Matthews, "Assessing Organizational Effectiveness: The Role of Performance Measures," *Library Quarterly* 81, no. 1 (January 2011): 84.

<sup>92</sup> Michael K. Lindell and David J. Whitney, "Effects of Organizational Environment, Internal Structure, and Team Climate on the Effectiveness of Local Emergency Planning Committees," *Risk Analysis* 15, no. 4 (1995): 440.

restrict an organization's ability to examine what is effective and what is not. Looking into the organizational performance of emergency management, Roshan Bhandari, Christine Owen, and Benjamin Brooks explain that established organizations have displayed less capacity for change and flexibility.<sup>93</sup> How, then, would this affect an emergency management program that is placed within an established department of another discipline?

**Organizational Culture:** As described in the literature review, an organization's culture has significant influence on its effectiveness. Furthermore, culture can influence what the organization considers is effective and productive. When an organization is effective, the culture encourages free communication, members share a common set of beliefs and understandings, the organization supports open channels of communication that lead to innovative ideas, and members find opportunities to make improvements. A culture based on shared practices fosters collaboration, which allows individuals and the organization to flourish.<sup>94</sup>

**Employee Engagement:** The team aspect of disaster management can also gauge organizational effectiveness. An effective organization cultivates an environment that allows its members to clearly understand goals, objectives, authorities, and responsibilities.<sup>95</sup> The structure and culture of the organization facilitate these processes. People at different levels of the organization, and with different functions, have different perspectives on what constitutes effective outcomes. An organizational model that promotes employee involvement in the decision-making process results in a greater level of commitment, a strong drive to achieve goals, and an enhanced level of job satisfaction.<sup>96</sup>

**Discipline-Based Organizational Climates:** Jurisdictions can intentionally or unintentionally alter the climate within which employees are able to develop professional

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<sup>93</sup> Roshan Bhakta Bhandari, Christine Owen, and Benjamin Brooks, "Organisational Features and Their Effect on the Perceived Performance of Emergency Management Organisations," *Disaster Prevention and Management* 23, no. 3 (2014): 236.

<sup>94</sup> Gochhayat, Giri, and Suar, "Influence of Organizational Culture," 699.

<sup>95</sup> Lindell and Whitney, "Effects of Organizational Environment," 444.

<sup>96</sup> Edwinah Amah and Augustine Ahiauzu, "Employee Involvement and Organizational Effectiveness," *Journal of Management Development* 32, no. 7 (2013): 672.

cultures. These cultures evolve through shared experiences. Emergency management, as a discipline, encompasses specific roles, knowledge, and experiences that are unique to the profession. The organizational structure can affect staff members' relationships; positive climates promoting collective engagement among members with shared experiences best promote enthusiasm and satisfaction, which results in the highest levels of productivity.<sup>97</sup> When leaders understand employees' needs, both socially and professionally, they can best promote this type of climate; this becomes more difficult, however, when the organization is placed in a climate outside its professional discipline.

**Assessing Effectiveness amid Organizational Complexity:** An organization's complexity and size provide further challenges for defining and achieving effectiveness. Structures built to support government operations have the potential to constrain the application of leadership behaviors and invalidate effective results.<sup>98</sup> As the organization becomes more complex, the flow of information becomes compromised. One way that effectiveness is measured is through the degree to which information—including interactions, arguments, and discussions—is able to reach its intended audiences.<sup>99</sup>

**Evaluating Effectiveness in Routine versus Crisis Scenarios:** An additional factor to consider in defining and evaluating the effectiveness of emergency management programs is that these programs operate in two very different environments, one being the routine, day-to-day program activities and the other being crisis or emergency scenario functions. Assessing the effectiveness of routine program activities allows for broader metrics and analysis, as time is less critical (as opposed to crisis scenarios that present critical and immediate demands). A gap analysis and plan improvement strategy can lay the foundation for defining effectiveness, particularly when industry standards are included.<sup>100</sup> According to Chung-Fah Huang, Jieh-Juh Wang, and Tai-Jun Lin, in crisis

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<sup>97</sup> Michael R. Parke and Myeong-Gu Seo, "The Role of Affect Climate in Organizational Effectiveness," *Academy of Management Review* 42, no. 2 (2017): 348.

<sup>98</sup> Gary Yukl and Richard Lepsinger, "Why Integrating the Leading and Managing Roles Is Essential for Organizational Effectiveness," *Organizational Dynamics* 34, no. 4 (2005): 364.

<sup>99</sup> Gochhayat, Giri, and Suar, "Influence of Organizational Culture," 699.

<sup>100</sup> Tomsic, "Auditing Emergency Management Programmes," 66.

scenarios resource availability is constrained, which correlates directly to the cohesion and effectiveness of the organization.<sup>101</sup> Because it is difficult to define success in management strategies under austere conditions, emergency management programs tend to rely on after-action reviews of the activities performed during the incident.

#### **D. SUMMARY OF ANALYTICAL FRAMEWORK**

Understanding how the field of emergency management fits within the local government construct requires knowledge of the roles emergency management must fulfill. Emergency management programs provide a service that is collaborative; they must coordinate complex issues among numerous parties within and external to the organization. These responsibilities incorporate multiple professional disciplines representing a diverse array of expertise. Ultimately, the jurisdiction's goal is to provide an environment in which the emergency management function is most effective. However, defining effectiveness in organizational behavior is not straightforward; it comes with achieving fundamental concepts that meet the established roles and responsibilities. As a tool to manage service delivery to the public, organizational design contains tremendous potential to influence productive outcomes. Therefore, the primary analytical framework for this thesis incorporates the emergency management mission, organizational design, and effectiveness; these principles serve as the basis for the analysis and recommendations in this thesis.

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<sup>101</sup> Chung-Fah Huang, Jieh-Juh Wang, and Tai-Jun Lin, "Resource Sufficiency, Organizational Cohesion, and Organizational Effectiveness of Emergency Response," *Natural Hazards* 58 (2011): 233.

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## **IV. ORGANIZATIONAL STRUCTURE: DATA AND CASE STUDIES**

This chapter employs comparative analysis to examine existing trends and determine industry norms. “Best practices” research further allows us to observe practices and business processes to identify proven methods. The organizational trends discussed within this chapter highlight the reporting relationship between the local emergency management program and its larger government agency structure, the emergency management program’s location in relation to stakeholders, and its structural distance from the jurisdiction’s decision makers.

The analysis derived from this chapter attempts to determine a best practice for emergency management organizational design and reporting relationships by evaluating the practices of cities and counties nationally. At a minimum, this effort illustrates potential industry trends. By comparing reporting structures between emergency management and risk management, we gain the perspective of two government functions with common organizational characteristics and challenges. Additionally, this chapter reviews how fire departments and public works agencies are organizationally located, which demonstrates how larger departments with greater resources are organized. Ultimately, the analysis of these professional disciplines alongside one another provides a basic overview of current norms.

### **A. COMPARATIVE ANALYSIS: NATIONWIDE LOCAL AGENCY ORGANIZATIONAL STRUCTURES**

#### **1. Emergency Management Agency Comparison**

In addition to a central jurisdiction-wide coordination program, municipal emergency management programs are often further distributed among multiple departments. Individual departments tend to have designated responsibilities that help the agency prepare for emergency scenarios and execute the jurisdiction emergency operations plan. Essentially, all the jurisdictions examined in this tend to share some emergency management responsibilities throughout the organization. The organizational placement of

these department-specific emergency management responsibilities is not factored into this analysis.

The following comparative analysis describes organizational configurations within local governments for emergency management, risk management, fire, and public works. If programs are identified as independent departments, that means they are not under the oversight of another department; these independent departments maintain the same status as other departments in the government structure. If programs are identified as being placed within the executive office, that means they are structured as a component of the jurisdiction’s chief executive staff, but are still independent from the oversight of other departments. The programs identified as public safety departments serve as a division of a department also containing police and fire.

Municipal emergency management programs are organizationally placed somewhat evenly among different reporting structures. Among the seventy-two cities examined, there were six different organizational configurations for housing emergency management programs. No single organizational model stood out as a dominant method for structuring a city’s emergency management responsibilities. Municipal emergency management programs in the comparative analysis were found to be organizationally placed in the structural configurations shown in Table 1.

Table 1. Municipal Emergency Management Organizational Placement<sup>102</sup>

<b>Organizational Alignment</b>	<b>Number</b>	<b>Percent</b>
Independent Department	16	22.2%
Executive Office	18	25.0%
Public Safety	5	6.9%
Fire	19	26.4%
Police	3	4.2%
Inter-Jurisdictional Agreement	11	15.3%

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<sup>102</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the program within the jurisdiction. Budget documents referenced are identified in Appendix L.

The nationwide analysis shows that municipal emergency management programs are connected to decision makers in various frameworks and lack structures promoting common professional cultures. More than 62 percent of the cities have structurally placed their emergency management programs outside of the control of departments representing other professional disciplines. These organizations place emergency management either as an independent department within the executive’s office or as a part of an emergency management inter-jurisdictional agreement. However, over 37 percent of programs in cities are under the oversight of departments from professional disciplines other than emergency management.

County emergency management programs are also organizationally diverse—even more so than for cities. Among the sixty county jurisdictions examined, there were nine different methods for placing the emergency management program in the reporting structure. These county-based emergency management programs in the comparative analysis were organized under the departments shown in Table 2.

Table 2. County Emergency Management Organizational Placement<sup>103</sup>

<b>Organizational Alignment</b>	<b>Number</b>	<b>Percent</b>
Independent Department	24	40.0%
Executive Office	8	13.3%
Public Safety	5	8.3%
Environmental Protection	1	1.7%
Fire	9	15.0%
Law Enforcement	6	10.0%
Public Health	2	3.3%
Public Works	1	1.7%
Joint Powers Agreement	4	6.7%

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<sup>103</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the program within the jurisdiction. Budget documents referenced are identified in Appendix L.

At the county level, the approach to emergency management placement across the nation is particularly inconsistent. County emergency management programs structured independently from other professional disciplines and departments comprised 60 percent, or thirty-six out of sixty, programs assessed. The remaining 40 percent, twenty-four of the examined programs, are organizationally structured under the oversight of another professional discipline.

## **2. Risk Management Program Comparison**

The risk management function of local government shares several characteristics with emergency management; for instance, it provides an essential service to the whole government organization. It is the risk management department's responsibility to identify potential issues that could negatively affect the government agency. The department's objectives are typically to reduce legal, political, financial, and medical liability and minimize risks associated with government property, interests, and employees.<sup>104</sup> The staff and resources dedicated to risk management tend to comprise a small part of the overall government organization, yet they coordinate and engage with all departments.

The municipal risk management programs examined in the data set are overwhelmingly placed organizationally under the oversight of other city departments. Among the seventy-two cities, there were six different organizational configurations. While there is no clear standard location for risk management programs, almost 80 percent are located in either the jurisdiction's finance department or human resources department. The different organizational placements are shown in Table 3.

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<sup>104</sup> "Creating a Comprehensive Risk Management Program," Government Finance Officers Association, September 5, 2018, <http://www.gfoa.org/creating-comprehensive-risk-management-program>.

Table 3. Municipal Risk Management Organizational Placement<sup>105</sup>

Organizational Alignment	Number	Percent
Finance	30	41.7%
Human Resources	27	37.5%
City Attorney	5	6.9%
Executive Office	5	6.9%
Independent Department	4	5.6%
General Services	1	1.4%

County risk management programs also fall within numerous organizational configurations within county government. Among the sixty counties examined, there were seven different organizational configurations. The distribution of county risk management programs is slightly more diverse for counties than for cities, with no dominant trend indicating a standard practice. The various organizational configurations are shown in Table 4)

Table 4. County Risk Management Organizational Placement<sup>106</sup>

Organizational Alignment	Number	Percent
Finance	24	40.0%
Human Resources	16	26.7%
County Attorney	3	5.0%
Executive Office	5	8.3%
Administrative Services	4	6.7%
Independent Department	7	11.7%
Internal Services	1	1.7%

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<sup>105</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

<sup>106</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

### 3. Fire Department Comparison

The organizational placement of fire departments within the local government is mostly uniform across the nation. A fire department in most cases is structured as an independent department with a direct reporting relationship to jurisdiction leadership. Of the seventy-two cities examined, sixty-seven maintain independent fire department models while five organize the fire department as a division of a public safety department. It should be noted that it is not uncommon in cities with smaller populations—which were not examined for this thesis—to contract their fire service responsibilities with another fire service agency, or through an independent fire district. However, even in these scenarios the role of the fire department does not become organizationally placed under the oversight of another professional discipline. Table 5 illustrates the organizational placement of fire service functions within municipal structures.

Table 5. Municipal Fire Service Organizational Placement<sup>107</sup>

Organizational Alignment	Number	Percent
City Fire Department	67	93.1%
Public Safety Department	5	6.9%

The county model of fire service delivery is more diverse than for cities. In many cases, the county government does not provide fire service, or limits the service solely to a specific support function, such as fire prevention, training, or investigation activities. Of the sixty counties analyzed, twenty-one maintain their own fire department, independent of other departments. One county (Broward County, located in South Florida), however, places the fire department within the organizational structure of the sheriff’s office. The remaining thirty-eight counties either do not provide any fire protection service or limit the service to support activities. The support activities range widely from county to county. The operational fire protection in these counties is delivered by independent fire districts,

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<sup>107</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

municipalities, or another public construct. With the exception of Broward County, the fire protection role provided by counties is organizationally structured independently from other professional disciplines. Table 6 illustrates the fire service organizational configurations at the county level.

Table 6. County Fire Service Organizational Placement<sup>108</sup>

<b>Organizational Alignment</b>	<b>Number</b>	<b>Percent</b>
County Fire Department	21	35.0%
Independent Fire Districts	38	63.3%
Sheriff	1	1.7%

#### **4. Public Works Comparison**

Public works functions are also addressed mostly uniformly across the nation. A public works department in each of the cases is structured as an independent department with a direct reporting relationship to jurisdiction leadership. A difference, however, is that the public works function may encompass multiple responsibilities, such as transportation, sanitation, engineering, utilities, infrastructure, water supply, and public facilities. In the larger jurisdictions, these functions may be divided organizationally as independent departments addressing these specific responsibilities. The remaining jurisdictions mostly provide these services within a consolidated public works department. However, the trend nationally is that these departments have been organizationally structured with direct reporting lines to jurisdiction leadership and are independent from other disciplines. Each of these public works roles, with organizational structures shown in Tables 7 and 8, contribute significantly to disaster response, recovery, and mitigation activities.

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<sup>108</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

Table 7. Municipal Public Works Organizational Placement<sup>109</sup>

<b>Organizational Alignment</b>	<b>Number</b>	<b>Percent</b>
Independent Single City Department	57	79.2%
Independent Functional Departments	15	20.8%

The Independent Functional Departments category includes organizational models in which specific public works functions are separated as independent departments.

Table 8. County Public Works Organizational Placement<sup>110</sup>

<b>Organizational Alignment</b>	<b>Number</b>	<b>Percent</b>
Independent Single City Department	43	71.7%
Independent Functional Departments	17	28.3%

The Independent Functional Departments category includes organizational models in which specific public works functions are separated as independent departments.

## 5. Summary of Comparative Analysis

A common understanding of mission, meaning, and professional identity within an organization helps define effective outcomes. The organization’s culture influences these characteristics, and is often defined by discipline, traditions, and history. To reconcile the differences between the varied different organizational disciplines that contain emergency management—and their cultures—we must first uncover those differences. Laakso and Palomaki describe a primary factor in smaller incidents turning into more complex incidents is weak communication flow of information between participants of different organizations due to a lack of common understanding.<sup>111</sup> When organizational cultures have differing understandings of information across opposing organizational cultures, effective coordination is more difficult.

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<sup>109</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

<sup>110</sup> Budget documents for each of the jurisdictions were used to identify organizational placement of the programs. Budget documents referenced are identified in Appendix L.

<sup>111</sup> Laakso and Palomaki, “The Importance of a Common Understanding,” 1712.

The comparative survey clearly demonstrates that the field of emergency management in local government comes in a wide variety of organizational configurations. Emergency management programs are structured under the hierarchy of a number of different professional disciplines, while others are independent from the control of other disciplines. The comparative survey shows, however, that other disciplines do not generally follow this same trend, which might make comparisons of organizational behavior and effectiveness between emergency management and the other disciplines challenging.

The benefit of understanding organizational models extends beyond the single organization containing the emergency management program. There are significant interdependencies between emergency management programs and multiple other entities. The survey results show numerous organizational constructs in local governments. The inconsistency in program structure has deep potential to compromise those interdependencies. The organizational challenges faced by one organization has the potential to alter effectiveness inter-jurisdictionally. Organizational structures that place constraints on collaborative processes, effective communication channels, and inter-agency coordination will not only limit internal effectiveness but also collaboration between partnering agencies. This tendency is particularly relevant in strict hierarchical bureaucratic systems requiring multiple layers of vertical approvals.

The lack of consistency across the nation makes it more difficult for those outside of the emergency management profession to assemble a meaningful understanding of what the discipline is. The broad range of services adds to the challenge of attaching meaning to the discipline. When jurisdictions structure their emergency management programs within a variety of other discipline-specific departments, the meaning of emergency management may become attached to the role of the host department. This weakens the unique identify of the emergency management discipline.

## **B. LOCAL JURISDICTION CASE STUDIES**

Crises place tremendous stress upon government. Weaknesses in the systems that jurisdictions have designed and relied upon are exposed when faced with the unexpected.

Included in these systems are the organizational structures supporting the operational framework of government service delivery. After the dust has settled, agencies look inward to evaluate their performance during the course of response and recovery operations. These after-action reviews seek to identify gaps and, more importantly, how to improve performance during future incidents. Frequently these gaps include difficulties with communication, barriers to information flow and effective decision making, and access to situational intelligence and access to resources. Additionally, it is common to see relationships between organizational design and the identified disparities in response to performance. The following case studies are examples of times when programs were forced to evaluate their organizational design as a result of post-incident response performance reports.

## **1. Case Study 1: City of San Jose, California**

### ***a. Event Background***

After years of drought, a pattern of heavy winter storms in 2017 struck northern California with unusual intensity. A continuous line of wet storms made landfall throughout January and February. Some areas of California received 259 percent of normal precipitation, half of which occurred in the first two months of the year alone.<sup>112</sup> The volume of water rapidly exceeded the capacity of numerous river systems, resulting in widespread flooding and ultimately three presidential disaster declarations (DR-4301, DR-4305, and DR-4308).<sup>113</sup> Infrastructure was tested to its limits and in some cases failed given the pressures of the volume of water.

The area surrounding San Jose, California, was not immune to the heavy rains occurring throughout northern California. After weeks of precipitation, the watersheds upstream from San Jose had reached a point where the three primary reservoirs including Lexington, Coyote, and Anderson exceeded capacity and began to spill over. Flooding downstream within the City of San Jose began to occur on February 21. The flooding

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<sup>112</sup> “Monthly Precipitation Summary Water Year 2017,” California Nevada River Forecast Center, accessed August 2017, [http://www.cnrfc.noaa.gov/monthly\\_precip.php](http://www.cnrfc.noaa.gov/monthly_precip.php).

<sup>113</sup> “Disaster Database,” FEMA, accessed August 2017, <https://www.fema.gov/disasters>.

transpired rapidly with little to no warning, directly impacting residents. Ultimately, 14,000 residents were ordered to evacuate. Three shelters cared for the displaced for 49 days, damages to publicly owned facilities totaled \$25 million, over 6,500 tons of debris was removed, and millions of dollars of damages occurred to private property.<sup>114</sup>

***b. Organizational Considerations***

The city contracted an independent auditor to evaluate its incident response performance and the emergency management program. After conducting an internal city evaluation and survey of emergency management processes that extended beyond city limits, 114 high-priority recommendations and 100 additional medium- or low-priority recommendations were drafted. One of the findings stated, “the City of San Jose has historically not sufficiently invested in emergency preparedness, response and recovery initiatives, which limited its effectiveness during the 2017 Coyote Creek Flood.”<sup>115</sup> This finding further identified organizational challenges that contributed to response deficiencies, specifically with “the placement of the Office of Emergency Services within the City organizational structure.”<sup>116</sup> Three additional findings highlighted deficiencies stemming from poor coordination and collaboration, which were primarily due to misaligned organizational structures. This disconnect was demonstrated by challenges with inter-organizational communication, situational awareness, and information management.

The after-action report highlighted that improvements were needed in organizational placement, program prioritization, resource investment, and staff allocation, among others.<sup>117</sup> As a rationale for the suggested reorganization, the analysis cited necessary improvements for program visibility, stature, direct access to city leaders, capabilities for coordinating initiatives across the entire organization, control of the budget, and the fire department’s ability to refocus on the fire service core mission.

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<sup>114</sup> City of San Jose, *2017 Coyote Creek Flood After Action Review and Improvement Report* (San Jose, CA: City of San Jose, 2017), 3–6, [http://sanjose.granicus.com/MetaViewer.php?view\\_id=&event\\_id=2696&meta\\_id=646447](http://sanjose.granicus.com/MetaViewer.php?view_id=&event_id=2696&meta_id=646447).

<sup>115</sup> City of San Jose, 9.

<sup>116</sup> City of San Jose, 10.

<sup>117</sup> City of San Jose, 10.

A separate emergency management program evaluation report identified the need to separate the emergency management program from the fire department and make it an independent office in the city manager’s office (the program previously resided in the city manager’s office until 2009, when it was moved to the fire department).<sup>118</sup> Because the emergency management program was placed within the fire department—and within a paramilitary hierarchical model—the emergency management subject-matter expert was separated from the jurisdiction executive by three layers (demonstrated in Figure 1). Additionally, the report highlighted that the director of the emergency management program should be classified as equal to other department heads to ensure peer-to-peer relationships and access to departments.

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<sup>118</sup> City of San Jose, “Office of Emergency Services Assessment Report” (memorandum, City of San Jose, July 2017) [http://sanjose.granicus.com/MetaViewer.php?view\\_id=&event\\_id=2696&meta\\_id=646283](http://sanjose.granicus.com/MetaViewer.php?view_id=&event_id=2696&meta_id=646283).

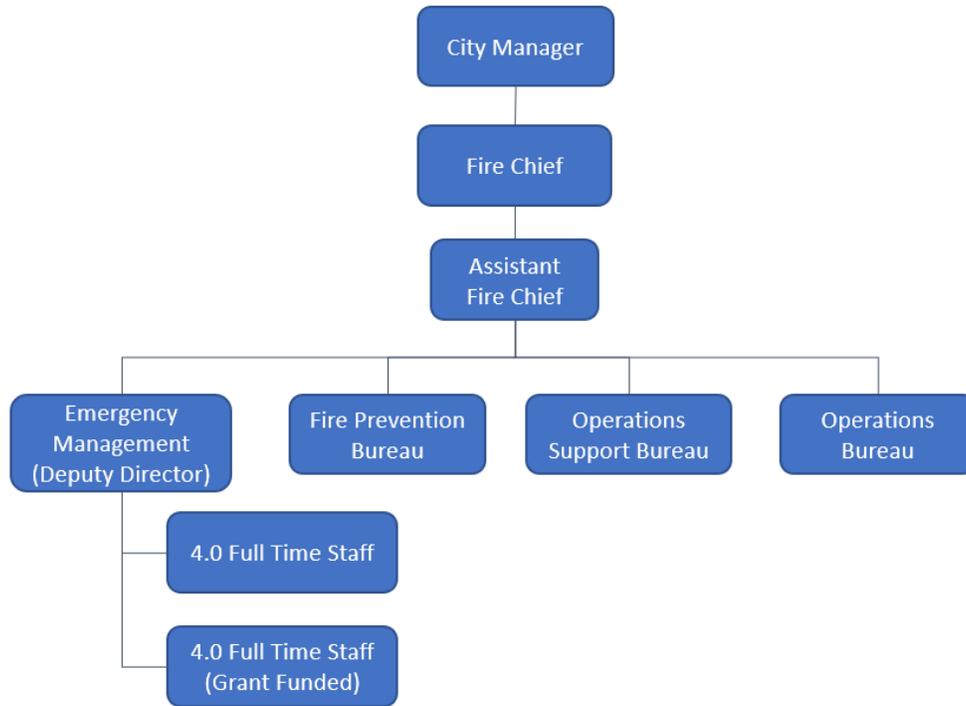


Figure 1. San Jose Emergency Management Reporting Structure before 2017 Flood<sup>119</sup>

Based on the improvement plan, the city revised the organization of the emergency management program and made changes to resource prioritization.<sup>120</sup> The city determined that relocating the emergency management program from the fire department back into the city manager’s office would promote the recognition of executive-level commitment. The city further recognized that emergency management would be better able to expand operational capabilities, build greater community resilience, and work with all stakeholders through the reorganization.<sup>121</sup> On August 8, 2017, the San Jose City Council adopted the recommendations set forth by the independent evaluation. In doing so, it acknowledged

<sup>119</sup> Adapted from “2017–2018 Operating Budget,” City of San Jose, 618, accessed December 17, 2018, <http://www.sanjoseca.gov/DocumentCenter/View/71994>.

<sup>120</sup> City of San Jose, “Office of Emergency Services Assessment Report,” 23.

<sup>121</sup> “City Council Agenda: August 8, 2017 Synopsis,” City of San Jose, August 8, 2017, Item 3.7, <http://www.sanjoseca.gov/DocumentCenter/View/71002>.

organizational deficiencies that negatively impacted emergency management priorities, access to stakeholders, and functional capabilities.<sup>122</sup>

## **2. Case Study 2: Sonoma County, California**

### ***a. Event Background***

Throughout northern California in October 2017, dry and windy conditions created an environment prime for serious wildfires. Multiple fires erupted in Napa County, immediately to the east, on the night of October 8. The largest fire was named the Tubbs Fire. The hills separating Napa and Sonoma Counties were engulfed in flames, with winds pushing the fire to the west. The fire spread more rapidly as it climbed in elevation, and in the process created burning debris that ignited additional fires in front of the advance. The fast-moving fire covered twelve miles in just four hours, burning from the unincorporated county territory into the city of Santa Rosa.<sup>123</sup>

The rapid evolution of events resulting from the fires raised tremendous challenges and confusion. Winds were recorded in excess of 65 miles per hour and significant fires were burning in more than a dozen locations. Fires extended into residential neighborhoods, including the Coffey Park community, as well as into commercial areas and the surrounding wildland-urban interface.<sup>124</sup> While the Tubbs Fire burned from the north of Santa Rosa, the Nuns Fire burned lands south of the city. The cascading effects included immediate evacuations, damaged cell phone networks, loss of electricity, traffic congestion, impacted emergency staff, and hospital closures. The firestorm overlapped multiple jurisdictions, resulted in a multidiscipline response, and required coordination

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<sup>122</sup> City of San Jose.

<sup>123</sup> County of Sonoma, *October 2017 Complex Fires—Emergency Operations Center After Action Report & Improvement Plan* (Santa Rosa, CA: County of Sonoma, 2018), 5, <http://sonomacounty.ca.gov/Board-of-Supervisors/Calendar/Board-of-Supervisors-Meeting-June-11-2018/>.

<sup>124</sup> County of Sonoma, 5.

among numerous different organizations. Ultimately, 24 lives were lost, 7,004 structures were destroyed, and 137 square miles were burned.<sup>125</sup>

***b. Organizational Considerations***

Following the October 2017 firestorms, a series of post-incident evaluations were conducted examining Sonoma County's organizational response performance. Among the reviews were an analysis of the county's alert and warning capabilities, an assessment of the emergency management program, an after-action review of the emergency operations center, a state assessment of the county's deployment of emergency alerting, and a civil grand jury review of the county's response to the fires. The organizational assessments recognized the need to respect the lessons learned from the fire incidents while at the same time remaining focused on building processes and structures that will meet the challenges of future disasters.<sup>126</sup>

Prior to the fires of 2017, the county's emergency management program resided under the oversight of the Fire & Emergency Services Department (FES). The director of FES is appointed by and reports to the county administrator (the chief appointed executive) through a deputy administrator. The responsibilities of FES included fire prevention activities, support and training for independent volunteer fire departments, hazardous materials incident response, in addition to emergency management.<sup>127</sup> The emergency management program was supervised by an emergency services manager, who was supported by three additional staff members. The emergency management program coordinated and managed the county's comprehensive emergency management efforts both intra- and inter-organizationally. The organizational structure prior to the fires is demonstrated in Figure 2.

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<sup>125</sup> Sonoma County Grand Jury, *Sonoma County Civil Grand Jury 2017–2018 Final Report* (Santa Rosa, CA: Sonoma County Superior Court, 2018), 7, <http://sonoma.courts.ca.gov/sites/all/assets/pdfs/general-info/grand-jury/2017-2018/FinalReport.pdf>.

<sup>126</sup> County of Sonoma, *Assessment Report: Emergency Management Program* (Santa Rosa, CA: County of Sonoma, 2018), 4, <http://sonomacounty.ca.gov/Board-of-Supervisors/Calendar/Board-of-Supervisors-Meeting-June-11-2018/>.

<sup>127</sup> "Fire and Emergency Services," County of Sonoma, August 28, 2018, <https://sonomacounty.ca.gov/Fire-and-Emergency-Services/>.

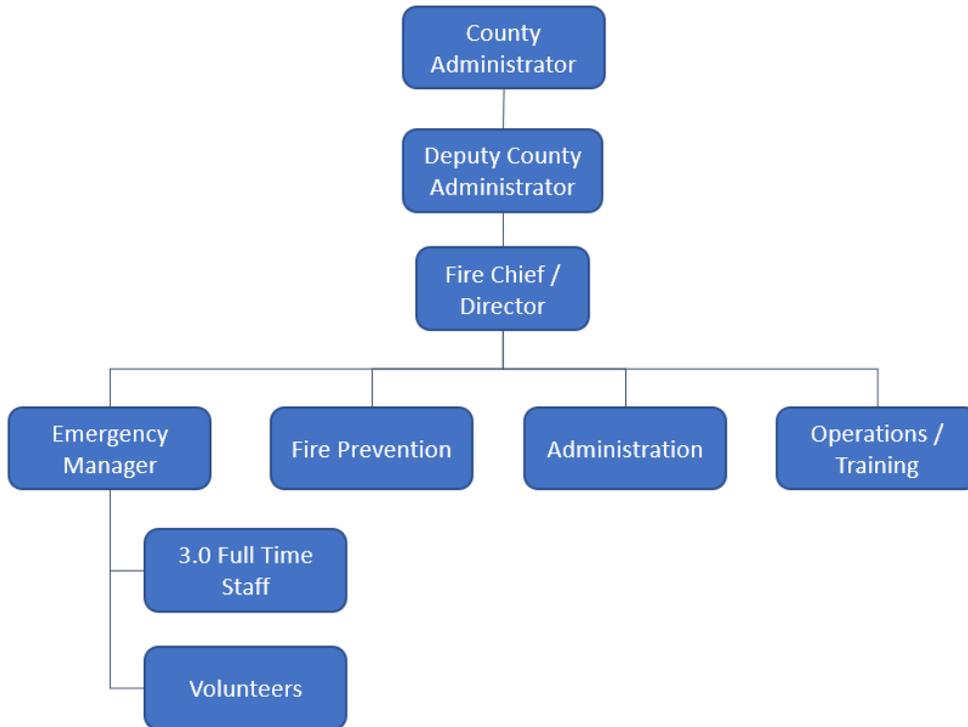


Figure 2. Sonoma County Emergency Management Reporting Structure before Fires<sup>128</sup>

The county board of supervisors holds most of the executive authority in county government, and most of the county’s departments report directly to the board. County ordinance and state law empowers the county administrator to act unilaterally to direct the county’s emergency response efforts to streamline the decision-making process and expedite emergency response.<sup>129</sup> Due to this organizational model, however, the county administrator has limited oversight of departments with essential emergency response prior to emergency incidents. Additionally, this model places the jurisdiction’s emergency management subject-matter expert in a position separated by three layers from the county

<sup>128</sup> Adapted from “Adopted Budget 2017–2018,” County of Sonoma, June 17, 2017, 192, <https://sonomacounty.ca.gov/CAO/Public-Reports/Budget-Reports/>.

<sup>129</sup> “Agenda Item Summary Report: Agenda Item Number: 44,” County of Sonoma, August 14, 2018, [http://sonoma-county.granicus.com/MetaViewer.php?view\\_id=2&clip\\_id=830&meta\\_id=248840](http://sonoma-county.granicus.com/MetaViewer.php?view_id=2&clip_id=830&meta_id=248840).

administrator and outside of the organizational chain that includes most departments with identified emergency planning, response, recovery, and mitigation responsibilities.

The county's post-incident review identified three primary areas of concern: the reporting relationship of the emergency management program, emergency operations center capabilities, and the management of the community alert and warning system.<sup>130</sup> The county further recognized that the placement of the emergency management program within the county's organizational structure directly affects its ability to coordinate effectively and influence county agencies in support of emergency preparedness and response.<sup>131</sup> The review of the program additionally found that the emergency management function should be no more than two positions removed from the senior executive authority.<sup>132</sup> Executive leadership highlighted that the organizational structure and reporting relationships of emergency management must foster a framework that ensures the coordination and integration of all activities necessary to prepare for, respond to, mitigate against, and recover from all types of disasters.

In response to the assessment findings, the county restructured the emergency management program. It removed the program from FES and created a separate department. The county also created a department head position to oversee the new emergency management department. The new position was designed to ensure that the "importance, priorities, and capabilities of the County's Emergency Management Program is effectively managed."<sup>133</sup> By implementing this reorganization, the county was further intending to demonstrate its executive-level commitment to the emergency management mission.<sup>134</sup> The new lead position will serve as an equivalent to the other department head

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<sup>130</sup> "Agenda Item Summary Report: Agenda Item Number: 53," County of Sonoma, June 11, 2018, [http://sonoma-county.granicus.com/MetaViewer.php?view\\_id=&event\\_id=945&meta\\_id=244351](http://sonoma-county.granicus.com/MetaViewer.php?view_id=&event_id=945&meta_id=244351).

<sup>131</sup> County of Sonoma, "Agenda Item Summary Report: Agenda Item Number: 44."

<sup>132</sup> County of Sonoma, *Staff Report: Emergency Management Program Reporting Relationship* (Santa Rosa, CA: County of Sonoma, 2018), 9, [http://sonoma-county.granicus.com/MetaViewer.php?view\\_id=2&clip\\_id=830&meta\\_id=248840](http://sonoma-county.granicus.com/MetaViewer.php?view_id=2&clip_id=830&meta_id=248840).

<sup>133</sup> "Agenda Item Summary Report: Agenda Item Number: 1," County of Sonoma, August 28, 2018, [http://sonoma-county.granicus.com/MetaViewer.php?view\\_id=&event\\_id=956&meta\\_id=249007](http://sonoma-county.granicus.com/MetaViewer.php?view_id=&event_id=956&meta_id=249007).

<sup>134</sup> County of Sonoma, *Staff Report: Emergency Management Program*.

positions in county government, thus giving emergency management direct access to departments countywide. In addition to the director-level position, the county added two new operational positions to the existing staff to address program gaps such as community notification capabilities.

### **3. Case Study 3: El Paso County, Colorado**

#### ***a. Event Background***

A fire in the Pike National Forest was reported to have started a few miles west of Colorado Springs in June 2012. At the time, winds were strong and erratic, pushing the fire to the south and the northwest. The area was experiencing hot temperatures, low humidity levels, and reduced fuel moistures.<sup>135</sup> First-arriving fire crews reported the fire as quick-burning with a rapid rate of spread. The fire expanded, approaching populated areas early in the incident. Set in the path of the spreading fires were communities residing in the urban-wildland interface, which created direct exposure to residences and businesses. Rugged terrain and vegetation made suppression efforts more difficult. Fire crews made multiple attempts at defensive strategies to keep the fire from entering populated areas.<sup>136</sup>

The Waldo Canyon Fire burned in multiple jurisdictions, including national forest land, two separate counties, six municipalities, and several independent districts. Evacuations were ordered early during the incident as rural communities were rapidly threatened by advancing flames. As the fire spread into populated areas, major infrastructure was threatened or damaged, including power lines, communications equipment, and the United States Air Force Academy. In the end, the Waldo County Fire consumed 18,247 acres over the course of eighteen days. At the time, it was the most destructive fire in the history of Colorado.

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<sup>135</sup> City of Colorado Springs, *Waldo Canyon Fire—23 June 2012 to 10 July 2012 Final After Action Report* (Colorado Springs, CO: City of Colorado Springs, 2013), 11, [https://cdpsdocs.state.co.us/coe/website/Data\\_Repository/Waldo%20Canyon%20Fire%20Final%20After%20Action%20Report\\_City%20of%20Colorado%20Springs.pdf](https://cdpsdocs.state.co.us/coe/website/Data_Repository/Waldo%20Canyon%20Fire%20Final%20After%20Action%20Report_City%20of%20Colorado%20Springs.pdf).

<sup>136</sup> El Paso County Sheriff's Office, *Waldo Canyon Fire After Action Report* (Colorado Springs, CO: El Paso County, 2012), 8, [https://wildfiretoday.com/documents/Waldo\\_Canyon\\_Fire\\_Sheriff\\_Report.pdf](https://wildfiretoday.com/documents/Waldo_Canyon_Fire_Sheriff_Report.pdf).

The emergency management system in El Paso County would again be tested the following year when another devastating fire struck west of Colorado Springs in June 2013. The Black Forest Fire burned 14,280 acres, destroyed 511 homes, and caused two deaths, becoming the state’s new most devastating fire. The burned landscape left in the wake of the fire, combined with heavy rains in September, contributed to flooding in parts of the county.<sup>137</sup>

***b. Organizational Considerations***

Every El Paso County department and agency was activated in support of the fire response. The county instituted a total workforce commitment to staff the emergency operations center, provide support to field responders, oversee sheltering activities, institute evacuations, and maintain logistical support. Coordination among multiple disciplines proved necessary quickly during the response process. The individual response actions taken by county staff during the two years of devastating fires was described as heroic, and the staff was described as committed to the citizens they serve.<sup>138</sup> Following the fires, incident after-action reviews were conducted by the agencies involved, as were internal county emergency management organizational assessments. These activities ultimately led to organizational change in the emergency management program reporting structure.

The state identified communication and coordination as one of four primary areas of concern in 2013. There were communication gaps between field personnel and emergency operations centers, and the multidiscipline nature of the incident made it difficult for stakeholders to coordinate and effectively share situational information. Roles and responsibilities of the various agencies engaged in response or recovery activities were not well understood, and staffing levels—including at the emergency operations centers—

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<sup>137</sup> Colorado Division of Homeland Security & Emergency Management, *After Action Report—State of Colorado 2013 Floods and Black Forest Fire* (Denver: State of Colorado, 2015), 4, [www.colorado.gov/pacific/dhsem/atom/60701](http://www.colorado.gov/pacific/dhsem/atom/60701).

<sup>138</sup> County of El Paso Sheriff, *Annual Report Issue 2013* (Colorado Springs, CO: County of El Paso, 2013), 8, <https://www.epcsheriffsoffice.com/sites/default/files/resources/annual-reports/pdf/2013annual-report.pdf>.

were insufficient.<sup>139</sup> The county's internal after-action reviews additionally identified difficulties in coordination of resource acquisition and deployment.<sup>140</sup>

At the time of the fires, the emergency management program was under the oversight of the sheriff's department. The El Paso County Sheriff's Office maintains a comprehensive policy manual outlining professional standards expected of members of the department. The document outlines a clearly defined rank and organizational structure, with an emphasis on chain of command and organizational responsibilities.<sup>141</sup> Department policy does not preclude horizontal communication but demands the maintenance of a unity of command based on a hierarchical organizational structure. To best support the tactical mission of the sheriff, the department policy manual dictates a paramilitary organizational model to facilitate department operations; the emergency manager was separated by the department executive by four layers. The emergency management program was additionally separated from the remainder of operational county departments with emergency roles and responsibilities by the four layers within the sheriff's department plus the organizational layers existing within county general government (see Figure 3).

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<sup>139</sup> Colorado Division of Homeland Security & Emergency Management, *After Action Report*, 2.

<sup>140</sup> El Paso County Sheriff's Office, *Waldo Canyon Fire After Action Report*, 20.

<sup>141</sup> County of El Paso Sheriff, *El Paso County Sheriff's Office Policy Manual* (Colorado Springs, CO: County of El Paso, 2018), 20, [https://www.epcsheriffsoffice.com/sites/default/files/resources/resources/El\\_Paso\\_County\\_Sheriff\\_s\\_Office\\_Policy\\_Manual\\_071118.pdf](https://www.epcsheriffsoffice.com/sites/default/files/resources/resources/El_Paso_County_Sheriff_s_Office_Policy_Manual_071118.pdf).

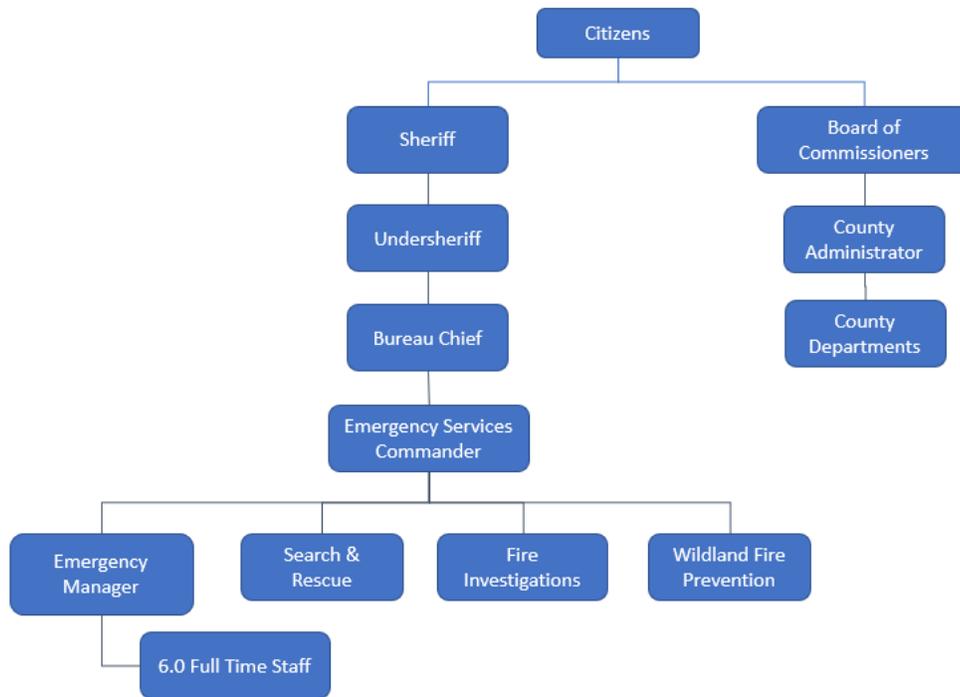


Figure 3. El Paso County Emergency Management Reporting Structure before 2012 Fire<sup>142</sup>

The reorganization of the emergency management program in El Paso County shifted oversight of the program from an independently elected sheriff to the part of county government under the control of the board of commissioners. The newly redefined Office of Emergency Management placed the emergency management responsibilities under the oversight of the public works department.<sup>143</sup> This organizational realignment places the state-mandated emergency management function within the control of the elected board of commissioners and places a minimum of three layers between the agency subject-matter expert in emergency management and executive decision makers.<sup>144</sup> County resolution

<sup>142</sup> Adapted from: County of El Paso, “2012 Adopted Budget,” accessed September 2018, <https://admin.elpasoco.com/financial-services/budget-finance/county-budget/>.

<sup>143</sup> “Office of Emergency Management,” County of El Paso, 2, accessed December 17, 2018, <https://admin.elpasoco.com/wp-content/uploads/Budget/BudgetHearings/2016BudgetHearings/2016CriticalNeeds/2016-Office-of-Emergency-Management-Critical-Needs.pdf>.

<sup>144</sup> “Agenda Item Summary Report: Agenda Item No: 13,” County of El Paso, September 23, 2014, <http://74.208.113.192:8080/ams/elpaso/Search.html?ss=-1>.

further establishes the position of a board-appointed director for the Office of Emergency Management yet directs county administration and the public works director to provide functional oversight of the emergency management program.<sup>145</sup> The resolution does require the county administrator or the public works director to have emergency management experience. The reorganized emergency management structural placement is illustrated in Figure 4.

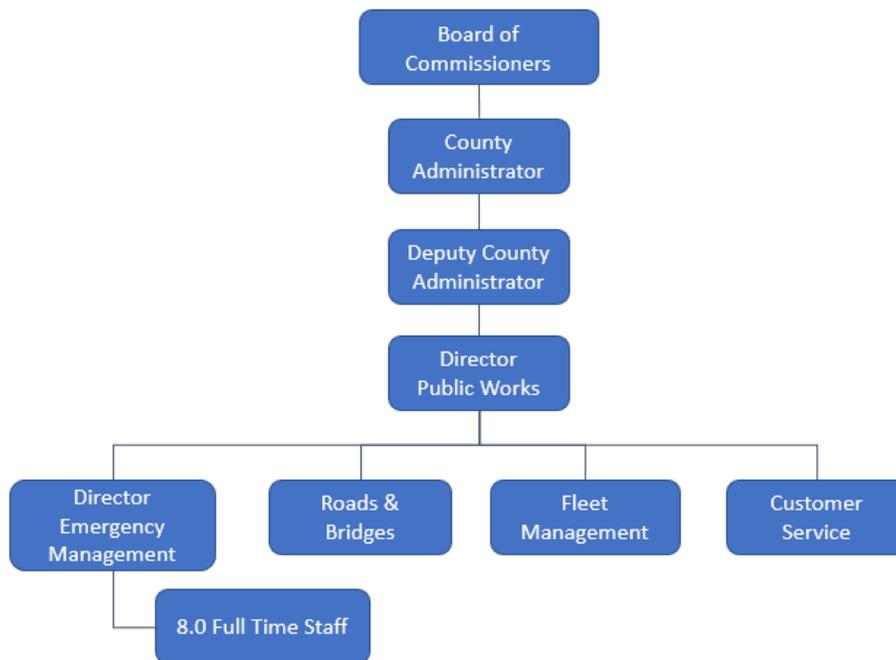


Figure 4. El Paso County Emergency Management Reporting Structure after 2012 Fire<sup>146</sup>

#### 4. Synthesis of the Case Studies

Each of the case studies involved moderate to large local jurisdictions facing tremendous challenges presented by a disaster. Operational gaps experienced during the crisis, and that negatively affected mission effectiveness, led to organizational

<sup>145</sup> County of El Paso, “Agenda Item Summary Report: Agenda Item No: 13.”

<sup>146</sup> Adapted from “2018 Adopted Budget, County of El Paso,” accessed December 17, 2018, <https://admin.elpasoco.com/wp-content/uploads/Budget/BudgetHearings/2018BudgetHearings/2018OriginalAdoptedBudget/2018-Adopted-Budget-Book.pdf>, 203.

reconfigurations with the emergency management program. In two of the cases, the emergency management program formerly resided within another professional discipline and was moved to an independent role closer to the agency executive; in the third case, the emergency management role was realigned from one operational host department to another.

Following the events described in the case studies, the jurisdictions reviewed organizational performance. The deficiencies they identified are consistent with the considerations highlighted in the organizational theories described in previous chapters (and elaborated on in the next chapter). The after-action reviews and organizational analyses emphasized the influence of the agencies' hierarchical models, communication pathways, complex collaborative networks, and resource constraints. While post-incident reviews are not designed to illustrate theoretical characteristics, the gaps identified demonstrate the overlap between theory and practical application. In each of the cases, the organizational shift involved separating the program from a traditionally rigid hierarchical structure that typically resides in a public safety entity. The result reduced vertical organizational layering while expanding increased horizontal accessibility.

The case study after-action reviews also identified key challenges that prompted the organizational changes, such as insufficient resource allocations to accomplish the prescribed mission, as well as other barriers, such as adequate program prioritization, access to decision making, and ease of information flow. These considerations are examined analytically using public administration-based theoretical models in the next chapter.

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## V. ANALYSIS

### A. THE SIGNIFICANCE OF ORGANIZATION

Because emergency management is a component of the public administration sector, models and theories of public management help explain how this function might best fit within the larger organization. It is important to understand the broader dynamics at work in organizational theory to effectively structure the organization. Charles Wise found that “policymakers too often structure public organizations without adequate consideration of the larger environment in which the organization will operate.”<sup>147</sup> When decision makers do not understand organizations and their behaviors, policy failures may result.<sup>148</sup> Although there are a wide range of organizational theories, as previously mentioned, this thesis focuses on a few organizational dynamics that are commonly experienced within the emergency management environment within local government.

The bureaucratic model of organizations described by social scientist Max Weber not only examines the hierarchical structure common to bureaucracies but also provides for three types of authority within bureaucratic models: authority based on traditions, authority based on charismatic figures, and legal-rational authority based on rules or regulations.<sup>149</sup> Authorities that allow inter-organizational communication and collaboration with horizontal and vertical actors, with necessary information and resources, can achieve mission goals.<sup>150</sup> The hierarchical structure within a bureaucracy allows for collaboration and open communication pathways when supported by the structure’s leadership. However, as transitions occur in leadership, the hierarchy does not demand continuity within those open pathways. Rather than the system continuing collaborative methods, it becomes dependent on the personality of the leader. Authority over the

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<sup>147</sup> Charles Wise, “Public Service Configurations and Public Organizations: Public Organization Design in the Post-privatization Era,” *Public Administration Review* 50, no. 2 (March/April 1990): 142.

<sup>148</sup> Bozeman, “Organization Theorists and Public Policy Researchers,” 173.

<sup>149</sup> Richard Stillman, *Public Administration: Concepts and Cases* (Boston: Houghton Mifflin, 1996), 55.

<sup>150</sup> McGuire and Silvia, “The Effect of Problem Severity,” 286.

emergency management program, given to the program by leadership, can greatly alter effectiveness and mission capability.

Most public organizations have a hierarchical organizational structure to address tasks with varying degrees of complexity, accountability, and managerial control over large numbers of employees.<sup>151</sup> This structure may have multiple levels of management under the chief executive. In many states, such as California, state law specifically identifies the roles and responsibilities of the governing body and chief executive in the preservation of government and the provision of public safety.<sup>152</sup> The structural design can either support the executive carrying out these responsibilities or present obstacles. If the emergency manager is the subject-matter expert in disaster policy and procedures, do multiple layers of separation alter effectiveness and information flow?

Organizational development and culture are critical to effectively carrying out an emergency management mission—and the emergency management program’s structure plays a significant role in fostering an environment that promotes effectiveness. This structure must take into account the variables that emergency management programs contend with both routinely and during crisis management scenarios. There must be communication pathways at every level—horizontally, vertically, and external to the organization—with minimal barriers. Research reinforces this position; as Jyotiranjana Gochhayat, Vijai Giri, and Damodar Suar found, “organizational communication tends to play an important role in the relationship between organizational culture and organizational effectiveness.”<sup>153</sup>

The two environments that emergency management programs function in, routine conditions and emergencies, usually assume significantly different organizational structures and applications. Considerable research has evaluated the merits of various organizational designs and systems within emergency incident management. Public

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<sup>151</sup> Shafritz, *Classics of Organization Theory*, 233.

<sup>152</sup> California Emergency Services Act, Government Code § 8630 (2015), <http://www.caloes.ca.gov/LegalAffairsSite/Documents/Cal%20OES%20Yellow%20Book.pdf>.

<sup>153</sup> Gochhayat, Giri, and Suar, “Influence of Organizational Culture,” 693.

administration concepts must incorporate the unique considerations seen in an emergency management program; for instance, large-scale emergencies are low-frequency events in many jurisdictions, but have the potential for extreme consequences. The organizational culture for routine government operations must therefore evolve to address the challenges presented, if infrequently, by disasters.<sup>154</sup>

The field of public administration recognizes the value of incorporating strategic management, linking the strategic planning focus to routine business processes. This ensures that programs are operating as intended, with tactical decisions aligning with the strategic vision. An emergency management program's placement in the organization's hierarchy and access to decision makers influences its strategic management capabilities. Organizational configurations should aim to minimize programmatic weaknesses and enhance strengths, according to Urby and McEntire.<sup>155</sup> Access to decision makers provides a channel to enhance valid decisions based on unfiltered expertise.

The most common way to display organizational structure and design is an organizational chart. Developing the chart involves more than simply putting names in boxes. The structural design facilitates the organization's decision making as well as its reactions to environmental considerations. Conflict between organizational activities and relations between units are eased or hindered by the chosen structure.<sup>156</sup> A collaborative approach that uses internal networks of relationships is equally important to optimize outcomes.<sup>157</sup> Within the hierarchical government system, however, some organizational locations are more compatible than others.

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<sup>154</sup> International City/County Management Association, *Managing Small Cities and Counties*, 217.

<sup>155</sup> Heriberto Urby and David A. McEntire, "Emergency Managers as Change Agents: Recognizing the Value of Management, Leadership, and Strategic Management in the Disaster Profession," *Journal of Emergency Management* 13, no. 1 (January/February 2015): 48.

<sup>156</sup> Gholam Ali Ahmady, Maryam Mehrpour, and Aghdas Nikooravesh, "Organizational Structure," *Procedia Social and Behavioral Sciences* 230 (2016): 456.

<sup>157</sup> McGuire and Silvia, "The Effect of Problem Severity," 281.

## **B. CONSEQUENCES FOR EFFECTIVENESS AND MISSION CAPABILITIES**

Organizational structure alone will not determine how effective a jurisdiction is at implementing its emergency management mandates. However, the structure influences the emergency management program's ability to achieve its mission, which facilitates overall effectiveness. When organizational factors are out of alignment, mission capabilities and operational effectiveness suffer—and the consequences are often realized in the middle of a crisis (and identified in after-action reviews). The design of the emergency management program's organizational framework provides the foundation on which the complex systems function; an effective organizational design can mitigate consequences.

Organizational structure can help establish an environment that fosters a shared organizational culture. Culture, as mentioned, has a profound influence on the organization's decision making and communication, and on the development of strategy and strategic relationships.<sup>158</sup> The fire service and law enforcement disciplines are clear examples of discipline-specific cultures within local government, rooted deeply in history and tradition. Members of these organizations develop a professional identity and common organizational perspectives. Hierarchical design significantly influences effectiveness by limiting dimensions of vision, strategic communication, and complex systems thinking.<sup>159</sup> Bolman and Deal explain that “excellent organizations have relatively loose structures that reward innovation and entrepreneurship while remaining tightly controlled by culture and values.”<sup>160</sup>

When emergency management programs reside in so many different disciplines, each reflecting their own culture and set of values, there are consequences to the emergency management-specific culture and ultimately the product the program delivers. The structural placement of a discipline such as emergency management within the hierarchical

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<sup>158</sup> Mohammad Bagher Arayesh et al., “The Effects of Organizational Culture on the Development of Strategic Thinking at the Organizational Level,” *International Journal of Organizational Leadership* 6 (2017): 262.

<sup>159</sup> Arayesh et al., 274.

<sup>160</sup> Bolman and Deal, *Reframing Organizations*, 275.

model of another, larger organizational component may create inconsistent work cultures and methodologies. This scenario is often experienced in public safety agencies when “civilian” functions (such as emergency management) are paired with functions managed by sworn, uniformed staff. Organizational alignments that place a smaller work unit within a larger department that shares limited experiences or cultures risk isolation and negative stimuli, which can alter human emotions and performance.<sup>161</sup> Management should strive, therefore, to maintain organizational values and stability, and improve efficiency.<sup>162</sup> Specifically, management should consider how inconsistent methods affect the emergency management program’s stability, efficiency, values, and priorities—especially when it is necessary for the employees to frequently coordinate with other emergency management programs and systems.

Structure, further, can encourage professional discourse and knowledge enhancement. These social processes allow members to collectively organize, and they normalize contributing behaviors among the workforce.<sup>163</sup> The shared professional experiences and backgrounds create common understandings. Organizational design can either promote or inhibit organizational learning and knowledge sharing.<sup>164</sup> It is crucial in the emergency planning process to have shared understandings of roles, responsibilities, resources, and capabilities. Without an organizational design that gives emergency management personnel access to other parts of the organization and external stakeholders, they cannot maintain a common operating picture.

Critically important to emergency management is having sufficient and ongoing situational awareness. The organizational structure must be designed and effectively implemented to ensure communication pathways exist and are used effectively. Information systems can help facilitate these exchanges, but they reside within the

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<sup>161</sup> Cameron et al., “Effects of Positive Practices,” 290.

<sup>162</sup> Urby and McEntire, “Emergency Managers as Change Agents,” 38.

<sup>163</sup> Kim Cameron et al., “Effects of Positive Practices on Organizational Effectiveness,” *The Journal of Applied Behavioral Science* 47, no. 3 (2011): 289.

<sup>164</sup> Mojtaba Babapour and Bahram Gheibi, “An Investigation of the Impact of the Knowledge Sharing and the Characteristics of Learning Organization on Employees’ Organizational Intelligence,” *International Journal of Organizational Leadership* 5 (2016): 196.

procedures established under organizational constructs. Response times are compromised when there are no mechanisms capable of supporting the information flow, as seen in the previous case studies.

### **C. THEORETICAL AND PRACTICAL FINDINGS CROSSWALK**

The field of public administration has evolved to combine both practical application and theory. Bozeman explains that creating public policy ignorant of studies in organization is “just as feckless” as studying organization without the inclusion of policy research.<sup>165</sup> The classical theories help explain, through empirical analysis, the behaviors and methods of public agencies. There should be a balance between the theoretical pathways and the methodological pathways to public administration; there is a “need to enhance the relevance of theoretical knowledge to practice.”<sup>166</sup> Without this conscious effort, theory may not be relevant to practical application, as it does not benefit from rich, knowledge-based research. The following sections examine the relationship between classic public administration theories and practical applications central to the field of emergency management. Examining these relationships helps to form a basis for understanding the significance of organizational design and structure.

#### **1. Application of Organizational Theory to Coordination**

Systems theory, as it is used in organizational management, is based on the concept that “everything is part of a larger, interdependent arrangement.”<sup>167</sup> The various systems that must be coordinated include organizations “with differing social histories, organizational cultures, operating practices, crisis management experience, and areas of expertise.”<sup>168</sup> Coordination must occur between different government agencies, internal departments, the private sector, the not-for-profit community, and a host of other entities. The elements of a system always have mutual relationships with one another and the

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<sup>165</sup> Bozeman, “Organization Theorists and Public Policy Researchers,” 182.

<sup>166</sup> Sanjay K. Pandey, “Theory and Method in Public Administration,” *Review of Public Personnel Administration* 37, no. 2 (2017): 134.

<sup>167</sup> Pine, “Contributions of Management Theory and Practice,” 6.

<sup>168</sup> Curnin et al., “Theoretical Framework,” 300.

environment or culture surrounding them.<sup>169</sup> These interdependencies rely on the development of cultural norms, which allow for frequent interaction and relationship building. Can organizational design strengthen coordination capability or undermine the agency's ability to effectively collaborate with others?

According to Lee and Fleming, emergency managers want to ensure opportunities for collaboration among stakeholders, but often experience conflicts with organizational limitations internally or with a partner agency.<sup>170</sup> The networks of individuals and organizations engaged in emergency management activities create a complex web of participants, and the issues they experience span the spectrum of their professional disciplines. This creates added complexity to intra- and inter-organizational coordination and efforts. In these environments—ones that demand increased levels of collaboration—is where organizational theory and systems psychodynamics come together.<sup>171</sup>

Political considerations may also impede the needs, and mission effectiveness, of the emergency management subunit. Power and politics theory explains that organizations are rational institutions with actors who are driving to accomplish their goals. Theorists in organizational behavior actually argue that the individuals who have formal authority rarely establish these goals.<sup>172</sup> The emergency management program is uniquely capable of applying its own power influences when not under the rigid control of an authoritarian form of power. Power and politics can overwhelm participants with “managerial jargon and technique” and create manipulative undertones, which may inhibit otherwise productive activities.<sup>173</sup> Power over the emergency management program also impacts resource availability, which ultimately drives coordination opportunities. To effectively coordinate among necessary partners, the emergency management program should be

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<sup>169</sup> Rob Dekkers, *Applied Systems Theory* (New York: Springer, 2015), xiii.

<sup>170</sup> Lee and Fleming, “Collaborative Disaster Management in Local Governments,” 345.

<sup>171</sup> Jean E. Neumann, “How Integrating Organizational Theory with Systems Psychodynamics Can Matter in Practice: A Commentary on Critical Challenges and Dynamics in Multiparty Collaboration,” *The Journal of Applied Behavioral Science* 46, no. 3 (2010): 318.

<sup>172</sup> Shafritz et al., *Classics of Organization Theory*, 283.

<sup>173</sup> Frank Blackler, “Power, Politics, and Intervention Theory: Lessons from Organization Studies,” *Theory and Psychology* 21, no. 5 (2011): 731.

positioned so that members are aware of political dynamics but are removed from overly political influences.

Bureaucratic organizations are primarily based on lines of authority. As Gareth Morgan explains, the motions of organizational structure are made to operate as precisely as possible as a result of its patterns of authority.<sup>174</sup> Operating within the lines of authority is essential, but how do these lines of authority conflict with collaboration? To understand what an emergency management program needs to effectively reach out and share information, gain situational awareness, distribute resources, and implement disaster policy, it is useful to identify potential organizational barriers such as those resulting from strict lines of authority.

Much like theories of bureaucratic organizational behavior based on lines of authority, systems theory and complexity theory demonstrate additional considerations for organizational design. Not only does an organizational component have to contend with vertical layers of control, it must also adapt to both horizontal complexity and environmental complexity.<sup>175</sup> An emergency management program is often faced with significant horizontal complexity, with multiple departments and divisions throughout the organization. The further down the vertical spectrum, the greater the horizontal complexity. The environmental complexity includes the vast number of items, data points, and elements emergency management must contend with to operate.<sup>176</sup> For effective coordination to occur, the organizational design should ensure the communication pathways are accessible to stakeholders. As the case studies demonstrated, gaps in intra- and inter-organizational coordination lead to consequences.

Organizational image and association that result from the organization's lines of hierarchy may also influence effectiveness—especially in current times, as certain segments of local government are experiencing significant public criticism. The organization's image, as perceived both by members of the organization and external

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<sup>174</sup> Morgan, *Images of Organization*, 18.

<sup>175</sup> Anderson, "Complexity Theory and Organization Science," 216.

<sup>176</sup> Anderson, 216.

audience members, can affect employees' work behaviors, as well as other stakeholders' willingness to serve in supportive roles.<sup>177</sup> At the same time, a hierarchical structure portrays a sense of importance and priority that the organization places on the program. As a primary role for emergency management programs is to build and maintain relationships, it is helpful to show that the program is organizationally capable of supporting stakeholders and has internal credibility.

## **2. Application of Organizational Theory to Information Flow**

Disaster information is shared among multiple partners as a part of preparedness, planning, and response activities. It has been found that about 60 percent of organizations use disaster-related information for decision making and that trust based on organizational credibility is critical.<sup>178</sup> In urgent situations, the emergency manager must integrate data from different information sources to create a mental picture of the emergency and its impacts.<sup>179</sup> Individual background, current roles, and occupational knowledge provide a framework; as emergency management likely will manage the situational awareness and common operating picture roles, emergency management should be in an organizational posture that possesses broader perspective, rather than a department focus.<sup>180</sup>

If the emergency management program has routine and unfiltered access to all the subcomponents of the larger organization, and stakeholders outside of the organization, it can better cultivate productive information sources. Part of determining how to organize an emergency management program is determining who will be making decisions or providing expert advice. In urgent and rapidly progressing events, the leader who is making crisis decisions—often the emergency manager—will lean on intuition and previous

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<sup>177</sup> Eunju Rho, Kangbok Lee, and Taesik Yun, "Does Organizational Image Matter? Image, Identification, and Employee Behaviors in Public and Nonprofit Organizations," *Public Administration Review* 75, no. 3 (May/June 2015): 422.

<sup>178</sup> Sheila Huss, Abdul-Akeem Sadiq, and Christopher M. Weible, "Organizations and Emergency Management: Information, Trust, and Preparedness," *Journal of Emergency Management* 10, no. 5 (September/October 2012): 368.

<sup>179</sup> Glick and Barbara, "Moving from Situational Awareness to Decisions," 428.

<sup>180</sup> Erna Danielsson, "From Common Operating Picture to Situational Awareness," *International Journal of Emergency Management* 10, no. 1 (2014): 44.

experience or knowledge.<sup>181</sup> If the emergency management program is layered beneath another discipline, the information flow may be filtered through, or tainted by, that outside discipline at the expense of a more holistic perspective. Systems theory, and its implications about information quality as information navigates complex systems, shows the complicated relations that exist in actual organizations.<sup>182</sup> Doubt, bias, confidence, and other factors of humanization can influence the information as it flows within the system. Hierarchies of information are formed based on who knows about the information, the objectivity of that knowledge, confidence, and habit production of the people involved.<sup>183</sup> Habits are fueled by learned experiences, often from discipline-specific backgrounds. The information dynamics are even more complex when information must flow outside the organization as well.<sup>184</sup> As information flows through added layers, individuals' habits and frames along the way alter the content and priority of messages.

Situational information about an impending incident, or one that is already occurring, will have different personal relevance to each member of the information chain, depending on the roles, responsibilities, and liabilities of the person's discipline. The habits a person forms based on muscle memory or discipline-based experiences will frame that person's perspectives, and may make certain information appear irrelevant or less of a priority. Organizational politics and context also influence communication processes—especially when it comes to the status and power differentials between those sending a message and those receiving it.<sup>185</sup> When organizing an emergency management program, decision makers must be cautious of the potential for power and politics to influence information flow.

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<sup>181</sup> Danielsson, 43.

<sup>182</sup> Tuan Manh Nguyen, "A Systems Theory of Organizational Information," *International Journal of Knowledge and Systems Science* 7, no. 2 (April/June 2016): 60.

<sup>183</sup> Nguyen, 76.

<sup>184</sup> The trend analysis in Chapter IV of emergency management structures throughout the United States demonstrates the various professional disciplines through which information flow occurs to reach the emergency management program. The wide diversity in disciplines presents opportunity for differing habits and frames to influence information.

<sup>185</sup> Lyle Sussman et al., "Organizational Politics: Tactics, Channels, and Hierarchical Roles," *Journal of Business Ethics* 40, no. 4 (November 2002): 314.

### 3. Application of Organizational Theory to Decision Making

It is common for jurisdiction executives to hold statutory responsibilities in times of emergencies. For instance, in California, the governing body and chief executive of a local agency can issue local proclamations and orders pertaining to disaster management.<sup>186</sup> The chief executive and the higher layers of the organization provide a primary source of decision making in support of those responsibilities. These decisions will often have wide-ranging consequences before, during, and after an emergency. In a bureaucratic system, a hierarchical, layered approach enables subordinate functions to make decisions within their authority, which higher levels of the organization can then approve, reject, or modify.<sup>187</sup> What does this mean for emergency management programs organizationally placed in a subordinate position to another professional discipline? If the leaders in the overseeing discipline have minimal experience in comprehensive emergency management, the consequences may deepen. Studies have shown that training, experience, and technological competence provide the knowledge required to make intuitive decisions.<sup>188</sup>

Emergency management programs placed organizationally within another discipline will be subject to decisions made by the leadership of that other discipline. Are these decisions based on the merits of the emergency management issue, and does the decision maker have the experience or knowledge to make an informed decision? If the decision maker does not fully understand the nature of the issue, he or she cannot appropriately weigh the value of the alternatives.<sup>189</sup> Evidence suggests that inadequate information sharing and inter-organizational coordination during disasters negatively affects decision making and resulting actions.<sup>190</sup> Communication processes are frequently

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<sup>186</sup> California Emergency Services Act, Art. 14 § 8630.

<sup>187</sup> Morgan, *Images of Organization*, 178.

<sup>188</sup> Jacobs and Gaver, "Human Factors Influencing Decision Making," 25.

<sup>189</sup> Jacobs and Gaver, 60.

<sup>190</sup> James L. Paturas, Stewart R. Smith, and Joseph Albanese, "Inter-organizational Response to Disasters," *Journal of Business Continuity & Emergency Planning* 9, no. 4 (Summer 2016): 351.

problematic during emergencies; these pathways should be supported through problem-solving processes to facilitate enhanced decision making.

From a systems theory perspective, Tina Moldogaziev and William Resh point out that the administrative core of the organization and the workforce often get pulled into external transactional relationships. These external relationships in a systems environment have the potential to pull the two organizational elements far enough apart that they lose perspective of their interconnectedness.<sup>191</sup> In a hierarchical structure, it is therefore important to ensure that the technical and policy guidance for critical emergency management considerations do not fall too far away from executive leadership. Philip Anderson found that in constantly changing environments—such as emergencies—the organization must be designed for adaptation.<sup>192</sup>

Power and politics influence organizational behavior as well, especially when it comes to priorities, practices, and policies.<sup>193</sup> And a disaster will put any organization to the test: the perceived need for self-preservation, incident events driving unexpected political consequences, and incident-driven stress foster power struggles during a crisis. The issues faced during a crisis cross all the represented disciplines. Those who have the power to bias organizational rewards and resources in favor of their own needs will alter communication to decision makers.<sup>194</sup> Additionally, issues will arise that require knowledge and capabilities beyond those available within the organization. The complex systems approach to the numerous stakeholders, communication channels, priorities, political intrusions, and other forces extend beyond the scope of any of the discipline-specific departments in local government.

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<sup>191</sup> Tina T. Moldogaziev and William G. Resh, “A Systems Theory Approach to Innovation Implementation: Why Organizational Location Matters,” *Journal of Public Administration Research and Theory* 26, no. 4 (2016): 679.

<sup>192</sup> Anderson, “Complexity Theory and Organization Science,” 228.

<sup>193</sup> Blackler, “Power, Politics, and Intervention Theory,” 730.

<sup>194</sup> Sussman et al., “Organizational Politics,” 327.

#### 4. Application of Organizational Theory to Resource Allocation

Local jurisdictions often have limited resources to provide to a diverse set of public services, which means the emergency management program must compete with the other disciplines for resources it needs to operate effectively. Local emergency management programs are constrained by anti-property and tax-constrained budgets, internal agency competition, and policymakers' poor understanding of emergency management responsibilities; this results in a minimal budget and small-staffed programs.<sup>195</sup> And this organizational trend is not limited to any one particular region. Following the Cascadia Rising Exercise in the Pacific Northwest in 2016, an after-action report found that emergency management agencies lacked adequate capacity and agency resources to respond to the complexities of a catastrophic incident.<sup>196</sup> Resources, which are filtered through budgeting processes, are influenced by the organization's hierarchical layers and their priorities. Each vertical layer increases the internal competition for resources and dilutes awareness about the emergency management program's mission. In a political framework, and when resources are scarce, power becomes the most desired resource.<sup>197</sup> Politically motivated behaviors in other parts of the organization can affect the emergency management program—and depending on where the emergency management program falls in the organizational hierarchy, the effects can be great.<sup>198</sup>

The emergency management program resides in a complex network; the more complex the system, the more opportunities for constraints. If stakeholders can identify and mitigate these constraints, they could create new processes or improve existing ones. When goals are not clearly prioritized or when they are influenced by system actors, the performance of one resource process will increase constraints on other resource

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<sup>195</sup> Skip Krueger, Eliot Jennings, and James M. Kendra, "Local Emergency Management Funding: An Evaluation of County Budgets," *Journal of Homeland Security and Emergency Management* 6, no. 1 (2009): 1.

<sup>196</sup> FEMA, *Cascadia Rising 2016 Exercise, Cascadia Subduction Zone (CSZ) Catastrophic Earthquake and Tsunami—Functional Exercise After Action Report* (Washington, DC: FEMA, 2016), 5, [https://www.fema.gov/media-library-data/1484078710188-2e6b753f3f9c6037dd22922cde32e3dd/R16\\_AAR\\_508.pdf](https://www.fema.gov/media-library-data/1484078710188-2e6b753f3f9c6037dd22922cde32e3dd/R16_AAR_508.pdf).

<sup>197</sup> Bolman and Deal, *Reframing Organizations*, 163.

<sup>198</sup> Sussman et al., "Organizational Politics," 314.

processes.<sup>199</sup> Frequently, scarce resources drive coalition building and organization competition. Emergency management programs can easily find themselves defending programmatic resources needed to prepare for incidents that might not happen or do so infrequently. Other departments, with more immediately visible needs, will increase intra-organizational competition for the resources. When considering power and politics theory, why are these coalitions and the power relations so important to consider for organizational design of emergency management programs? Because these dynamics often end up providing the legitimacy for resource allocation decisions.<sup>200</sup>

## 5. Application of Organizational Theory to Emergency Planning

According to the book *Management of Uncertainty*, “Individuals predominantly plan according to the goals of their own reference system, for instance, their organizational unit.”<sup>201</sup> The jurisdiction’s emergency management program is typically charged with multiple lines of inter-agency or inter-organization coordination. Collaborative emergency planning demands open stakeholder accessibility inclusive of a diverse set of actors absent restrictions placed by controlling departments. Perspective must remain broad—not limited to discipline-specific themes—to be inclusive of the comprehensive sets of demands placed on the jurisdiction in times of crisis.

A primary goal of emergency planning is recognizing and incorporating the multiple interdependencies. The coordination that must occur is a “collaborative mechanism that represents a system of coupled elements.”<sup>202</sup> Elements of both systems theory and complexity theory are useful for validating the influences that affect emergency planning activities. Planning processes take on the attributes of complex systems. A complex system needs to adapt and self-organize to respond to the various interactions among the diverse system components.<sup>203</sup> Emergent behaviors are always influencing

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<sup>199</sup> Dekkers, *Applied Systems Theory*, 90.

<sup>200</sup> Shafritz et al., *Classics of Organization Theory*, 284.

<sup>201</sup> Gudela Grote, *Management of Uncertainty* (London: Springer, 2009), 80.

<sup>202</sup> Neumann, “Integrating Organizational Theory,” 318.

<sup>203</sup> Fitch and Jagolino, “Examining Organizational Functioning,” 599.

emergency planning processes; as a result, behaviors are always changing in response to numerous and complex phenomena.

When facilitating the emergency planning process, emergency planners collaboratively integrate critical pieces of information. Within local government, such plans will include strategies for effectuating organizational response to all types of emergencies and specific functional capabilities. The planning process represents a creation of organizational strategies to manage crisis. The strategic process must incorporate foresight and forecasting. The unknown nature of emergencies makes predicting outcomes and effective responses nearly impossible. However, using scenario planning and subject-matter experts will decrease the challenges of forecasting within complex systems.<sup>204</sup> The dynamic conditions that exist in crisis management force strategic processes—and the systems integrated into them—to react more quickly. Because these systems are complex, however, emergency planning effectiveness and broader system integration are difficult. In the case of emergency management, strategy is a never-ending, evolving, and dynamic process.<sup>205</sup>

Local government relies on tremendous interdependencies to develop effective emergency plans. Scott Somers and James Svara state, “It is the city manager’s responsibility to ensure that the emergency management program is ‘scaled right.’... If the top administrator does not take these responsibilities seriously, there is little chance of commitment from department managers who do not deal with the everyday emergencies...”<sup>206</sup> Internal emergency planning efforts demand the active participation of each of the organizational components. Planning for large-scale incidents must include processes and technical elements specific to the disciplines represented within the organization, in addition to external resources. The power controls of information and perceived priority of effort within hierarchical structures can limit collaborative efforts.

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<sup>204</sup> Dekkers, *Applied Systems Theory*, 206.

<sup>205</sup> Dekkers, 202.

<sup>206</sup> Scott Somers and James Svara, “Assessing and Managing Environmental Risk: Connecting Local Government Management with Emergency Management,” *Public Administration Review* 69, no. 2 (March/April 2009): 183.

Instead, the organizational design can better support a systems approach through which emergency management is supported in collaborative efforts among the diverse assortment of stakeholders beyond what the system participants typically consider normal.<sup>207</sup>

#### **D. SUMMARY OF ORGANIZATIONAL ANALYSIS**

The organizational structure a local jurisdiction employs to manage government operations has considerable consequences for its overall effectiveness. The public administration-based organization theories demonstrate numerous considerations that will either enhance or constrain the agency's ability to fulfill its mission. These considerations include such concepts as information flow through—and external to—the organization, impediments to making sound decisions, and the allocation of resources for effective service delivery. These, among other factors, have tremendous effects on an emergency management program in particular. When determining the best organizational design for crisis management, the jurisdiction's decision makers need to consider the unique characteristics of an emergency management function. The more effective emergency management programs have demonstrated that collaborative methods result in mission achievement. Structural design should promote collaboration in addition to meaningful communication processes, organization-wide access, and clear prioritization by executives. This chapter has provided illustrations of how theory can be applied to practical applications. The combination of theory, lessons learned from actual crisis events, current organizational trends, and the unique business needs of emergency management have provided a valuable analytical crosswalk to enhance design methods.

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<sup>207</sup> Neumann, "Integrating Organizational Theory," 319.

## **VI. CONCLUSIONS AND RECOMMENDATIONS**

Most of the analysis in this thesis focused on the organizational placement of the emergency management program within a local government jurisdiction. Yet placement alone cannot determine an organization's ability to provide a well-coordinated disaster response. There are other factors that help form the course to success. This research has identified, however, that organizational placement is a critical factor for jurisdiction leadership to consider when evaluating the emergency management mission in relation to the jurisdiction's responsibilities.

When determining the most appropriate organizational structure for the emergency management function, considerations include access to leadership, skill sets of those overseeing the program, information flow, and inter-organizational collaborative objectives. Proper organizational design will help the emergency management agency navigate these factors for effective crisis management and operations.

### **A. IMPLEMENTATION OF FINDINGS**

The title of this thesis asks the question, Does theory matter? The findings have discovered that organizational theory does, in fact, matter and contains multiple influencing forces. However, there is not necessarily a specific organizational structure that should be implemented across the board; decision makers must consider such factors as the size of the jurisdiction and the resources available to it. However, based on the research in this thesis, local government leadership can take deliberate actions to improve the effectiveness of their emergency management programs through organizational design.

#### **1. Program Empowerment**

The organizational design needs to empower the local emergency management program to implement its responsibilities. As Thomas Drabek opines, "The survivability of the nation, and each state, is enhanced when strategies are implemented by local

emergency managers to decrease vulnerabilities and increase resilience.”<sup>208</sup> The constraints placed on the emergency management program through the controls of the hierarchical structure must be limited to ensure the subject-matter expertise reaches the whole organization. Jurisdictions should provide the program with the necessary authorities to effectively carry out their mission with minimal intra-organizational interference. Executive oversight is crucial to ensure emergency management service delivery is coordinated with jurisdiction objectives.

## **2. Executive Access**

The organizational design needs to limit the number of hierarchical layers that exist between the jurisdiction executive and the emergency management program. Information filtering, which occurs when more individuals are in the middle of the channel of communications, should be limited. All stakeholders must understand that the emergency management function is a jurisdiction-wide service whose reach extends both across and outside the organization; the emergency management program’s experience and portfolio extend into areas not managed by other departments contained in local government. The executive tends to have statutory responsibility for many emergency provisions and deserves direct access to subject-matter expertise for improved decision making.

## **3. Executive Sponsorship and Program Prioritization**

The organizational design needs to demonstrate executive-level sponsorship of the emergency management program. Mission importance is often tied to the agency’s vertical placement within the bureaucratic structure. When the program is elevated within the structure, the members of the broader organization—and those outside of it—receive a message of executive buy-in. Because of the high-consequence, low-frequency nature of emergency management, programs are frequently not prioritized. The organizational design needs to promote an ongoing prioritization of program activities. Unfortunately, all

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<sup>208</sup> Thomas E. Drabek, “Emergency Managers as Community Change Agents: An Expanded Vision of the Profession,” *Journal of Emergency Management* 12, no. 1 (January/February 2014): 15.

too often it is not until an organization is faced with a crisis that the focus shifts to the emergency management role.

#### **4. Horizontal and Vertical Channels of Communication**

The organizational design needs to encourage collaboration within and outside the emergency management agency before, during, and after emergency events. The organizational design and resulting policies must give the program access to stakeholders such as elected officials, community associations, the private sector, and those within the entire internal organization. The bureaucratic structure needs to allow for coordination pathways to freely extend from the emergency management program vertically, horizontally, and externally.

#### **5. Organizational Culture**

The organizational design needs to promote an enduring legacy and develop a culture of emergency preparedness and inter-function collaboration. The emergency management program must be able to build the long-term processes and relationships needed to support the mission. Subsequent organizational realignment should be kept to a minimum to allow for the normalization of emergency management activities to develop. Future realignments should maintain the previously described tenets and stakeholders should be able to develop consistent expectations from the emergency management program.

### **B. FUTURE RESEARCH OPPORTUNITIES**

The comparative analysis demonstrated poor uniformity of organizational structures among current local government emergency management programs, but does not explain why or how the variations developed. Understanding the reasons behind the existing organizational trends would add perspective about local considerations specific to the agency or location, which may explain the deviations. Further, it was demonstrated that emergency management is unlike most other government disciplines when it comes to uniformity in organizational placement. In the case of risk management programs,

however, there is similar disparity. Does this indicate that the risk management discipline has similar challenges in prioritization, access, and resources?

Nationally, the emergency management profession has been attempting to improve the professional posture of the field. There are now more academic programs dedicated to the discipline, more professional organizations, professional accreditations, and certifications. While significant progress has been made, does the inconsistency in emergency management organizational structure and prioritization diminish these efforts? Over time, however, the current efforts to professionalize the field may alter organizational structures. There are research opportunities to connect the efforts made toward professionalization and how these translate into organizational cultures.

The next steps might include examining the geographic distribution of the organizational trends to determine if physical location influences organizational design. Looking into spatial patterns could offer visual linkages to organizational design. For example, do state laws direct a prescribed methodology for providing emergency management-related services? Laws and regulations do vary from state to state, and many pertain to organizational considerations. It is possible the geographic location has a relationship to culture development that is unique to certain areas. History and tradition often shape that culture, but ongoing research would be needed to determine the effect on organizational design.

This research reviewed three case studies that demonstrated organizational change to emergency management placement following a disaster. Future research might include a more intensive look into additional disaster events to validate if this is a normal occurrence and the typical form of the changes. Often, the more time that elapses between emergency events, the more complacency increases. Complacency may have a direct relationship to the structuring of the organization. Does the frequency in which threats and hazards materialize into actual events influence the design of the organization?

The influence of power and politics has been discussed throughout this research. The political environment will certainly sway the organizational construct in a government system. While there is tremendous research in organizational power and politics, there is

room for added research in how these forces influence the unique responsibilities of emergency management programs. Local government services are administered by a combination of governing structures. Additional research to further validate the effectiveness of emergency management could investigate program effectiveness of structures reporting directly to elected officials as opposed to appointed officials.

There are many other potential variables to research when it comes to organizational effectiveness and emergency management programs. With each of these research opportunities comes a broader frame of reference to refine the inquiry about the importance of organization. Future research would help to answer cascading questions pertaining to, for instance, which organizational solution is best, if there is one. Each new research question, and each new evaluation of organizational constructs, can enhance local government's ability to provide emergency management.

### C. CONCLUSION

This thesis examined the current state of emergency management programs' structural placement within local government. An understanding of the structural placement of the program, however, is not enough to fully understand how structural alignment drives mission effectiveness. The classic theories of public administration help explain the structural considerations jurisdictions face when determining the best organizational fit for their emergency management program. Evaluating current trends helps to show how the emergency management component compares to other disciplines when it comes to reporting relationships. This evaluation has shown poor homogeneity in this field further aggravating the principles identified in theory. Finally, the three case studies demonstrate just three examples of organizational change following crisis because of gaps described within the theories.

When the organization is structured properly, hierarchy can create tremendous energy, rationalize productivity, invigorate creativity, and even improve morale.<sup>209</sup> Promoting the emergency management program through an organizational configuration

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<sup>209</sup> Shafritz et al., *Classics of Organization Theory*, 231.

that allows it to achieve its mission free from unnecessary bureaucratic challenges appears to provide greatest potential for discipline advancement. It is recognized that there may be unique variables in jurisdictions that cause them to organize in certain manners inconsistent with the observations in this research. At the same time, however, consistency is useful to the professionalization of emergency management. Emergency management programs rely heavily on collaboration with multiple stakeholders, including other emergency management entities. The research findings contained within this study promote a model that keeps the emergency management program independent from discipline-specific departments.

While the other disciplines within local government typically have independent identities, emergency management struggles to carve out its own, uniformly recognized place in the government construct. As the field continues to find its niche, emergency management is proving itself a professional discipline independent from others in government; its roles and responsibilities are not accomplished as a standard practice in the other professional disciplines. However, leadership may believe that it is not urgent to address structural issues, choosing to focus, instead, on other organizational matters, especially considering the threat of disaster may seem distant to the jurisdiction.

As mentioned, academic fields of study and training specific to emergency management have expanded throughout the country—and there are now more credentials, professional certifications, and professional associations. Why, then, do experts in distinctly different professional disciplines chart the course for emergency management when it is outside of their own background and knowledge? As the field continues to forge a path toward professionalization—like its colleagues—questions will likely continue about the appropriate placement within the agency. The issue of emergency management’s disciplinary nature has yet to be resolved.<sup>210</sup> Until that happens on the broader scale, local government should incorporate research such as this thesis to aid in effectively placing the emergency management program into its operational structure.

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<sup>210</sup> Jessica Jensen, “The Argument for a Disciplinary Approach to Emergency Management Higher Education” (higher education paper, FEMA, 2010), 2, <https://training.fema.gov/hiedu/highpapers.aspx>.

It has often been said that it takes an incident to drive change. This was seen in the three case studies evaluated in this thesis. This thesis provides a researched perspective to help decision makers avoid organizational models that impede program effectiveness. While it may have once been that government was the sole source of public services, this no longer is the case. The role of government has largely evolved to integrate the contributions of a larger system of services, including those from government and other segments of society, to the public.<sup>211</sup> The responsibility of government now is to support this adaptation in its emergency management service delivery by ensuring the organizational framework fully supports these demands.

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<sup>211</sup> Nhema, "Relevance of Classical Management Theories," 177.

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## APPENDIX A. ORGANIZATIONAL DISTRIBUTION OF EMERGENCY MANAGEMENT PROGRAMS

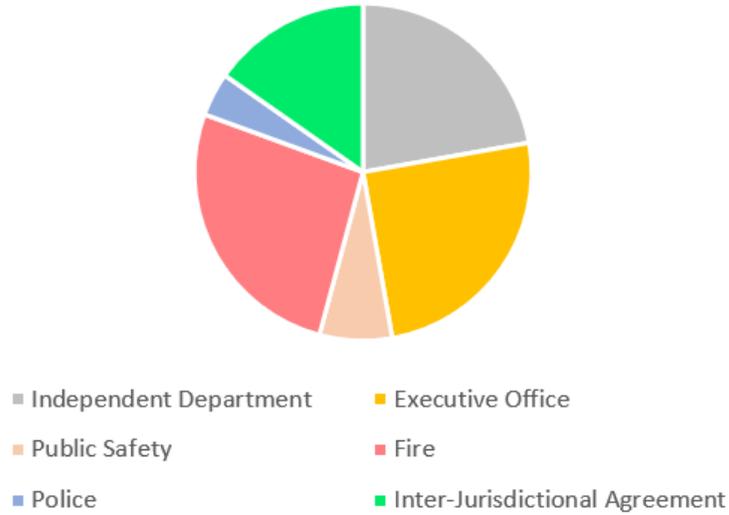


Figure 5. Municipal Emergency Management Organizational Placement<sup>212</sup>

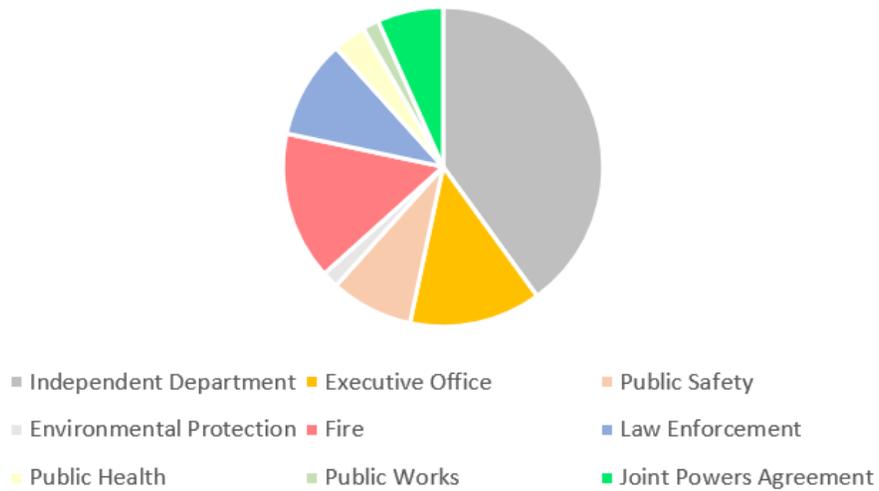


Figure 6. County Emergency Management Organizational Placement<sup>213</sup>

<sup>212</sup> Budget documents referenced are identified in Appendix L.

<sup>213</sup> Budget documents referenced are identified in Appendix L.

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## APPENDIX B. ORGANIZATIONAL DISTRIBUTION OF RISK MANAGEMENT PROGRAMS

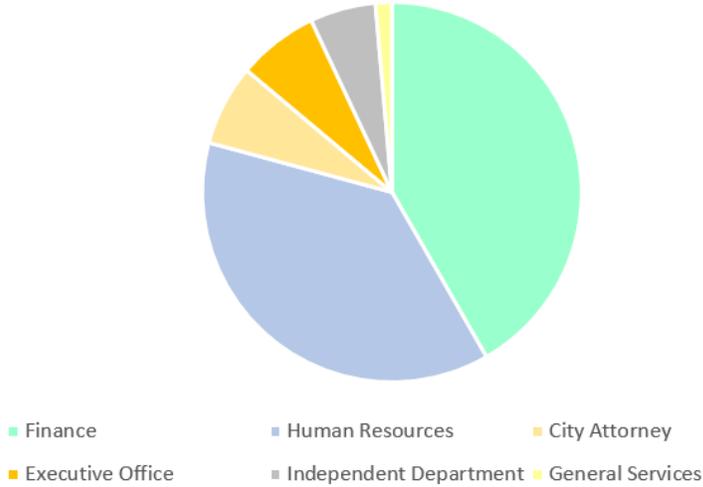


Figure 7. Organizational Placement of City Risk Management Programs<sup>214</sup>

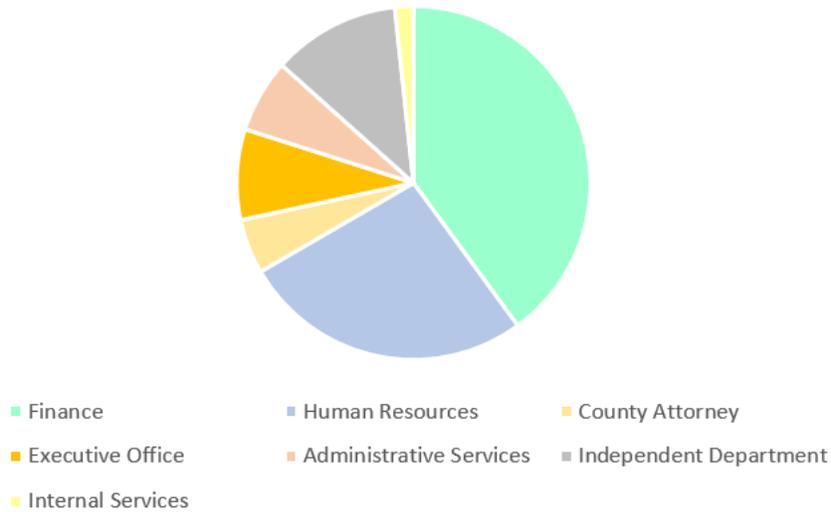


Figure 8. Organizational Placement of County Risk Management Programs<sup>215</sup>

<sup>214</sup> Budget documents referenced are identified in Appendix L.

<sup>215</sup> Budget documents referenced are identified in Appendix L.

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## APPENDIX C. ORGANIZATIONAL DISTRIBUTION OF FIRE SERVICES

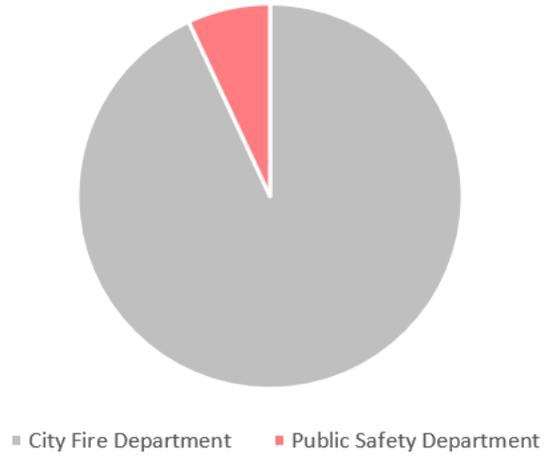


Figure 9. Organizational Placement of City Fire Services<sup>216</sup>

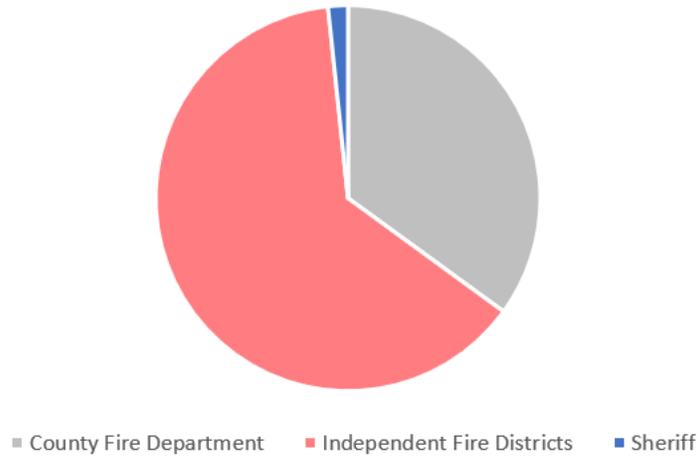


Figure 10. Organizational Placement of County Fire Services<sup>217</sup>

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<sup>216</sup> Budget documents referenced are identified in Appendix L.

<sup>217</sup> Budget documents referenced are identified in Appendix L.

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## APPENDIX D. ORGANIZATIONAL PLACEMENT OF EMERGENCY MANAGEMENT PROGRAMS BY CITY

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>218</sup></b>	<b>Emergency Management Placement<sup>219</sup></b>
1	New York	NY	8,550,405	Independent Department
2	Los Angeles	CA	3,971,883	Independent Department
3	Chicago	IL	2,720,546	Independent Department
4	Houston	TX	2,296,224	Executive Office
5	Philadelphia	PA	1,567,442	Independent Department
6	Phoenix	AZ	1,563,025	Executive Office
7	San Antonio	TX	1,469,845	Fire
8	San Diego	CA	1,394,928	Executive Office
9	Dallas	TX	1,300,092	Independent Department
10	San Jose	CA	1,026,908	Fire
11	Austin	TX	931,830	Independent Department
12	Jacksonville	FL	868,031	Fire
13	San Francisco	CA	864,816	Independent Department
14	Indianapolis	IN	853,173	Public Safety
15	Columbus	OH	850,106	Inter-Jurisdictional Agreement
16	Fort Worth	TX	833,319	Fire
17	Charlotte	NC	827,097	Fire
18	Seattle	WA	684,451	Police
19	Denver	CO	682,545	Executive Office
20	El Paso	TX	681,124	Inter-Jurisdictional Agreement
21	Detroit	MI	677,116	Executive Office
22	Washington	DC	672,228	Independent Department
23	Boston	MA	667,137	Executive Office
24	Memphis	TN	655,770	Fire
25	Nashville	TN	654,610	Executive Office
26	Portland	OR	632,309	Independent Department
27	Oklahoma City	OK	631,346	Police
28	Las Vegas	NV	623,747	Executive Office
29	Baltimore	MD	621,849	Executive Office
30	Louisville	KY	615,366	Independent Department
31	Milwaukee	WI	600,155	Executive Office
32	Albuquerque	NM	559,121	Executive Office
33	Tucson	AZ	531,641	Executive Office
34	Fresno	CA	520,052	Fire
35	Sacramento	CA	490,712	Executive Office
36	Kansas City	MO	475,378	Executive Office

<sup>218</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places of 50,000 or More,” accessed March 2017, <http://www2.census.gov/programs-surveys/popset/datasets/2010-2015/>.

<sup>219</sup> Budget documents referenced are identified in Appendix L.

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>220</sup></b>	<b>Emergency Management Placement<sup>221</sup></b>
37	Long Beach	CA	474,140	Independent Department
38	Mesa	AZ	471,825	Fire
39	Atlanta	GA	463,878	Inter-Jurisdictional Agreement
40	Colorado Springs	CO	456,568	Executive Office
41	Virginia Beach	VA	452,745	Executive Office
42	Raleigh	NC	451,066	Executive Office
43	Omaha	NE	443,885	Inter-Jurisdictional Agreement
44	Miami	FL	441,003	Fire
45	Oakland	CA	419,267	Fire
46	Minneapolis	MN	410,939	Independent Department
47	Tulsa	OK	403,505	Inter-Jurisdictional Agreement
48	Wichita	KS	389,965	Inter-Jurisdictional Agreement
49	New Orleans	LA	389,617	Independent Department
50	Arlington	TX	388,125	Fire
51	Cleveland	OH	388,072	Public Safety
52	Bakersfield	CA	373,640	Fire
53	Tampa	FL	369,075	Fire
54	Aurora	CO	359,407	Fire
55	Honolulu	HI	352,769	Independent Department
56	Anaheim	CA	350,742	Fire
57	Santa Ana	CA	335,400	Police
58	Corpus Christi	TX	324,074	Fire
59	Riverside	CA	322,424	Fire
60	St Louis	MO	315,685	Public Safety
61	Lexington	KY	314,488	Inter-Jurisdictional Agreement
62	Stockton	CA	305,658	Fire
63	Pittsburgh	PA	304,391	Public Safety
64	St Paul	MN	300,851	Independent Department
65	Anchorage	AK	298,695	Executive Office
66	Cincinnati	OH	298,550	Inter-Jurisdictional Agreement
67	Henderson	NV	285,667	Fire
68	Greensboro	NC	285,342	Inter-Jurisdictional Agreement
69	Plano	TX	283,558	Independent Department
70	Newark	NJ	281,944	Public Safety
71	Toledo	OH	279,789	Inter-Jurisdictional Agreement
72	Lincoln	NE	277,348	Inter-Jurisdictional Agreement

<sup>220</sup> U.S. Census Bureau, “Annual Estimates of Resident Population for Incorporated Places.”

<sup>221</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX E. ORGANIZATIONAL PLACEMENT OF EMERGENCY MANAGEMENT PROGRAMS BY COUNTY

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>222</sup></b>	<b>Emergency Management Placement<sup>223</sup></b>
1	Los Angeles	CA	10,137,915	Executive Office
2	Cook	IL	5,203,499	Executive Office
3	Harris	TX	4,589,928	Independent Department
4	Maricopa	AZ	4,242,997	Independent Department
5	San Diego	CA	3,317,749	Independent Department
6	Orange	CA	3,172,532	Sheriff
7	Miami-Dade	FL	2,712,945	Fire
8	Dallas	TX	2,574,984	Independent Department
9	Riverside	CA	2,387,741	Independent Department
10	Clark	NV	2,155,664	Fire
11	King	WA	2,149,970	Executive Office
12	San Bernardino	CA	2,140,096	Fire
13	Tarrant	TX	2,016,872	Executive Office
14	Bexar	TX	1,928,680	Independent Department
15	Santa Clara	CA	1,919,402	Fire
16	Broward	FL	1,909,632	Environmental Protection
17	Wayne	MI	1,749,366	Independent Department
18	Alameda	CA	1,647,704	Sheriff
19	Sacramento	CA	1,514,460	Executive Office
20	Suffolk	NY	1,492,583	Fire
21	Palm Beach	FL	1,443,810	Public Safety
22	Hillsborough	FL	1,376,238	Fire
23	Nassau	NY	1,361,500	Independent Department
24	Orange	FL	1,314,367	Fire
25	Franklin	OH	1,264,518	JPA
26	Cuyahoga	OH	1,249,352	Public Safety
27	Oakland	MI	1,243,970	Health
28	Hennepin	MN	1,232,483	Independent Department
29	Allegheny	PA	1,225,365	Independent Department
30	Travis	TX	1,199,323	Independent Department

<sup>222</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010 to July 1, 2016,” accessed March 2017, <https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>.

<sup>223</sup> Budget documents referenced are identified in Appendix L.

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>224</sup></b>	<b>Emergency Management Placement<sup>225</sup></b>
31	Fairfax	VA	1,138,652	Independent Department
32	Contra Costa	CA	1,135,127	Sheriff
33	Salt Lake	UT	1,121,354	Public Works
34	Wake	NC	1,046,791	Independent Department
35	Montgomery	MD	1,043,863	Independent Department
36	Fulton	GA	1,023,336	JPA
37	Pima	AZ	1,016,206	Executive Office
38	St Louis	MO	998,581	Police
39	Fresno	CA	979,915	Public Health
40	Westchester	NY	974,542	Independent Department
41	Pinellas	FL	960,730	Independent Department
42	Milwaukee	WI	951,448	Independent Department
43	Collin	TX	939,585	Independent Department
44	Bergen	NJ	939,151	Public Safety
45	Shelby	TN	934,603	Executive Office
46	DuPage	IL	929,368	Independent Department
47	Erie	NY	921,046	Independent Department
48	Prince Georges	MD	908,049	Independent Department
49	Gwinnette	GA	907,135	Police
50	Kern	CA	884,788	Fire
51	Macomb	MI	867,730	Independent Department
52	Pierce	WA	861,312	Independent Department
53	Hidalgo	TX	849,843	Executive Office
54	Ventura	CA	849,738	Sheriff
55	El Paso	TX	837,918	JPA
56	Middlesex	NJ	837,073	Public Safety
57	Baltimore	MD	831,026	Fire
58	Montgomery	PA	821,725	Public Safety
59	Hamilton	OH	809,099	JPA
60	Denton	TX	806,180	Independent Department

<sup>224</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>225</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX F. ORGANIZATIONAL PLACEMENT OF RISK MANAGEMENT PROGRAMS BY CITY

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>226</sup></b>	<b>Risk Management Placement<sup>227</sup></b>
1	New York	NY	8,550,405	Independent Department
2	Los Angeles	CA	3,971,883	Executive Office
3	Chicago	IL	2,720,546	Finance
4	Houston	TX	2,296,224	Human Resources
5	Philadelphia	PA	1,567,442	Finance
6	Phoenix	AZ	1,563,025	Finance
7	San Antonio	TX	1,469,845	Independent Department
8	San Diego	CA	1,394,928	Independent Department
9	Dallas	TX	1,300,092	Finance
10	San Jose	CA	1,026,908	Finance
11	Austin	TX	931,830	Human Resources
12	Jacksonville	FL	868,031	Finance
13	San Francisco	CA	864,816	General Services
14	Indianapolis	IN	853,173	Finance
15	Columbus	OH	850,106	Human Resources
16	Fort Worth	TX	833,319	Human Resources
17	Charlotte	NC	827,097	Finance
18	Seattle	WA	684,451	Finance
19	Denver	CO	682,545	Finance
20	El Paso	TX	681,124	Human Resources
21	Detroit	MI	677,116	Finance
22	Washington	DC	672,228	Human Resources
23	Boston	MA	667,137	Finance
24	Memphis	TN	655,770	City Attorney
25	Nashville	TN	654,610	Finance
26	Portland	OR	632,309	Finance
27	Oklahoma City	OK	631,346	Finance
28	Las Vegas	NV	623,747	Human Resources
29	Baltimore	MD	621,849	Finance
30	Louisville	KY	615,366	Finance
31	Milwaukee	WI	600,155	City Attorney
32	Albuquerque	NM	559,121	Finance
33	Tucson	AZ	531,641	Finance
34	Fresno	CA	520,052	Human Resources
35	Sacramento	CA	490,712	Human Resources
36	Kansas City	MO	475,378	Human Resources

<sup>226</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>227</sup> Budget documents referenced are identified in Appendix L.

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est</b> <sup>228</sup>	<b>Risk Management Placement</b> <sup>229</sup>
37	Long Beach	CA	474,140	Human Resources
38	Mesa	AZ	471,825	Human Resources
39	Atlanta	GA	463,878	Finance
40	Colorado Springs	CO	456,568	Human Resources
41	Virginia Beach	VA	452,745	Finance
42	Raleigh	NC	451,066	Finance
43	Omaha	NE	443,885	City Attorney
44	Miami	FL	441,003	Independent Department
45	Oakland	CA	419,267	Human Resources
46	Minneapolis	MN	410,939	Finance
47	Tulsa	OK	403,505	Human Resources
48	Wichita	KS	389,965	Finance
49	New Orleans	LA	389,617	Executive Office
50	Arlington	TX	388,125	Human Resources
51	Cleveland	OH	388,072	Human Resources
52	Bakersfield	CA	373,640	Executive Office
53	Tampa	FL	369,075	Human Resources
54	Aurora	CO	359,407	Human Resources
55	Honolulu	HI	352,769	Finance
56	Anaheim	CA	350,742	Human Resources
57	Santa Ana	CA	335,400	Human Resources
58	Corpus Christi	TX	324,074	City Attorney
59	Riverside	CA	322,424	Finance
60	St Louis	MO	315,685	Finance
61	Lexington	KY	314,488	Executive Office
62	Stockton	CA	305,658	Human Resources
63	Pittsburgh	PA	304,391	Human Resources
64	St Paul	MN	300,851	Human Resources
65	Anchorage	AK	298,695	Executive Office
66	Cincinnati	OH	298,550	Finance
67	Henderson	NV	285,667	Human Resources
68	Greensboro	NC	285,342	Finance
69	Plano	TX	283,558	Human Resources
70	Newark	NJ	281,944	Finance
71	Toledo	OH	279,789	City Attorney
72	Lincoln	NE	277,348	Human Resources

<sup>228</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>229</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX G. ORGANIZATIONAL PLACEMENT OF RISK MANAGEMENT PROGRAMS BY COUNTY

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>230</sup></b>	<b>Risk Management Placement<sup>231</sup></b>
1	Los Angeles	CA	10,137,915	Executive Office
2	Cook	IL	5,203,499	Finance
3	Harris	TX	4,589,928	Human Resources
4	Maricopa	AZ	4,242,997	Independent Department
5	San Diego	CA	3,317,749	Human Resources
6	Orange	CA	3,172,532	Finance
7	Miami-Dade	FL	2,712,945	Internal Services
8	Dallas	TX	2,574,984	Human Resources
9	Riverside	CA	2,387,741	Human Resources
10	Clark	NV	2,155,664	Finance
11	King	WA	2,149,970	Executive Office
12	San Bernardino	CA	2,140,096	Independent Department
13	Tarrant	TX	2,016,872	Finance
14	Bexar	TX	1,928,680	Finance
15	Santa Clara	CA	1,919,402	Human Resources
16	Broward	FL	1,909,632	Finance
17	Wayne	MI	1,749,366	Finance
18	Alameda	CA	1,647,704	Executive Office
19	Sacramento	CA	1,514,460	Human Resources
20	Suffolk	NY	1,492,583	Human Resources
21	Palm Beach	FL	1,443,810	Independent Department
22	Hillsborough	FL	1,376,238	Finance
23	Nassau	NY	1,361,500	Finance
24	Orange	FL	1,314,367	Independent Department
25	Franklin	OH	1,264,518	Human Resources
26	Cuyahoga	OH	1,249,352	Human Resources
27	Oakland	MI	1,243,970	Administrative Services
28	Hennepin	MN	1,232,483	Independent Department
29	Allegheny	PA	1,225,365	Finance
30	Travis	TX	1,199,323	Human Resources

<sup>230</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>231</sup> Budget documents referenced are identified in Appendix L.

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>232</sup></b>	<b>Risk Management Placement<sup>233</sup></b>
31	Fairfax	VA	1,138,652	Finance
32	Contra Costa	CA	1,135,127	Executive Office
33	Salt Lake	UT	1,121,354	Administrative Services
34	Wake	NC	1,046,791	Finance
35	Montgomery	MD	1,043,863	Finance
36	Fulton	GA	1,023,336	Finance
37	Pima	AZ	1,016,206	Finance
38	St Louis	MO	998,581	Administrative Services
39	Fresno	CA	979,915	Human Resources
40	Westchester	NY	974,542	County Attorney
41	Pinellas	FL	960,730	Independent Department
42	Milwaukee	WI	951,448	Administrative Services
43	Collin	TX	939,585	Human Resources
44	Bergen	NJ	939,151	Independent Department
45	Shelby	TN	934,603	Finance
46	DuPage	IL	929,368	Human Resources
47	Erie	NY	921,046	Human Resources
48	Prince Georges	MD	908,049	Finance
49	Gwinnette	GA	907,135	County Attorney
50	Kern	CA	884,788	County Attorney
51	Macomb	MI	867,730	Finance
52	Pierce	WA	861,312	Finance
53	Hidalgo	TX	849,843	Finance
54	Ventura	CA	849,738	Executive Office
55	El Paso	TX	837,918	Human Resources
56	Middlesex	NJ	837,073	Finance
57	Baltimore	MD	831,026	Finance
58	Montgomery	PA	821,725	Finance
59	Hamilton	OH	809,099	Human Resources
60	Denton	TX	806,180	Finance

<sup>232</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>233</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX H. ORGANIZATIONAL PLACEMENT OF FIRE SERVICES BY CITY

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>234</sup></b>	<b>Fire Service Placement<sup>235</sup></b>
1	New York	NY	8,550,405	Independent Department
2	Los Angeles	CA	3,971,883	Independent Department
3	Chicago	IL	2,720,546	Independent Department
4	Houston	TX	2,296,224	Independent Department
5	Philadelphia	PA	1,567,442	Independent Department
6	Phoenix	AZ	1,563,025	Independent Department
7	San Antonio	TX	1,469,845	Independent Department
8	San Diego	CA	1,394,928	Independent Department
9	Dallas	TX	1,300,092	Independent Department
10	San Jose	CA	1,026,908	Independent Department
11	Austin	TX	931,830	Independent Department
12	Jacksonville	FL	868,031	Independent Department
13	San Francisco	CA	864,816	Independent Department
14	Indianapolis	IN	853,173	Public Safety
15	Columbus	OH	850,106	Independent Department
16	Fort Worth	TX	833,319	Independent Department
17	Charlotte	NC	827,097	Independent Department
18	Seattle	WA	684,451	Independent Department
19	Denver	CO	682,545	Independent Department
20	El Paso	TX	681,124	Independent Department
21	Detroit	MI	677,116	Independent Department
22	Washington	DC	672,228	Independent Department
23	Boston	MA	667,137	Independent Department
24	Memphis	TN	655,770	Independent Department
25	Nashville	TN	654,610	Independent Department
26	Portland	OR	632,309	Independent Department
27	Oklahoma City	OK	631,346	Independent Department
28	Las Vegas	NV	623,747	Independent Department
29	Baltimore	MD	621,849	Independent Department
30	Louisville	KY	615,366	Independent Department
31	Milwaukee	WI	600,155	Independent Department
32	Albuquerque	NM	559,121	Independent Department
33	Tucson	AZ	531,641	Independent Department
34	Fresno	CA	520,052	Independent Department
35	Sacramento	CA	490,712	Independent Department
36	Kansas City	MO	475,378	Independent Department

<sup>234</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>235</sup> Budget documents referenced are identified in Appendix L.

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est</b> <sup>236</sup>	<b>Fire Service Placement</b> <sup>237</sup>
37	Long Beach	CA	474,140	Independent Department
38	Mesa	AZ	471,825	Independent Department
39	Atlanta	GA	463,878	Independent Department
40	Colorado Springs	CO	456,568	Independent Department
41	Virginia Beach	VA	452,745	Independent Department
42	Raleigh	NC	451,066	Independent Department
43	Omaha	NE	443,885	Independent Department
44	Miami	FL	441,003	Independent Department
45	Oakland	CA	419,267	Independent Department
46	Minneapolis	MN	410,939	Independent Department
47	Tulsa	OK	403,505	Independent Department
48	Wichita	KS	389,965	Independent Department
49	New Orleans	LA	389,617	Independent Department
50	Arlington	TX	388,125	Independent Department
51	Cleveland	OH	388,072	Public Safety
52	Bakersfield	CA	373,640	Independent Department
53	Tampa	FL	369,075	Independent Department
54	Aurora	CO	359,407	Independent Department
55	Honolulu	HI	352,769	Independent Department
56	Anaheim	CA	350,742	Independent Department
57	Santa Ana	CA	335,400	Independent Department
58	Corpus Christi	TX	324,074	Independent Department
59	Riverside	CA	322,424	Independent Department
60	St Louis	MO	315,685	Public Safety
61	Lexington	KY	314,488	Independent Department
62	Stockton	CA	305,658	Independent Department
63	Pittsburgh	PA	304,391	Public Safety
64	St Paul	MN	300,851	Independent Department
65	Anchorage	AK	298,695	Independent Department
66	Cincinnati	OH	298,550	Independent Department
67	Henderson	NV	285,667	Independent Department
68	Greensboro	NC	285,342	Independent Department
69	Plano	TX	283,558	Independent Department
70	Newark	NJ	281,944	Public Safety
71	Toledo	OH	279,789	Independent Department
72	Lincoln	NE	277,348	Independent Department

<sup>236</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>237</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX I. ORGANIZATIONAL PLACEMENT OF FIRE SERVICES BY COUNTY

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>238</sup></b>	<b>Fire Service Placement<sup>239</sup></b>
1	Los Angeles	CA	10,137,915	Independent Department
2	Cook	IL	5,203,499	Independent Fire Districts
3	Harris	TX	4,589,928	Independent Fire Districts
4	Maricopa	AZ	4,242,997	Independent Fire Districts
5	San Diego	CA	3,317,749	Independent Fire Districts
6	Orange	CA	3,172,532	Independent Fire Districts
7	Miami-Dade	FL	2,712,945	Independent Department
8	Dallas	TX	2,574,984	Independent Department
9	Riverside	CA	2,387,741	Independent Department
10	Clark	NV	2,155,664	Independent Department
11	King	WA	2,149,970	Independent Fire Districts
12	San Bernardino	CA	2,140,096	Independent Department
13	Tarrant	TX	2,016,872	Independent Fire Districts
14	Bexar	TX	1,928,680	Independent Fire Districts
15	Santa Clara	CA	1,919,402	Independent Department
16	Broward	FL	1,909,632	Sheriff
17	Wayne	MI	1,749,366	Independent Fire Districts
18	Alameda	CA	1,647,704	Independent Department
19	Sacramento	CA	1,514,460	Independent Fire Districts
20	Suffolk	NY	1,492,583	Independent Fire Districts
21	Palm Beach	FL	1,443,810	Independent Department
22	Hillsborough	FL	1,376,238	Independent Department
23	Nassau	NY	1,361,500	Independent Fire Districts
24	Orange	FL	1,314,367	Independent Department
25	Franklin	OH	1,264,518	Independent Fire Districts
26	Cuyahoga	OH	1,249,352	Independent Fire Districts
27	Oakland	MI	1,243,970	Independent Fire Districts
28	Hennepin	MN	1,232,483	Independent Fire Districts
29	Allegheny	PA	1,225,365	Independent Fire Districts
30	Travis	TX	1,199,323	Independent Fire Districts

<sup>238</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>239</sup> Budget documents referenced are identified in Appendix L.

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>240</sup></b>	<b>Fire Service Placement<sup>241</sup></b>
31	Fairfax	VA	1,138,652	Independent Department
32	Contra Costa	CA	1,135,127	Independent Department
33	Salt Lake	UT	1,121,354	Independent Fire Districts
34	Wake	NC	1,046,791	Independent Fire Districts
35	Montgomery	MD	1,043,863	Independent Department
36	Fulton	GA	1,023,336	Independent Department
37	Pima	AZ	1,016,206	Independent Fire Districts
38	St Louis	MO	998,581	Independent Fire Districts
39	Fresno	CA	979,915	Independent Fire Districts
40	Westchester	NY	974,542	Independent Fire Districts
41	Pinellas	FL	960,730	Independent Fire Districts
42	Milwaukee	WI	951,448	Independent Fire Districts
43	Collin	TX	939,585	Independent Fire Districts
44	Bergen	NJ	939,151	Independent Fire Districts
45	Shelby	TN	934,603	Independent Department
46	DuPage	IL	929,368	Independent Fire Districts
47	Erie	NY	921,046	Independent Fire Districts
48	Prince Georges	MD	908,049	Independent Department
49	Gwinnette	GA	907,135	Independent Department
50	Kern	CA	884,788	Independent Department
51	Macomb	MI	867,730	Independent Fire Districts
52	Pierce	WA	861,312	Independent Fire Districts
53	Hidalgo	TX	849,843	Independent Fire Districts
54	Ventura	CA	849,738	Independent Department
55	El Paso	TX	837,918	Independent Fire Districts
56	Middlesex	NJ	837,073	Independent Fire Districts
57	Baltimore	MD	831,026	Independent Department
58	Montgomery	PA	821,725	Independent Fire Districts
59	Hamilton	OH	809,099	Independent Fire Districts
60	Denton	TX	806,180	Independent Fire Districts

<sup>240</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>241</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX J. ORGANIZATIONAL PLACEMENT OF PUBLIC WORKS BY CITY

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>242</sup></b>	<b>Public Works Placement<sup>243</sup></b>
1	New York	NY	8,550,405	Independent Functional Departments
2	Los Angeles	CA	3,971,883	Independent Single City Department
3	Chicago	IL	2,720,546	Independent Functional Departments
4	Houston	TX	2,296,224	Independent Single City Department
5	Philadelphia	PA	1,567,442	Independent Functional Departments
6	Phoenix	AZ	1,563,025	Independent Single City Department
7	San Antonio	TX	1,469,845	Independent Single City Department
8	San Diego	CA	1,394,928	Independent Single City Department
9	Dallas	TX	1,300,092	Independent Single City Department
10	San Jose	CA	1,026,908	Independent Single City Department
11	Austin	TX	931,830	Independent Single City Department
12	Jacksonville	FL	868,031	Independent Single City Department
13	San Francisco	CA	864,816	Independent Single City Department
14	Indianapolis	IN	853,173	Independent Single City Department
15	Columbus	OH	850,106	Independent Single City Department
16	Fort Worth	TX	833,319	Independent Single City Department
17	Charlotte	NC	827,097	Independent Functional Departments
18	Seattle	WA	684,451	Independent Single City Department
19	Denver	CO	682,545	Independent Single City Department
20	El Paso	TX	681,124	Independent Single City Department
21	Detroit	MI	677,116	Independent Single City Department
22	Washington	DC	672,228	Independent Single City Department
23	Boston	MA	667,137	Independent Single City Department
24	Memphis	TN	655,770	Independent Single City Department
25	Nashville	TN	654,610	Independent Single City Department
26	Portland	OR	632,309	Independent Functional Departments
27	Oklahoma City	OK	631,346	Independent Single City Department
28	Las Vegas	NV	623,747	Independent Single City Department
29	Baltimore	MD	621,849	Independent Single City Department
30	Louisville	KY	615,366	Independent Single City Department
31	Milwaukee	WI	600,155	Independent Single City Department
32	Albuquerque	NM	559,121	Independent Functional Departments
33	Tucson	AZ	531,641	Independent Functional Departments
34	Fresno	CA	520,052	Independent Single City Department
35	Sacramento	CA	490,712	Independent Single City Department
36	Kansas City	MO	475,378	Independent Single City Department

<sup>242</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>243</sup> Budget documents referenced are identified in Appendix L.

	<b>City</b>	<b>ST</b>	<b>2015 Pop Est<sup>244</sup></b>	<b>Public Works Placement<sup>245</sup></b>
37	Long Beach	CA	474,140	Independent Single City Department
38	Mesa	AZ	471,825	Independent Functional Departments
39	Atlanta	GA	463,878	Independent Single City Department
40	Colorado Springs	CO	456,568	Independent Single City Department
41	Virginia Beach	VA	452,745	Independent Single City Department
42	Raleigh	NC	451,066	Independent Functional Departments
43	Omaha	NE	443,885	Independent Single City Department
44	Miami	FL	441,003	Independent Single City Department
45	Oakland	CA	419,267	Independent Single City Department
46	Minneapolis	MN	410,939	Independent Single City Department
47	Tulsa	OK	403,505	Independent Functional Departments
48	Wichita	KS	389,965	Independent Single City Department
49	New Orleans	LA	389,617	Independent Single City Department
50	Arlington	TX	388,125	Independent Single City Department
51	Cleveland	OH	388,072	Independent Single City Department
52	Bakersfield	CA	373,640	Independent Single City Department
53	Tampa	FL	369,075	Independent Single City Department
54	Aurora	CO	359,407	Independent Single City Department
55	Honolulu	HI	352,769	Independent Functional Departments
56	Anaheim	CA	350,742	Independent Single City Department
57	Santa Ana	CA	335,400	Independent Single City Department
58	Corpus Christi	TX	324,074	Independent Functional Departments
59	Riverside	CA	322,424	Independent Single City Department
60	St Louis	MO	315,685	Independent Functional Departments
61	Lexington	KY	314,488	Independent Single City Department
62	Stockton	CA	305,658	Independent Single City Department
63	Pittsburgh	PA	304,391	Independent Single City Department
64	St Paul	MN	300,851	Independent Single City Department
65	Anchorage	AK	298,695	Independent Single City Department
66	Cincinnati	OH	298,550	Independent Functional Departments
67	Henderson	NV	285,667	Independent Single City Department
68	Greensboro	NC	285,342	Independent Functional Departments
69	Plano	TX	283,558	Independent Single City Department
70	Newark	NJ	281,944	Independent Single City Department
71	Toledo	OH	279,789	Independent Single City Department
72	Lincoln	NE	277,348	Independent Single City Department

<sup>244</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population for Incorporated Places.”

<sup>245</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX K. ORGANIZATIONAL PLACEMENT OF PUBLIC WORKS BY COUNTY

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>246</sup></b>	<b>Public Works Placement<sup>247</sup></b>
1	Los Angeles	CA	10,137,915	Independent Single City Department
2	Cook	IL	5,203,499	Independent Functional Departments
3	Harris	TX	4,589,928	Independent Functional Departments
4	Maricopa	AZ	4,242,997	Independent Functional Departments
5	San Diego	CA	3,317,749	Independent Single City Department
6	Orange	CA	3,172,532	Independent Single City Department
7	Miami-Dade	FL	2,712,945	Independent Single City Department
8	Dallas	TX	2,574,984	Independent Single City Department
9	Riverside	CA	2,387,741	Independent Functional Departments
10	Clark	NV	2,155,664	Independent Single City Department
11	King	WA	2,149,970	Independent Functional Departments
12	San Bernardino	CA	2,140,096	Independent Single City Department
13	Tarrant	TX	2,016,872	Independent Functional Departments
14	Bexar	TX	1,928,680	Independent Single City Department
15	Santa Clara	CA	1,919,402	Independent Functional Departments
16	Broward	FL	1,909,632	Independent Single City Department
17	Wayne	MI	1,749,366	Independent Single City Department
18	Alameda	CA	1,647,704	Independent Single City Department
19	Sacramento	CA	1,514,460	Independent Functional Departments
20	Suffolk	NY	1,492,583	Independent Single City Department
21	Palm Beach	FL	1,443,810	Independent Single City Department
22	Hillsborough	FL	1,376,238	Independent Single City Department
23	Nassau	NY	1,361,500	Independent Single City Department
24	Orange	FL	1,314,367	Independent Functional Departments
25	Franklin	OH	1,264,518	Independent Functional Departments
26	Cuyahoga	OH	1,249,352	Independent Single City Department
27	Oakland	MI	1,243,970	Independent Functional Departments
28	Hennepin	MN	1,232,483	Independent Single City Department
29	Allegheny	PA	1,225,365	Independent Single City Department
30	Travis	TX	1,199,323	Independent Single City Department

<sup>246</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>247</sup> Budget documents referenced are identified in Appendix L.

	<b>County</b>	<b>ST</b>	<b>2016 Pop Est<sup>248</sup></b>	<b>Public Works Placement<sup>249</sup></b>
31	Fairfax	VA	1,138,652	Independent Single City Department
32	Contra Costa	CA	1,135,127	Independent Single City Department
33	Salt Lake	UT	1,121,354	Independent Single City Department
34	Wake	NC	1,046,791	Independent Functional Departments
35	Montgomery	MD	1,043,863	Independent Functional Departments
36	Fulton	GA	1,023,336	Independent Single City Department
37	Pima	AZ	1,016,206	Independent Single City Department
38	St Louis	MO	998,581	Independent Single City Department
39	Fresno	CA	979,915	Independent Single City Department
40	Westchester	NY	974,542	Independent Single City Department
41	Pinellas	FL	960,730	Independent Single City Department
42	Milwaukee	WI	951,448	Independent Functional Departments
43	Collin	TX	939,585	Independent Single City Department
44	Bergen	NJ	939,151	Independent Single City Department
45	Shelby	TN	934,603	Independent Single City Department
46	DuPage	IL	929,368	Independent Single City Department
47	Erie	NY	921,046	Independent Single City Department
48	Prince Georges	MD	908,049	Independent Single City Department
49	Gwinnette	GA	907,135	Independent Functional Departments
50	Kern	CA	884,788	Independent Single City Department
51	Macomb	MI	867,730	Independent Single City Department
52	Pierce	WA	861,312	Independent Single City Department
53	Hidalgo	TX	849,843	Independent Functional Departments
54	Ventura	CA	849,738	Independent Single City Department
55	El Paso	TX	837,918	Independent Single City Department
56	Middlesex	NJ	837,073	Independent Single City Department
57	Baltimore	MD	831,026	Independent Single City Department
58	Montgomery	PA	821,725	Independent Single City Department
59	Hamilton	OH	809,099	Independent Functional Departments
60	Denton	TX	806,180	Independent Single City Department

<sup>248</sup> U.S. Census Bureau, “Annual Estimates of the Resident Population: April 1, 2010.”

<sup>249</sup> Budget documents referenced are identified in Appendix L.

## APPENDIX L. SOURCES FOR TABLES, FIGURES, AND APPENDIXES

### A. MUNICIPAL / CITY DOCUMENTS

The following sources were used to gather data for Tables 1, 3, 5, and 7; Figures 5, 7, and 9; and Appendixes D, F, H, and J.

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