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DEFUNDING LAW ENFORCEMENT: FIRE DEPARTMENTS' PERSPECTIVE ON
IMPLEMENTING THE NATIONAL FIRE PROTECTION ASSOCIATION 3000
STANDARD WHEN PREPARING FOR AN ACTIVE SHOOTER MASS CASUALTY
INCIDENT

by

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ABSTRACT

This study applied the policy window theory through punctuated equilibrium and resource dependency theories to analyze the perception of nationwide fire service leaders and the impact that defunding law enforcement can have on the fire service in managing an active shooter mass casualty incident (ASMCI). As police reform remains the center of discussion throughout the nation, many community leaders have explored ways to re-appropriate police funding. This comes at a time when the paradigm of law enforcement and Fire/Emergency Medical Services (EMS) interdependency has become the standard response to ASMCI as defined by the National Fire Protection Association 3000 Standard for an active shooter event. Using John Creswell's (2018) approach to mixed-methods design, a nationwide survey was sent to 1352 fire departments with open and closed-ended questions to measure their perception of ASMCI joint training and response impact. Survey data was collected, and through parametric testing, results were converged with qualitative data. This research explored the perception of the fire service in training and response to an ASMCI through the reliance on law enforcement and whether the fire service could evolve its response practices to address any delay in ASMCI response as outlined in NFPA 3000. The results reveal that fire officials regard training as a preparation tool to address the threat of an ASMCI and recognize that the community would expect the fire service to explore new models to evolve their role if required. This research area is emergent to policy discourse as the movement to defund law enforcement or funding reform can affect fire/EMS in managing an ASMCI emergency.

Keywords: active shooter mass casualty incidents, perception-based research, defunding law enforcement

I dedicate this dissertation to my pillar of strength, my wife. Throughout this journey, you have remained steadfast in your convictions that all things are possible through perseverance, and for that, I remain profoundly indebted. To my little princess, who inspires me to believe in different dimensions of possibilities, Daddy loves you. To my sons, who have taught me that optimism is what you construct in life, thank you. Together, we did it! From a childhood dream in a forgotten New York City borough to the pinnacle of formal education, together, we have shattered the ceiling of expectations. We have validated what creating opportunities looks like and can achieve through faith, fervor, and fortitude.

To my mother and siblings, together, we have walked a long journey, and this could not have been possible without your love and support. Thank you All!

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I also want to thank the community of first responders that my research focused on. My professional and now academic commitment remains centered on fostering a culture of safety for our nationwide public safety communities. Please, let me thank you for your service and inspiration. Your selfless commitment to service before self will not go unnoticed. Stay safe.

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LIST OF ACRONYMS

ASMCI	Active Shooter Mass Casualty Incident
EMS	Emergency Medical Services
FBI	Federal Bureau of Investigation
MCI	Mass Casualty Incident
NFPA	National Fire Protection Association
NICS	National Instant Criminal Background Check System
PET	Punctuated Equilibrium Theory
RDT	Resource Dependency Theory

CHAPTER ONE: INTRODUCTION

Many civil rights activists have called for the defunding or abolishing of American police departments (Rushin & Michalski, 2020). As police reform remains the center of discussion throughout the nation, many community leaders explore ways to re-appropriate police funding. The demand for dismantling traditional policing in the face of race sentiments is fueling an unknown future. This comes at a time when the paradigm of law enforcement and fire /Emergency Medical Services (EMS) interdependency has become the standard response to active shooter mass casualty incidents (ASMCI). Fire/EMS agencies have contended with ASMCI human life losses in the past, and now joint training and response with law enforcement to ASMCI emergencies have created a new matrix that addresses future incidents. However, with the recent looming threat of defunding law enforcement and the potential impact of losing the ability to mobilize resources quickly for joint operations, fire/EMS may have to rethink - if only by exploring their perception - how they may have to adjust their tactical response to ASMCI emergencies. This mixed-method study explores how the current perception of fire/EMS officials can change agency policies. It will examine how fire officials may have to modify their response based on the potential impact law enforcement may experience if defunding or reimagining policies are ultimately enacted.

History of Active Shooter Mass Casualty Incidents

The Federal Bureau of Investigation (FBI) describes an active shooter as an individual actively engaged in killing or attempting to kill people in a populated area (FBI, 2019). The World Health Organization defines a mass casualty incident (MCI) as "an incident which generates more patients at one time than locally available resources can manage using routine

procedures" (Mass casualty management system, 2007, p. 30). As the nation enters into a new era of policing, it is essential to understand ASMCIs health and safety policies. Recent ASMCIs in the United States (U.S.) have profoundly affected all society segments (Jacobs et al., 2013). The medical, law enforcement, and fire/EMS communities have felt the need to respond to this societal threat. According to Brown and Goodin (2018), ASMCIs in the U.S. should be considered a significant public health crisis. The FBI reported that between 2000 and 2018, the U.S. experienced 277 active shooter incidents that killed 884 and wounded 1,546 (FBI, 2019) (See Figures 1& 2). At the time of this research, in 2021, the FBI had not updated its *Quick Look* statistical graph on nationwide ASMCIs; however, their most recent findings support that since 2016, active shooter incidents have seen an upward trend (Active shooter incidents in 2020, 2021). The number of active shooter incidents identified in 2020 represents a 33% increase from 2019 and a 100% increase from 2016.

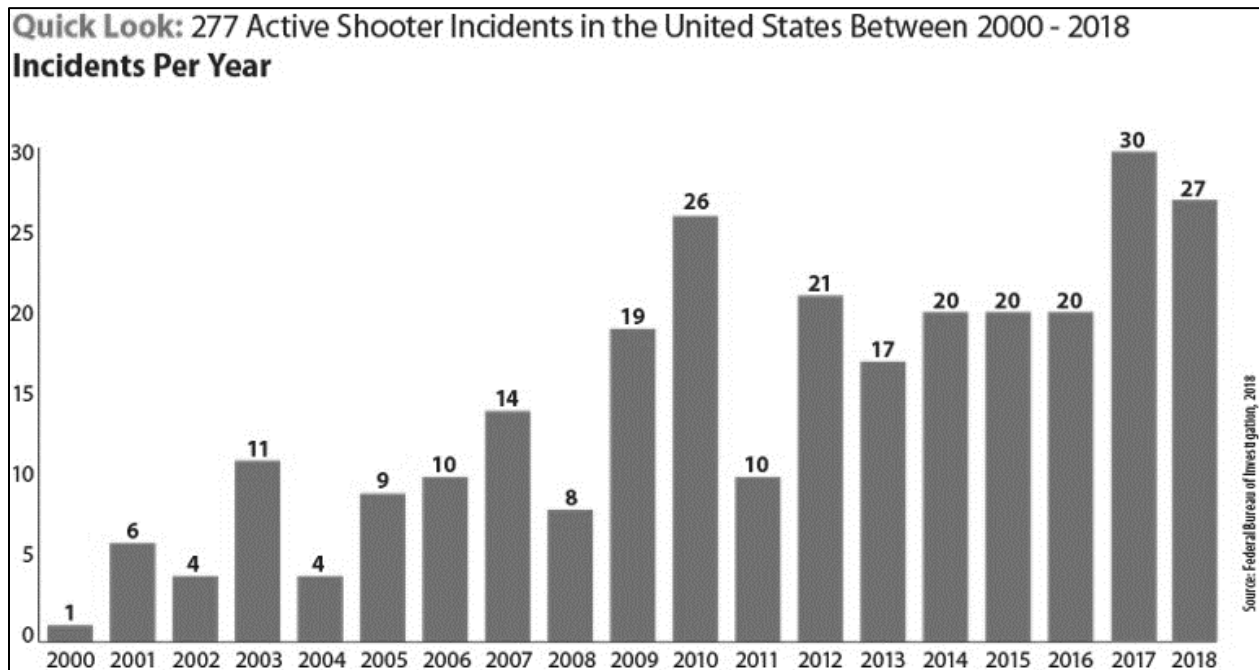


Figure 1: Federal Bureau of Investigation Active Shooter

Note: Reprinted from the United States, Federal Bureau of Investigations, Agency of Justice. Quick look: 277 active shooter incidents in the United States from 2000 to 2018.

Furthermore, the FBI provided data from the same period that examined the number of people killed or injured during ASMCIs. While the number of active shooter incidents doubled since 2016, casualty counts decreased to the lowest number in five years (Active shooter incidents in 2020, 2021). The FBI remarked that although there are several reasons for the decline in casualty counts, one potential explanation may be that people avoided public spaces during the COVID-19 pandemic lockdowns, which presented fewer active shooter casualty opportunities in target-rich environments (Active shooter incidents 2020, 2021)¹.

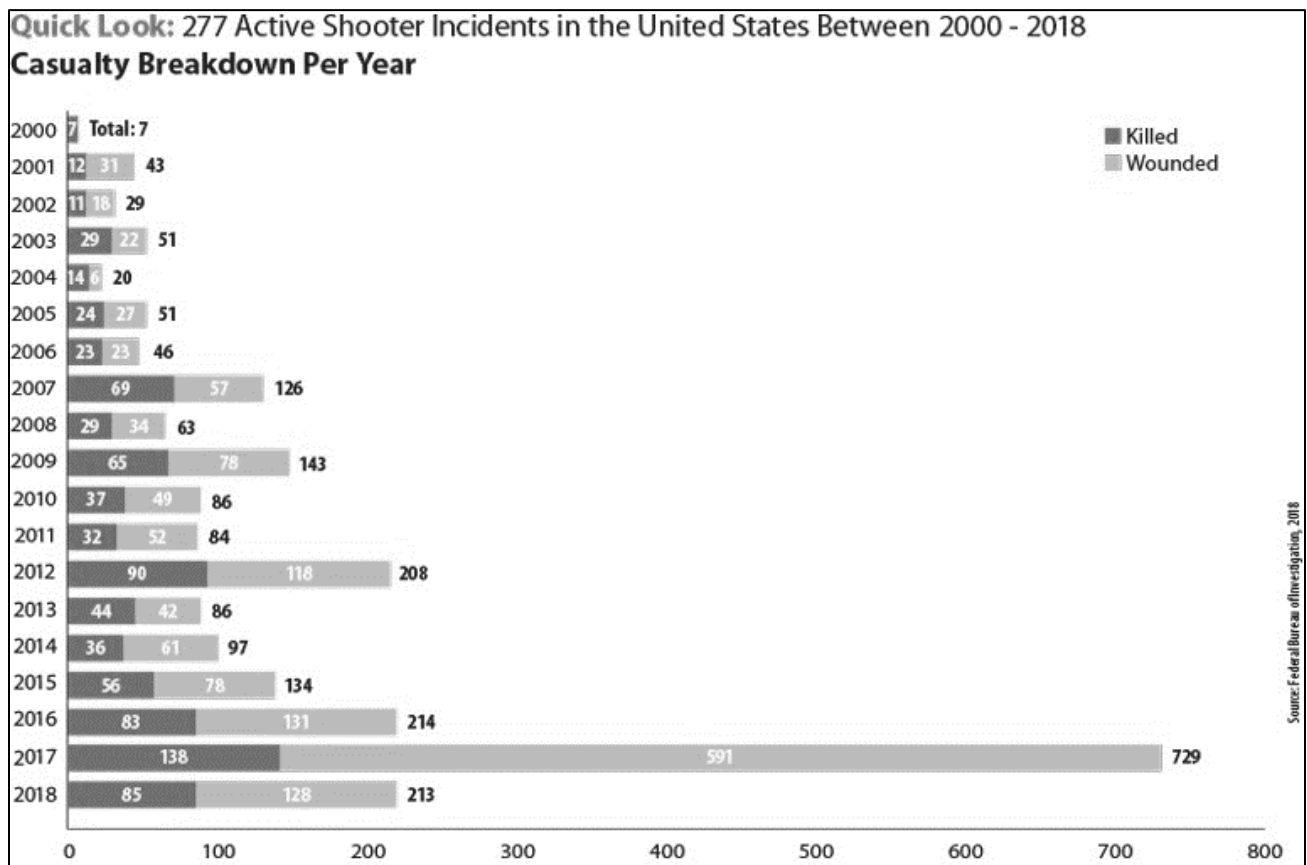


Figure 2: Federal Bureau of Investigation Active Shooter Killed and Injured

Note: Reprint from the United States, Federal Bureau of Investigations, Agency of Justice. Quick look: 277 active shooter incidents in the United States from 2000 to 2018.

¹ The average number of casualties for the 2016-2019 period is approximately 358 per year (Active shooter incidents in the United States in 2020, 2021).

Although there were 277 ASMCIIs from 2000 – 2018 in the U.S., several incidents received greater national attention because of the number of victims either killed or injured. One notable incident was the Columbine High School ASMCI in 1999. Although it occurred in 1999 and is not included in Figures 1 or 2, it sparked a national discussion on the need to develop a standard for ASMCI response policies. Leading up to the Columbine tragedy, patrol officers would establish a perimeter to ensure the shooter was contained and could not leave until a Special Weapons and Tactics (SWAT) team could interdict. The Columbine High School incident shifted first responders' focus to working rapidly and in concert to save lives. Since Columbine, the evolution of ASMCI training protocols has gone to a rapid response model that positions responders near the patient quickly to render medical aid, which increases shooting victim survivability (Martaindale & Blair, 2019). Additionally, Martaindale and Blair (2019) examined the effects of how the rapid establishment of an integrated incident command (IC) can help control many of the challenges encountered in an ASMCI, as the most significant contributor to loss of life and the need for rapid prehospital intervention is predicated on mortality due to hemorrhage.

Public Safety Response Intersects with Active Shooter Mitigation

After several significant ASMCI tragedies, lessons on managing these incidents became the focus of law enforcement and fire/EMS agencies nationwide. Both professions had to evolve their response policies to minimize the loss of life during an ASMCI. Table 1 depicts nine ASMCIIs in the U.S. that have shaped policies on ASMCIIs because of the large numbers of victims claimed since 1999.

Table 1: Active Shooter Mass Casualty Incidents

Active Shooter Mass Casualty			
Shooting Date	ASMCI Location	Number of Deaths	Number of Injuries
April 20, 1999	Columbine High School Columbine, CO	13	21
April 16, 2007	Virginia Polytechnic University Blacksburg, VA	32	17
July 20, 2012	Cinemark Century Aurora, CO	12	58
December 14, 2012	Sandy Hook Elementary Newtown, CT	27	2
December 2, 2015	San Bernardino Attack San Bernardino, CA	14	22
June 12, 2016	Pulse Nightclub Orlando, FL	49	53
October 1, 2017	Route 91 Harvest Festival Las Vegas, NV	58	489
November 5, 2017	Sutherland Springs Church Sutherland Springs, TX	26	20
February 14, 2018	Marjory Stoneman Douglas High School Parkland, FL	17	17

Note: Active Shooter Mass Casualty Incidents. Data retrieved from the United States, Federal Bureau of Investigation, Agency of Justice. Quick look: 277 active shooter incidents in the united states from 2000-2018

These historical events forced policy changes within the public safety response sphere, and while ASMCI was not a new phenomenon in the U.S., data showed an increase in frequency. An average of 6.4 events occurred annually in the U.S. from 2000 to 2006. From 2007 to 2013, that average more than doubled to 16.4. From 2014 to 2015, it climbed to 20 (Verzoni, 2017). Prior to the 2016 Pulse Nightclub ASMCI in Orlando, FL, which claimed 49 lives and injured 53, there was no national standard to guide planning and response to a hostile crisis (Hart, 2020); not having a standard created a delay in fire/EMS reaching the victims and providing treatment. In general, ASMCI responses was experiencing several reasons for the delay in attending to

victims. First, the lack of an organized command structure hindered the response to events. Second, treating victims was secondary to law enforcement's mission of finding the active shooter threat (Jacobs, 2014). Law enforcement would spend time mobilizing, communicating with the perpetrator, and waiting for SWAT to arrive (Smith & Delaney, 2019). Separately, fire/EMS would stage their assets off-scene and wait for direction from law enforcement. The policy for fire/EMS was to stand by until law enforcement cleared the scene from the active shooter threat (Smith & Delaney, 2019). Although the ASMCI at Columbine High School sparked a national discussion on policy changes for law enforcement, policies that govern fire departments in managing these types of emergencies generally remained unchanged. Years after the Columbine High School tragedy, the Pulse Nightclub incident provided another look into why a more structured joint training and response standard was required. In an after-action report by the National Police Foundation, they cited several findings associated with the Pulse Nightclub ASMCI: 1) there was a lack of unified command and inadequate communications between police and fire/EMS resources, 2) there was unawareness of the existence of policies and procedures or belief the policies were outdated, and 3) Fire department and police department joint response policies and procedures were not consistent with their training (After-action review, 2018).

It was only through ASMCI experiences from both professions that it became clear that long-standing practices of law enforcement and fire/EMS responses were not optimal for maximizing victim survival (Jacob et al., 2013). The number of fatalities and injured did not support the continuation of the same policies without significantly changing response actions to ensure victim survivability. As a result of the tragic loss of life, law enforcement learned some valuable information; intervention in addressing the wounded was being carried out too late

(Baldanza, 2005). With the lives lost due to injuries and time spent mobilizing fire/EMS, the response paradigm was forced to change to a rapid joint intervention model made up of law enforcement and fire/EMS (Baldanza, 2005). These new efforts were developed, with life safety being critically important to manage an ASMCI successfully. Smith and Delaney (2019) further stated that the expected standard response from law enforcement and fire/EMS to an ASMCI threat was increasingly targeting rapid deployment, location, retrieval, and treatment of the injured. It was recognized by the public safety community and those responsible for policy development that victims' care is a shared responsibility between law enforcement and fire/EMS, and optimal outcomes depend on the continuum of coordination between law enforcement and fire/EMS (Jacob et al., 2013). As ASMCI continued to occur, public safety organizations learned from each incident, and considerable progress was made on how both professions responded to an ASMCI emergency. It remained critical to recognize that the most urgent response to these incidents was the committed support of local public safety agencies to coordinate and develop joint responses that favored victim survivability (Fabbri, 2014).

As such, in response to these hostile environments, the emergence of a new policy window that included law enforcement and fire/EMS working synergistically to address public safety became vital (NFPA, 2018). The Field Operation Guide for the U.S. Fire Administration (2016) outlines that rapid integration of law enforcement and fire/EMS personnel has become essential to successfully managing an active shooter emergency. Experience has proven a critical need for integrating resource management into one operational organization with incidents involving multiple agencies. With the emergence of ASMCI in the early 2000s, both law enforcement and fire/EMS started conceptualizing an adaption to their response policies to include service partnerships formed proactively to address an ASMCI threat (Baldanza, 2005).

In 2018, the partnership expectations of law enforcement and fire/EMS became formalized. The National Fire Protection Association (NFPA) created the framework necessary for organizing, managing, and sustaining an ASMCI hostile environment (NFPA, 2018). The standard is now known as NFPA 3000, which integrates risk assessment, resource management, training, incident management, and recovery (NFPA, 2018). Currently, NFPA 3000 is the standard for law enforcement and fire/EMS agencies' training and response policies centered on a collaborative platform meant to enhance ASMCI victim survivability. The most significant policy change for fire/EMS agencies in responding to an ASMCI was the immediate need to conduct a threat evaluation and coordinate with law enforcement to extract shooting victims. The unified objective for law enforcement and fire/EMS agencies for victim survivability is to quickly reach the shooting victim, stabilize them, and transport the victim to a definitive healthcare center. Today, NFPA 3000 has been circulating through the public safety responder community for nearly four years, educating nationwide departments on ASMCI best practices.

Problem Significance

The intended benefit of NFPA 3000 for public safety agencies' objectives in managing the complexity of an ASMCI can become strained as modern polarized societal discourse has recently presented questions regarding how law enforcement should be funded and structured. Loader (2020) suggests the vision of a new way of policing surfaced into view along with national and global protest after George Floyd died in Minneapolis on May 20, 2020. Loader (2020) stated that the starting point of campaigning to shrink, defund, or disband the police was an arresting historical and sociological claim that American policing was not oriented to reduce or prevent crime but to racialize control of keeping Black people in order. As society grapples with this view of policing in America, policymakers nationwide will have to evaluate the current

demand to transform law enforcement budgets beyond police reform walls. With this modern-day policy discussion impacting law enforcement, a broader policy decision should also assess how defunding or reimagining law enforcement can affect the outcome of an ASMCI due to the absence or delayed response from law enforcement. These considerations are critical to society's safety, as today's accepted approach to an ASMCI is seemingly centered on law enforcement and fire/EMS reliance on each other to provide for incident stabilization and protection of life.

With the movement to defund law enforcement, the potential to develop an adverse impact on ASMCI management may exist. If response times for law enforcement are elongated due to fewer officers being able to quickly respond to an ASMCI or joint fire/EMS training is reduced or eliminated, fire/EMS agencies that rely on law enforcement may find it challenging to manage the next ASMCI. To illustrate the effects of the reduction in law enforcement services to the potential association to service impact, Johnson (2021) stated that in 2020, the U.S. tallied the highest number of murders since 1995, and preliminary FBI data for 2020 pointed to a 25% surge in murders – the most significant single-year increase since the agency began publishing uniform data in 1960. Data also showed that a precipitous decline in law enforcement activity across ten major cities resulted in an increase in deadly violence and that cities that cut or threatened to cut law enforcement budgets often saw the largest drops in police activity and an increase in homicides (Johnson, 2021).

Since the defund law enforcement movement is relatively new to legislative action, these challenges may only surface as general knowledge to policymakers when law enforcement budgets are cut, staffing and training are reduced or eliminated, response times and coordination efforts are affected, and the next ASMCI occurs. The delay in coordinating with law enforcement during an ASMCI due to an inability to rapidly respond or assemble an adequate

number of officers can lead to unintended consequences, as evidenced in the Columbine Shooting. A more recent example of an ASMCI that was not associated with defunding law enforcement policies was the Florida-based 2018 Marjory Stoneman High School shooting². This incident created harsh societal criticism for the delay in law enforcement response. With these incidents, one of the most probing questions policymakers may have to face is whether victims of an ASMCI will be adversely affected based on an emerging societal paradigm that calls for defunding law enforcement agencies throughout the nation. Questions like 1) Will changes in criminal justice policies force a shift in fire/EMS health and safety policies in America and 2) Will changes in criminal justice impact fire/EMS' ability to perform quick extraction of ASMCI shooting victims and, by consequence, affect survivability? A major policy decision is whether lessons of the past that have developed best practices like those that drove the implementation of NFPA 3000, which is meant to increase victim survivability through joint law enforcement and fire/EMS training and response, will be threatened by the appeal to defund law enforcement. This study will aim to understand - if only through perception - what fire officials believe the outcome of reduced training and ability to mobilize resources at an ASMCI as defined by NFPA 3000 can have on the fire service.

Contribution of this Study and Research Aim

This research will address, through a mixed-method analysis, how policies targeted at law enforcement can have an impact on fire/EMS' perception of reliance on joint service delivery to an ASMCI. This research area is emergent to policy discourse as the movement to defund law enforcement centered on racial bias reform can affect fire/EMS in managing an ASMCI.

² Marjory Stoneman Douglas High School in Parkland, Florida, killed 17 people and injured 17 others. The Broward County Sheriff's Office received criticism on how the law enforcement handled the incident (Mazzei, 2018).

Furthermore, many other emergency responses require the joint response of both law enforcement and fire/EMS. Events like terrorism, hazardous material emergencies, fires, auto crashes, and EMS require an integrated response from public safety agencies. There are daily interactions with both disciplines which rely on the assistance of each other. A disruption in service capabilities for law enforcement can have a broader impact on community-level daily incidents for service that extends beyond the management of an ASMCI. This study can build the foundation for future research to address how interrelated service model changes can impact public safety.

Additionally, this research adds to how policy equilibrium events centered on social-environmental changes can alter critical public health and safety responses without the entire understanding and awareness of the issue. Policy alterations may be inevitable in the governing domain; however, research centered on understanding how policies can be perceived can help guide how the transformation occurs. As seen through the work of Renn (2004) and Sjoberg (2002) on perception-based data collection, this research can offer a benefit by expressing how fire officials identify the impact this fast-developing policy area can present to their service. Lastly, this research can contribute to how law enforcement policies are explored as an aggregate to their service delivery model or as an individual ASMCI policy. Although law enforcement's perception of how the defund movement may impact traditional policing was not the focus of this research, this study can also contribute to their service.

Research Questions

The central research question for this study will be as follows:

1. How could defunding law enforcement impact the coordination of nationwide fire departments' ability to respond to an ASMCI if lessons from the past are bifurcated?

The specific questions this study will examine are as follows:

1. How has the national fire service responded to NFPA 3000?
2. What is the national fire service perception of the defund law enforcement movement regarding the ability to respond to an ASMCI?
3. How will the fire service change its response practices to address changes in joint response conditions associated with the defund law enforcement movement concerning NFPA 3000?

This research is significant and timely due to policy demand to abolish law enforcement and existing policies that have created the fire department's interdependency on law enforcement through NFPA 3000. For this research, the term “defund law enforcement movement” is defined as reallocating funding away from law enforcement emergency response functions. Historically these tasks are managed by the patrol or specialty response division (e.g., Road Patrol, Community Response Team [CRT], or Special Weapons and Tactics [SWAT]). A department’s reallocating of existing budget dollars from equipment and emergency response personnel budgets would be considered an active defund action, independent of whether additional dollars are allocated to other programs such as social services. Also, any funding redirected from training for high-risk environments would be categorized as an action to defund law enforcement - training like ASMCI with fire departments. *The New York Times* describes defunding law enforcement as calls to cut spending from departments that have consumed ever-larger shares of city budgets (Searcey, 2020). Furthermore, *The Washington Post* describes the need to defund

law enforcement as a movement to slash funding for police departments or disband them entirely (Hawkins, 2020). Funding reduction in militarized equipment or the termination of law enforcement full-time-equivalent positions is also defined as an act to defund for this study.

Although defunding or reimagining law enforcement may be a contemporary topic in mainstream America, already there has been legislation introduced in several metropolitan communities that aim to remove funding for law enforcement. The act of defunding law enforcement has taken a clear and bold legislative action in several U.S. cities. Secure America (2019) reports that major cities (i.e., Minneapolis, Seattle, New York City, Chicago, Portland, Atlanta, Los Angeles, Baltimore, Philadelphia, and Washington D.C.) have taken legislative actions to reduce the amount of funding earmarked for police departments. The city legislation for these examples and whether the legislation has been implemented is illustrated in Table 2.

Table 2: Defunding Law Enforcement Legislation

Defund Legislation Table				
Cities	Legislation	Implemented	Observations	Source
Atlanta	House Bill 286	Yes	Limits cities from reducing budgets by greater than 5% in one year.	(Prabhu, 2021)
Berkely	FY20-21 Budget	Yes	\$9.2 million funding reduction.	(Legislative Resources, 2021)
Baltimore	HBO151	Yes	Repeals Officers Bill of Rights and reduces funding for equipment.	(Stole, 2021)
Chicago	HB3653	Yes	Bans use of specific military equipment and defund departments up to 40%.	(Heller, 2021)
Los Angeles	CF#20-0692	Yes	City Council voted to cut the LAPD budget by \$150 million.	(Legislative Resources, 2021)
San Francisco	Executive Order N-25-2	Yes	Proposal to remove School Resources Officers.	(Legislative Resources, 2021)
Minneapolis	Motion 14. A.1	Yes	City Council voted to cut \$8 million from the police department.	(Legislative Resources, 2021)
New York City	FY 20-21 Budget	No	Mayor proposed \$1 billion (about \$3 per person in the US) cuts; however, it failed to pass through legislation.	(Faria, 2021)

Defund Legislation Table				
Cities	Legislation	Implemented	Observations	Source
Oakland	FY 20-21 Budget	Yes	City Council voted to cut its police department budget by \$14.6 million.	(Legislative Resources, 2021)
Philadelphia	FY 20-21 Budget	Yes	City Council voted to cut its police department budget by \$33.3 million.	(Philadelphia City Council Defunds Police, 2020)
Portland	FY 20-21 Budget	Yes	City Council voted to cut its police department budget by \$15 million.	(Legislative Resources, 2021)
Seattle	Resolution 2019/2020-38	Yes	Proposal to suspend School Resource Officers from Seattle schools.	(Legislative Resources, 2021)
Washington, DC	FY 20-21 Budget	Yes	City Council ends contract for School Security Officers.	(Legislative Resources, 2021)

Moreover, several other cities have discussed the term defund law enforcement, and since the notion has increased in popularity due to police misconduct, its supporters may challenge policymakers to enact their constituents' demands. However, the unintended consequence of defunding law enforcement, which has not been evaluated, can produce an adverse condition for the fire department as they contend with reliance procedures in responding to an ASMCI. The evolutionary actions the fire service will have to evaluate regarding its interdependency with law enforcement at an ASMCI will be discussed later in this study through the application of Resource Dependency Theory (RDT). These policies can impact how fire/EMS and law enforcement respond to ASMCI. This study is designed to advise scholars, policymakers and inform public safety leaders about how policies centered on police reform can impact the community's health and safety.

Although ASMCI events opened policy windows, at present, it appears no study has addressed the impact of defunding law enforcement and the policy impact it can have on fire/EMS joint responses to an ASMCI. Although recent law enforcement misconduct may have intensified the discourse on defunding law enforcement, nearly two years after the death of

George Floyd, the policy discussion on defunding or reimagining law enforcement remains popular in some communities. Further discussed in Chapter Two, this observation aligns with the concept that abolishing law enforcement has been in the public sphere for many years. As depicted above in Table 2, policy actions are being proposed or taken without academic research to understand their potential consequences, which can resurface even if the topic diminishes from mainstream over time. As such, this research can study the topic and guide policymakers on how to prepare and plan for a paradigm shift if change comes to America's police services.

Argument for Supporting This Research

Although there are studies published on the importance of law enforcement and fire/EMS training and response at an ASMCI, as seen through the scholarly work of Andrew (2020) and Miller (2020), no studies or inferences are found on the impact of reversing those policies or related to unintended consequences through funding reductions that impact ASMCI. For example, Andrew (2020) analyzed how Camden police changed their policing practices due to corruption and funding concerns but only evaluated the community ties of policing and citizenry, not the impact on an ASMCI response policy. Miller's (2020) examination of how law enforcement and EMS intersect their services provides some context into how EMS relies on law enforcement to secure a violent scene but did not expand on the topic of an ASMCI. He further stated that the Executive Board of King County's Paramedics expressed concerns that delays in care due to law enforcement's inability to secure a violent scene would be devastating to EMS as it would hinder their ability to perform life-saving measures for victims of violent crime. King County EMS is an organization that does not have firefighting responsibilities and has not fully adopted the national joint extraction team model on hostile incidents as suggested in NFPA 3000. Instead, as of the time of this research, they still stage away from the scene and wait for

law enforcement to render the scene safe from an assailant before treating victims of a violent environment. The article took the approach that EMS staging time will be elongated if law enforcement cannot clear the scene and allow EMS to treat the victims.

Furthermore, there are limited studies on hypothetical reactions to restraining funding to law enforcement agencies and its impact on fire/EMS agencies that follow NFPA 3000 standards on joint training and response. There is literature on mass shooting incidents dating back to the 1990s that describes lessons learned, like the Columbine High School massacre; however, at the time of structuring this research, no known studies are recognized that evaluate the current policy changes that call for dismantling law enforcement and the impact it can have for fire/EMS agencies on an ASMCI. As a result of the limited studies and the need to examine the impact on ASMCI, the approach of this research centered on the perception of fire officials. In Chapter 3, Research Design, this study expands on the purpose and benefits of perception-based research in academia. Scholars like Renn (2004) and Sjoberg (2002) expand on how risk perception involves attitudes and expectations that can be studied. Using a perception-based approach allowed this researcher to collect primary data to study this phenomenon. The data collected can offer the furtherance of research in public safety interdependency.

Dissertation Plan

Chapter One introduced the history of ASMCI in America and the transformative approach public safety agencies took in response to increasing victim survivability. Furthermore, it examined how the threat of defunding law enforcement in America can impact the fire service's ability to carry out response procedures that align with NFPA 3000. Chapter Two provides an overview of the literature used to support this research and the theoretical framework applied. Chapter Three provides the research design and methodology of the survey

data. Chapter Four provides the results of the statistical models used to measure the association of variables to understand fire officials' perception of the defund law enforcement movement and the impact to the fire service. Chapter Five discusses how the research findings intersect with existing research. Lastly, Chapter 6 will discuss the limitations and implications of the research and provide what opportunities may exist for future research.

CHAPTER TWO: LITERATURE REVIEW & THEORETICAL FOUNDATION

This section will present the literature review of the primary areas of this study that focuses on 1) ASMCI policy windows, 2) victim survivability, 3) NFPA 3000, 4) the reason the defunding movement has proliferated throughout the nation, and 5) theoretical application. Although existing literature supports conditions conducive to life preservation at an ASMCI, there remains a significant gap in research on how a change in law enforcement response and training behavior can impact joint response and mitigation efforts alongside the fire service as structured through NFPA 3000. Although the topic of defunding law enforcement is emergent, this section will provide context on how years of experience in similar emergency responses have created procedures to address an ASMCI. This literature review will also include the recent change in policy thinking that is at the core of driving the movement to defund law enforcement.

There is a need to develop studies on how fire/EMS might adapt their response policies if their interdependence on law enforcement is interrupted or shattered. This study will focus on literature that explores two theories, Punctuated Equilibrium Theory (PET), which impacts policy change, and Resource Dependence Theory (RDT) which draws connectivity to organizations that intersect. These theories may explain how the future of law enforcement and fire/EMS may evolve in responding to an ASMCI.

Policy Window

This section is designed to review some of the policy windows that have affected the response and management of an ASMCI. Key activities have impacted the behavior and decision-making actions associated with ASMCI throughout the years; as such, policy alterations concerning ASMCI responses will undoubtedly undergo its evolutionary process.

However, to understand how policy window openings can occur, this research will first review the seminal framework concept that Kingdon formalized in his Multiple Streams Theory.

Kingdon's Multiple Stream Theory has been used in scholarly research that spans many diverse policy domains. His theory has been used to demonstrate how the policy cycle happens and how ideas and solutions are developed. Topics of research have included political science research seen through the work of Travis and Zaharisdis (2002) on how multiple stream theory impacts U.S. foreign aid policies; Rawat and Morris (2016) work on policy stream in the 21st century; and topics like decision-making policies as seen by Zonhoven (2016) in his work on decision making under ambiguity and time constraints; Kingdon's theory approach also spanned across the discipline of science and medicine as seen through the work of Mackillop and Sheard (2018).

Kingdon (1995) suggested that unrelated external events can cause policy window openings or an institutionalized event, which forces a change in a specific period in which policy can be altered outside its governance process that forces a compelling impact in the political realm. Kingdon (1995) suggests that the 1) problem stream in policy windows can be filled with perceptions of a problem that can be seen as a public matter requiring government involvement to deliver a solution. According to Kingdon (1995), when this problem occurs, it usually reaches policymakers' awareness because of dramatic events such as a crisis that attracts public attention. Kingdon's policy window theory is comparative to how public safety officials and legislators responded to ASMCI after significant loss of lives occurred during active shooter incidents. His theory application will be illustrated below in Table 3, which outlines the policy stream in past decades in trying to manage ASMCI tragedies. Kingdon's (1995) public policy can be seen in practice today as society grapples with the defund law enforcement movement. The emergence of public policy that impacts law enforcement has been coupled with a societal problem and the

political stream. The public demand for law enforcement reform can be viewed as the problem stream that created the perception that the only way to reform law enforcement was through its abolishment, which potentially can create a gap in how law enforcement and the fire service can manage future ASMCI emergencies.

Furthermore, Kingdon viewed the 2) *policy stream* as a process filled with the output of experts and analysis that examine the problem and propose solutions. In the case of how the fire service may have to evolve its service delivery model to an ASMCI, fire and law enforcement officials, serving as experts in the field through industry experiences, will have to address any deficiencies in service response caused by policies that adversely impact the outcome of an ASMCI. Lastly, Kingdon advances that the 3) *political stream* comprises factors that influence the body of politics and that swings in the national mood can become a driving force in creating new policy windows that only last for a specific point in time. Similar to what Kingdon describes as the nation's mood that can create a new policy window, the defund law enforcement movement can be viewed as the current national mood forcing policy decisions. As it relates to specific points in time, although the call for action to defund law enforcement will sunset in some communities as time goes by, the abolishment of law enforcement, as described by McDonald and Fernandez (2018), has been in the public domain for several decades and will surely resurface as subsequent policy window events direct public discourse.

Another scholar who has contributed to the research on the policy process is Birkland. Birkland's (1997) concept of policy process expands from Kingdon's (1995) Multiple Streams Theory. Birkland (1997) states that focusing on events is crucial for most policy process theories; however, not every event works as a focusing event. A focusing event that can impact policy change involves the attention to the problem that is brought to the surface many times

through another event. Birkland summarizes his perspective on the policy process as:

Agenda setting is a crucial aspect of the public policy process. Sudden, rare, and harmful events, known as focusing events, can be important influences on the policy process. Such events can reveal current and potential future harms, mobilize people and groups to address the policy failures that may be revealed by such events, and open the “window of opportunity” for intensive policy discussion and potential policy change. But focusing events operate differently at different times and in different policy domains. Although the idea of focusing events is firmly rooted in Kingdon’s “streams approach” to the policy process, focusing events are an important element of most contemporary theories of the policy process. But not every event works as a focusing event. The process by which a focusing event can yield policy change is complex and involves attention to the problems revealed by the event as well as evidence of learning from the event on the part of policymakers. Although focusing events are important, in many ways the concept remains underdeveloped, with few researchers seeking to understand the dynamics of these important events (Birkland, 1997, p. 22).

When examining how the fire service may adjust its response to an ASMCI, Birkland's approach to focusing events can be described by defunding law enforcement policies that have erupted due to the socially charged belief that law enforcement is inherently racist. This researcher agrees with Birkland’s assertion that concepts can be underdeveloped. As it relates to what is currently driving the abolishment of law enforcement, it can be viewed as being connected to the resurfacing of other social events, which remain underdeveloped, requiring researchers to seek to understand the dynamics and impact. Birkland’s focused event approach has been examined in many other research areas, which provides a strong foundation for this research to apply his method to this examination. His approach has been examined by scholars like DeLeo (2021) on defining concepts to explain long-duration crises, Knievel (2008) on the study of use-of-force on controversial shootings, and Grasland (2020) on the COVID-19 crisis. Kingdon (1995) and Birkland (1997) can help explain how policy changes can occur in the political spectrum and social domain. In examining policies centered on ASMCI response that erupted after instability in the environment, decades of policy window implementation have

dominated decision-making in creating policies at an ASMCI. Table 3 below denotes some of the seminal policy openings that Kingdon and Birkland described as introduced after opportunity opened in the aftermath of an ASMCI. This area of policy adjustment will be further examined later in this chapter in its application to PET and RDT. These policy shifts occurred as legislatures attempted to address the emergent threat of an ASMCI that had claimed many victims.

Table 3: Policy Windows that Resulted from Past Mass Casualty Incidents

Past Mass Casualty Incidents		
Shooting Date	ASMCI Location	Policy Impact
April 20, 1999	Columbine High School Columbine, CO	After the shooting at Columbine, many public schools increased their visible security measures policies, such as adding security cameras and guards (Addington, 2009).
April 16, 2007	Virginia Polytechnic University Blacksburg, VA	The events of Virginia Polytechnic invoked community research on how mental health treatment is essential to understanding the impact of mass casualty incidents (Stoil, 2007).
July 20, 2012	Cinemark Century Aurora, CO	The events of the Aurora Theater shooting expanded the studies on how mental health illness and gun violence intersect (Rosenberg, 2014).
December 14, 2012	Sandy Hook Elementary Newtown, CT	The events of Sandy Hook led to specific legislative proposals to restrict access to guns (Levine & McKnight, 2017).
June 12, 2016	Pulse Nightclub Orlando, FL	The Pulse Nightclub events led to coordination policies in response to mass casualty events (Smith et al., 2019).

Note: Policy Implementation Post a Mass Casualty Incident. Data Retrieved from (Addington, 2009; Stoil, 2007; Rosenberg, 2014; Levine & McKnight, 2017; Smith et al., 2019).

Active Shooter Mass Casualty Incidents Reshaped Policy

The evolution of an ASMCI transformed as legislators examined factors surrounding the on-scene management of an ASMCI. Khajehaminian and colleagues (2018) affirm that the response to an MCI is a dynamic process and requires a multi-dimensional and multi-participant approach. The IC must decide the distribution of resources in a stressful situation, as denoted in Chapter One through the work by Martaindale and Blair (2019). Many of these procedures

involving incident command policies developed after the Columbine High School shooting as the policy window opened to the depth that transformational change in law enforcement procedures was demanded to help reduce the impact of ASMCI. After Columbine, other policy windows have aimed to address and react to how ASMCI in America impact community safety and health (Martaindale & Blair, 2019). ASMCI events threatened lives and created traumatic memories in the communities they affected. Inspired by moral panic, as discussed by Jennings and coauthors (2017), and national outcry surrounding school shootings, a call to protect the victims became widespread (Jonson, 2017). Many of the responses to school ASMCI called for increased security measures and surveillance that included armed police officers on campus. The standard security measure implemented private security or school resource officers (SROs). The purpose of SROs was to reduce incidents through deterrence and provide a response contingency immediately to a crisis. Jonson (2017) stated that schools employing uniformed officers increased from 13% in 1994 to over 51% in 2014. Other security elements included access control in schools which limited and accounted for those entering or leaving the school property.

A survey in 2000 of all Texas public middle and high schools reported that 50% of the schools locked and monitored their doors, with 96% of the schools with access control measures reporting they had done so in response to an increase in school crime (Snell et al., 2002). By 2014, after the Virginia Tech and Sandy Hook shootings, the percentage of schools locking and monitoring doors grew substantially, with over 90% employing security measures (Centers for Disease Control, 2015). It became clear that law enforcement presence and added security elements drove policy decisions to help address ASMCI. These actions were essential in addressing policies surrounding life safety management at an ASMCI, as schools were one of the principal reasons the public demand for transforming ASMCI policies was heard. The number

of casualties associated with children was unbearable and absent a more defined response plan to address ASMCI mortality, schools would have remained more vulnerable (Curran et al., 2019). Bolstering school security was one of the significant policy window moments that redefined how schools deliver protection against active shooter threats. The practice of having an SRO has generally been institutionalized throughout the nation as a deterrence model against continued threats.

However, following a continued series of school shootings, policymakers and the public once again focused on enhancing student safety. Curran and colleagues (2019) analyzed mass school shootings and the impact on the use of school security measures following the Columbine tragedy and found a weakness in the policy that had normalized the new security measures at schools; most policy initiatives primarily focused on the response framework at the federal and state levels. However, comparatively less attention had been given to response measures at the local level, the schools themselves. Using a survey instrument, they explored principal responses immediately before and after the Columbine shooting. The results of their study provided evidence of how a nationally recognized school shooting could affect short-term changes in school security policies; however, the long-term impact of those measures was never evaluated for effectiveness. Moreover, they found that although highly publicized school shootings helped galvanize conversations about school security nationwide, little research had empirically examined the impact of the use of security measures and practices. The study found that a more helpful approach from an empirical perspective would evaluate the effectiveness of different security strategies. Although they found that schools were more likely to lockdown buildings and implement sign-in procedures for visitors, they found varying actions by schools. Their findings became relevant to the topic of ASMCI as society looked forward to evaluating how law

enforcement in schools and security access features impacted school safety. Collection of data like the study of Curran and colleagues (2019) would later force the opening of another policy window in focus to find solutions to reducing the loss of lives at an ASMCI.

Following the policy window that introduced school officers and security access control, another significant policy window born from ASMCI related tragedies addressed mental health. Following the calamities of Virginia Polytechnic, Sandy Hook Elementary School, and Aurora, CO, research started to focus on health policy initiatives within the context of existing research on mental illness, suicide, substance abuse, and gun violence (Rosenberg, 2014). According to Rosenberg, studies found a complex relationship between serious mental illness and violence. It was determined that violent acts in approximately 87% of incidents examined in the study typically occurred at home and targeted family or friends (Rosenberg, 2014); the findings left more to explore how mental illness affects ASMCI in public settings. If mental illness did not wholly support why ASMCI emergencies occurred, then the views on mental illness could not fully support the majority perspective. Perhaps mental health was a contributing factor; however, if it was not the root cause of ASMCI, other elements needed to be examined. These findings forced another policy window to open that attempted to understand the factors associated with the surge of ASMCI tragedies. This brought the national policy discourse to explore strengthening gun policies. Approaches explored federal gun control. The primary federal vehicle for limiting access to firearms was then and continues to be the National Instant Criminal Background Check System (NICS), established under the 1993 Brady Handgun Violence Prevention Act (FBI, 2016).

After the Virginia Tech shooting, the NICS Improvement Amendment Act of 2007 legislation was developed to increase record reporting to NICS of mental health concerns. This

central gun policy reformed the standard for persons deemed to be adjudicated as mentally defective, which would require the reporting of an individual's status to NICS and become part of the person's permanent record. This policy had the intended outcome of a significant jump in mental health reporting between 2006 and 2009. In 2006, 405 denials were made for mental health reasons, and by 2009, this number had increased tenfold to 4,811 (Rosenberg, 2014).

By July 2013, gun ownership denial based on mental health represented approximately 28% of the NICS database (FBI, 2016). It appeared that by intersecting mental health tracking and gun control policies, legislators could minimize through control measures the reduction of ASMCI. With years of ASMCI experiences, policymakers opened a policy window to invoke policy changes. However, as time went on and ASMCI continued to plague society, the agenda of directing the elimination of ASMCI appeared to be changing. Although advocacy for gun control continues today, it appears that with every ASMCI, the policy window focuses on other variables associated with the causation of an ASMCI. As Columbine was a bedrock incident that fueled conversations on ASMCI, it seemed logical to develop and examine policies that promoted deterrence, addressed mental illness, gun laws, and as a new realization to direct their focus on the need for rapid response. As society was contending with this safety crisis, the medical community started to evaluate how to increase survivability at an ASMCI in what was appearing to be an inevitable recurrence. The need to explore how to assess and treat the wounded in an ASMCI quickly was desperately needed in concert with other policy measures. As the medical community was producing empirical research on how hemorrhage control can positively influence ASMCI outcomes, another moment occurred that fueled the opening of another policy window effort.

Victim Survivability

Following the sustained discussions on the impact that ASMCI were having on survivability and the realization that ASMCI were a continued threat to the safety and health of the nation, the medical community started to focus on life preservation opportunities. Within prehospital care, optimal field triage is generally a deliberate action primarily conducted by fire/EMS. The goal is to identify and prioritize the injured before emergency transport. Pasley and coauthors (2018), in their study that addressed hemorrhage control in a prehospital setting, observed that 60% of tourniquet placement in a prehospital setting in a program called *Stop the Bleed* presented favorable results in hemorrhage control, which ultimately led to the preservation of life. Although these results targeted civilian bystander application of a tourniquet, they displayed the urgency of rapid clinical skills to decrease morbidity and mortality following an ASMCI. Studies like Pasley and coauthors (2018) became foundational to the rule of change in ASMCI management. As incidents proliferated in the U.S., policies had to be re-evaluated continuously. Hemorrhage was considered the leading preventable cause of death in trauma that caused 30-40% of fatalities (Turner et al., 2016); and as such, controlling hemorrhage early after an ASMCI became a leading strategy supported by advocacy in the protection of victims.

Triage at an ASMCI was another element of prehospital management that required an expansion of its definition. According to Romero Pareja et al. (2018), triage³ efforts at an ASMCI were complicated by ongoing threats and the mechanism of injury. The inherent challenge with ASMCI victims is the volume of injured and mechanisms. In the case of the Columbine School massacre, The Report of Governor Bill Owens' Columbine Review

³ According to Romero Pareja et al., (2018) triage has four stages 1) stabilization, 2) determination of whether surgical intervention is required, 3) advanced life support protocols, and 4) evacuation priorities.

Commission⁴ concluded that a lack of scene safety, chaotic triage, and organization and communication failures led to fear amongst emergency staff, which compromised triage and led to the inappropriate or under-triage of victims (The report of governor, n.d.). As a result, triaging of victims became a focus of the response chain of survival at an ASMCI. Additionally, policymakers and the emergency response communities started to increase triage and look at the on-scene management component at an ASMCI as a solution to increase victim survivability.

Scene safety was considered a unique challenge at ASMCI. Poor scene safety had the potential to delay fire/EMS from treating patients and, through evaluation of past ASMCI tragedies, was found to be a contributing factor to significant incident organization and communication failures. Jacobs (2014) wrote that the Joint Committee to Create a National Policy to Enhance survivability in 2013 outlined prehospital management through the acronym THREAT, which stands for threat suppression, hemorrhage control, rapid extraction at the scene for assessment by medical providers referring to triage and then final transport. The American College of Surgeons brought together senior leaders from all disciplines to produce a document that stimulated discussion and led to strategies to improve victims' survival (Jacobs, 2013). With THREAT and more integrated response by law enforcement, fire/EMS offered communities a mechanism to minimize loss of life in these incidents (Jacobs, 2013). A new policy window opportunity emerged with the integration of law enforcement and fire/EMS to build a coalition of response practices at an ASMCI. Fire/EMS began to understand that working in a hazardous atmosphere with law enforcement was an emerging model, supported by evidence that found that

⁴ After a 188-page action report was published in May 2001. Sanctioned by the State of Colorado Governor through an executive order that created the Columbine Review Commission to conduct an independent review of the tragedy that occurred on April 20, 1999. The commission spent over one-year conducting public hearings and examining thousands of documents before compiling their findings and recommendation on the lessons learned from the Columbine High School tragedy (The report of governor, n.d.).

integrating tactical emergency medical support (TEMS)⁵ between EMS and law enforcement operations could provide effectiveness in a safe working zone (Turner et al., 2016).

Confronted with the evolving general threat of ASMCI, fire/EMS found itself needing to create a sustainable strategic service delivery plan to manage these types of events. As co-response with a law enforcement integration model was becoming mainstream policy, fire/EMS looked for guidance from the National Fire Protection Association (NFPA)⁶ in 2016 after the Pulse tragedy to find operating guidelines for an ASMCI that was scalable and adaptable for different agencies throughout the nation. It was essential to allow for a measured approach to address the diversity in fire/EMS systems throughout the country as fire departments throughout the nation have different operating procedures that include providing EMS or only serving as fire-centric professionals, varying budgets, and various philosophies to how fire/EMS should intersect with law enforcement on ASMCI operational policies (Hamilton, 2016).

Induction of NFPA 3000

As communities around the U.S. continued to experience more tragic ASMCI (i.e., the Pulse tragedy in Orlando, FL, in 2016), another policy window opened, allowing NFPA to develop a provisional standard for preparedness and response to hostile situations events (McCandless, 2018). The creation of the new standard became NFPA 3000. The purpose of

⁵Tactical Medicine, or Tactical Emergency Medicine, is the medical specialty that involves the services and emergency medical support necessary to preserve the safety, physical and mental health, and overall well-being of military and law enforcement (SWAT) special operations (tactical) personnel and others at the scene of critical incident deployments and training. Tactical Emergency Medical Support (TEMS) units are the working medical teams that deploy in training and real-world crisis situations and are a subdivision of the Tactical Medicine subspecialty. Tactical Medical Providers (TMPs) render medical care during training and at high-threat deployments where normal EMS and Fire personnel cannot safely respond (What is tactical medicine, n.d.).

⁶ NFPA serves as an information and knowledge consensus exchange on codes and standards, research, training, education, outreach, and advocacy. NFPA delivers information and knowledge through more than 300 consensus codes and standards (NFPA, n.d.).

NFPA 3000 was to identify the minimum program elements necessary for organizing, managing the reduction, or eliminating risk, effects, and impact on organizations or communities affected by adverse events (NFPA 3000, 2018). It sought to address critical agencies' integrated response and recovery practices at an ASMCI. Efforts to establish NFPA 3000 began in October 2016, shortly after the Pulse Nightclub incident on June 12, 2016. A new NFPA Technical Committee comprised of representatives from the Department of Homeland Security, Department of Justice, FBI, National Security Agency, National Police, Fire/EMS, Hospitals, Private Security, and Universities quickly formed to develop a national standard to address response to adverse events like ASMCIIs (NFPA 3000, 2018).

NFPA 3000 identified unified command as another effective management tool of response to an ASMCI, which, as described earlier in this study, failure of unified command was a significant contributor to the challenges found in Columbine. First, it explained how the structure at an operational level needs to be in place and practiced. Secondly, it addressed the preparation and response elements organizations must consider while accounting for the numerous organizations that converge to address an ASMCI. The integration plan has an operational part that incorporates other responding agencies' objectives that must function as a cohesive, integrated unit (NFPA 3000, 2018). Furthermore, NFPA 3000 recognized that rapid transport was a critical element of survival in an ASMCI. NFPAs recognition of rapid transport aligned with medical experts' work as a treatment solution at an ASMCI that could save lives.

Today, the prehospital action model for fire/EMS has emerged as a combined rescue task force comprised of law enforcement and fire/EMS professionals. The Orange County Fire Rescue Department adopts an example of this policy and procedure in Orlando, FL. Tactical joint training shared by Orange County's Fire Rescue and Sheriff's Office includes introducing a

swift assisted victim extraction (SAVE) program that guides how law enforcement and fire/EMS organize to extract victims involved in an ASMCI. This model allows fire professionals to enter the WARM zone to stabilize and extract shooting victims by donning ballistic equipment. Then fire/EMS prepares victims for rapid transport to a definitive medical center where emergency physicians and surgeons enact medical/trauma interventions to provide the victim(s) the best possibility of survival. Time is critical in managing an ASMCI. A well-known concept among trauma systems and emergency medical service providers in prehospital care is called the golden hour. It is the relationship between time and trauma patient outcome and the process of prehospital care (Hu et al., 2020). One of the tenets of NFPA 3000 is that a rapid force multiplier of responders addressing life-safety can serve exponentially to increase the probability of victim survival by preserving the golden hour.

The success of the chain of survival is firmly based on the speedy access to the wounded by medically trained first responders and the rapid extraction of critically injured victims to a definitive care center (Smith et al., 2018). Mortality following shootings is highly associated with initial injury and definitive care. Many recommendations are based on the concept that a comprehensive trauma care system must be implemented across all medical provider levels to improve survival. Operational procedures must allow for the rapid application of medical care that starts at the point of a wound and continues through fast transport (Smith et al., 2018). Recognizing that time is essential in managing an ASMCI, the threat of elongated response and transport times can adversely affect victim survival. In treating a victim due to a lack of resources or coordination, extended response times can be a significant concern for first responders. Experiences of prior incidents should serve as the catalyst for law enforcement and fire/EMS in identifying the number of resources required to engage in a successful and safe

victim extraction. As NFPA 3000 was created based on ASMCI experiences (NFPA 3000, 2018), many departments guided by NFPA 3000 train extensively with one another and have created policies in which firefighters don ballistic equipment and enter a warm zone with law enforcement to execute victim retrieval.

To close this section on policy windows and the application to ASMCI response policies, in applying Kingdon's (1995) theory of agenda setting attempts within the context of policies governing ASMCI, his three "stream" policy system structure is illustrated below:

1. *Problem*: The condition of ASMCI has become a mainstream problem for society. Several contributing factors like lack of school security measures, mental health, and gun control policies were first explored as perceived solutions, creating their consciousness of the issue and realization that victim survival still needed to be solved. As such, an integrated response model became the alternative policy solution. Although it was not designed to eliminate the threat of ASMCI, it presented a medical evidence-based solution to address the preservation of life.
2. *Policies*: The policy windows developed throughout the exploration phase of creating solutions to ASMCI generated many ideas. Communities of responders and medical professionals created the idea of maintaining incident stabilization, rapid triage and extraction of the wounded, and rapid medical treatment and transportation to a definitive trauma center to manage ASMCI mortality outcomes.
3. *Politics*: The call for legislators to get involved after several attempts to address ASMCI became the call of the nation. Widespread incidents that claimed the lives of many were unacceptable. The political factors associated with the high loss of life forced changes in the political realm.

As the new standard starts to circulate through the nation's fire/EMS and law enforcement communities, it can be confronted with challenges. Within months after the formal adoption of NFPA 3000, a recent public outcry centered on defunding law enforcement may force another policy reaction. With the looming threat of defunding law enforcement, the accepted method by fire/EMS and its alignment with policies created by NFPA 3000 may be threatened due to a lack of law enforcement resources or training associated with funding challenges. If law enforcement lacks the resources to support fire/EMS in conducting rapid extraction and treatment protocols, the systems approach to an ASMCI may be impacted. The movement to defund law enforcement may present another need for a policy window evaluation described by Kingdon (1995) and Birkland (1997) for the evolutionary policy management of an ASMCI.

Defunding Law Enforcement

This next section will examine the primary factor of the problem statement this research aims to examine. As policy windows outlined in the previous section discussed how law enforcement and fire/EMS have joint response delivery practices at an ASMCI, impending policies that can impact law enforcement have the potential to extend into how NFPA 3000 structured its codependency response logic between both public safety disciplines. Currently, policy proposals that have influenced the political climate across the country have been centered on demonstrators' call to eliminate the police, which has provoked controversy. Slogans have expressed that discriminatory police violence is a policy, not a split-second judgment or the work of rotten apples (O'Rourke et al., 2021). Loader (2020) suggested the vision of a new way of policing entered the public domain discourse along with national and global protest after George Floyd's death in Minneapolis on May 20, 2020. The starting point of campaigning to shrink, defund, or disband the police in the U.S. was an arresting historical and sociological claim that

American policing is not oriented to reduce or prevent crime but a racialized control to keep Black people in order and that crime in American life has long served as a proxy for racism. The call for police abolition is encapsulated by the slogan to disband, disempower, and disarm the police (McDowell et al., 2018). The over-arching strategy is to eliminate the policing institution, while disarmament and disempowerment are two inter-related tactics used to achieve the goal (Vitale, 2017). McDowell and coauthors (2018) observed that radical abolition praxis exists in the current struggle to disband law enforcement. Historically, the tactics used to disband law enforcement will align with practices that hold more potential for restructuring social relations and bringing forward new democratic institutions.

Furthermore, to understand the movement to abolish law enforcement, the historical context provided by McDowell and coauthors (2018) states that the need to disband or abolish law enforcement stems from an understanding of policing under racial capitalism. Abolition crosses multiple historical periods and social movements. An anonymous author, *For a World Without the Police* (2016), argues that the police force was created to repress the growing number of poor people that accompanied the rise of industrial capitalism to address the threat of slave revolt. These beliefs were in societies' domain years before the George Floyd tragedy and resurfaced in mainstream dialogue in the polarization of politics. It is the reason that although current societal discourse surrounds the term “defund” or “reimagine” law enforcement, the abolishment of law enforcement can be recognized as an impacting problem that will continue to initiate the need to address its existence and magnitude.

Today, Loader's (2020) position aligns with Rushin and Michalski's (2020) observations that in the wake of highly publicized and deadly encounters between police and civilians in cities like Baltimore, Cleveland, and Ferguson, policymakers have searched for answers to a perceived

national epidemic of police misconduct. According to a ProPublica analysis of federal data on police shootings between 2000-2012, young Black male civilians were 21 times more likely to be killed by police than young White male civilians (Hall et al., 2016). Race has been a powerful and polarizing theme in the discourse around fatal encounters with law enforcement. To further understand the relationship between police encounters, Hong (2016) researched whether representative bureaucracy improves organizational integrity using evidence from English and Welsh police forces and found a significant difference in how the police treat Black communities compared with other ethnic minority groups. In another research article, Greenwald and Banaji (1995) disclosed that implicit and explicit bias suggest that beyond police officers when it comes to policing, the public may also have these biases but may not be cognizant of their prejudices.

These observations are an essential finding in research when evaluating the context of racism and law enforcement in the call to defund. To address the root causes of police misconduct, those promoting the movement exclaim that society must disinvest from policing and reallocate funding and resources toward other community needs. Generally, the explanation of police misconduct is divided into two categories: 1) bad apples and 2) bad institutions (Wood et al., 2019). To understand the bad apple explanation, the belief is that individual factors impact misconduct, such as age, race, gender, education, temperament, and experience. At the organizational level, bad institutions are defined through a top-down authoritarian police culture, administrative features of police departments like inadequate diversity, and the racialized history of policing (Wood et al., 2019). These findings are highly relevant to moving forward as a society that must coexist with racial equity and community safety. However, the movement's magnitude to defund police and its impact on an ASHCI may not be fully understood. Evidence

supports that law enforcement funding is correlated to providing community services. ASMCI emergency response for this study is considered a community obligation that requires the services of public safety agencies. To examine the effects of service and funding, the next section will review literature that explores how revenue shortfalls in law enforcement inevitably can lead to a service impact.

Funding Impacts Service

Funding shortage or reallocation of funding can impact organizations differently. Inevitably, it can lead to service reduction as resources and equipment are generally reduced due to funding instability. Stepzinki (2010) focused on proposed budget cuts that jeopardized police training in Georgia. With less revenue coming into the department, policymakers were forced to decide which programs to reduce. Georgia officials described the impact on small departments as catastrophic. Although Georgia's case was based on austerity, it highlights how defunding public safety can have consequences. Gutman (2020) evaluated Seattle's police department by examining what the future could look like with the hurdles being presented to defunding police. He stated that cutting budgets can result in fewer officers in Seattle, and it may signify that many of the tasks police now perform either will be done by someone else or will have to be abandoned. There was no way to achieve dramatic budget cuts through efficiencies or cutting out paramilitary equipment purchases when more than 80% of the department's budget goes to pay employees.

Recently there has been some movement by municipalities in reallocating funds in line with the defund movement. Ray (2020, What Defunding Looks Like section, para 1) describes what defunding the police means and whether it has merit through the following observations:

In recent weeks, some large municipalities with a history of police brutality have reallocated funds in line with the defund police movement. Los Angeles will have at least \$100 million reallocated away from Los Angeles Police Department to programs for minority communities. San Francisco Mayor London Breed said that she would work with community groups to reprioritize funding. Baltimore City Council voted to reallocate \$22 million away from the police department's fiscal budget for 2021. The city council plans to redirect the funding to recreational centers, trauma centers, and forgivable loans for Black-owned businesses. Prince George's County, Maryland, aims to reallocate \$20 million away from a new training facility for its police department and remove student resource officers from schools. Other areas, such as Minneapolis, have also advocated for removing police officers from schools.

These council decisions demonstrate that the movement to defund or reimagine law enforcement has support and has gone beyond the abstract approach and has transformed into policy implementation. When recognizing that these types of policy decisions can have consequential results, a question that must be asked about the current defund movement is how long will the term “defund” last in society’s policy discourse. Will it continue in its policy trajectory, or will supporters change the phrase but maintain the same results of supporting the dismantling of traditional policing in America. The defund movement's desensitization can strengthen supporters who advance social programs that prioritize funding law enforcement. This is plausible as not everyone believes that defunding the police would lead to systemic dilemmas. For example, Royster and Smith-Peterson (2021) state that reallocation of police funds could prove beneficial if law enforcement funding is transferred to other community social services that address systemic race relations root problems. Nevada provides an example of how support for defunding law enforcement has been implemented. The state has explored a model that entails providing treatment and felony dismissal after completing diversion programs rather than incarceration. In that model, traditional police funding has been reallocated to diversion programs. Supporters exploring alternative program funding instead of law enforcement have been studied in the context of whether there is a direct correlation between police funding and

crime. According to the Brookings Institution, a study using 60 years of data revealed that increasing police funding did not significantly relate to decreased crime (Royster & Smith-Peterson, 2021).

Although the idea of eliminating police is very controversial, opinion polls and surveys suggest that the topic of revisiting and fundamentally redefining the role of the police is met with less resistance (Vermeer et al., 2020). When specific policies on reform have been put forward and closely examined, many of the policies components garner broader support than the vague idea of simply defunding law enforcement. These considerations regarding limiting funding to law enforcement are essential to explore as ASMCI remains a central health and safety policy concern in society. As society moves forward in evaluating whether law enforcement funding can impact the fire service, researchers must factor in recent findings that suggest that crime is on the rise in America. Within several months of legislative proposals to defund, violent crime in the U.S. has measurably increased; homicide rates increased by 30% in 2020 in 34 large U.S. cities (Merrefield, 2021). However, criminologists hesitate to point to the defunding of law enforcement legislation as a single point, as 2020 was a unique year with the pandemic, racial justice protest, closures, and political phenomena (Merrefield, 2021).

This literature highlights why research is needed to build academic understanding on how policies surrounding the defund movement are needed and what it may signify for the fire service and the efficacy of NFPA 3000. The following section, through the application of theory interpretation, will provide an examination of how the phenomena of defunding law enforcement intersect with how fire/EMS, which has become dependent on law enforcement for the management of an ASMCI, may have to reform its interdependency to support its organizational objective of saving lives.

This section will explore this study's theoretical /conceptual perspective. The framework guiding this research is based on two theories that examine how policy alteration occurs and how an organization's actions and decisions can be explained. The theories in Table 4 were selected to explain, predict, and understand a phenomenon occurring with the defund law enforcement movement and how it can impact the fire service responding to an ASMCI. It aims to challenge and extend existing knowledge within the limits of critical bounding assumptions.

Table 4: Research Theory Application

Theory Application	
Theory	Phenomena
Punctuated Equilibrium	Policies aimed at defunding law enforcement.
Resource Dependency	Fire/EMS reliance on law enforcement to respond to ASMCI.

Punctuated Equilibrium Theory

Punctuated Equilibrium Theory (PET) in public policy occurs because of a significant alteration to the policy system. A considerable theory tenet is that PET includes periods of stability quickly changed by substantial modifications to the policy system (Givel, 2010). PET is explicitly a theory of policy dynamics as it focuses on the mechanism that led to policy change (Jones & Baumgartner, 2012). Many scholars have examined PET as a model for understanding stability and dramatic changes to the policy. Flink (2017) applied the model to rethinking how public administration should approach budgetary changes; Rychert and Wilkins (2018) on understanding market approaches to psychoactive substances; and the study of diffusion in innovation as seen through the work of Boushey (2012); data mining approaches to nuclear policy through the work of Hegelich and Knollmann (2015); global health policies as seen

through the work of Martin and Streams (2015); or through the work of McNew-Birren (2015) on U.S. regulatory politics.

PET will be evaluated in this research in the context of applicability to the policy changes that occurred in ASMCIs through the years leading up to the creation of NFPA 3000. PET was developed by Baumgartner and Jones in their seminal book *Agendas and Instability in American Politics* based on empirical studies of the American policy process in the late 1980 and early 1990. Later, Jones & Baumgartner (2012), in an article they wrote on general punctuation to the theory of government, determined that policy stability was only one part of the equation. They claimed that policies could be stable for a prolonged period; however, instability can sometimes quickly interrupt due to substantial policy shifts.

Their original studies on policy gridlock determined that policy adjustment allowed for disjointed policy change to ripple through the system without the need for top-down direction. They saw policymaking as a continual struggle between balance and equilibrium forces, dominated by negative feedback processes (Jones & Baumgartner, 2012). Within their understanding of policy change, the mechanism of positive and negative feedback is fundamental for analyzing policy change⁷ (Jones & Baumgartner, 2003). Although negative feedback is linked to stability, ongoing negative feedback may result in change: "a disturbance is met with countervailing actions" (Jones & Baumgartner, 2012). Furthermore, Jones and Baumgartner (2003) evaluated the opposite: a positive feedback process is associated with disjoint policy change. If a disturbance within the political system results in positive feedback, a policy change can be expected as change begets change, generating a more powerful push. These two approaches by Jones and Baumgartner are essential to this research as there have been dissenting

⁷ As policies surrounding defunding or reimagining law enforcement advance, feedback on the impact it can cause will be critical for analyzing ASMCIs from the perspective of conducting the NFPA 3000 standard.

social positions on the defund law enforcement movement. The push for either approach would collectively create intensive policy windows to draw changes in managing ASMCI.

Mortensen's (2007) perspective on PET stated that the starting point of PET is the extensive labor division in democratic policymaking. Policymaking is divided into several specialized subsystems to prevent overload and continual breakdowns, each of which focuses exclusively on a narrow range of policy issues.⁸ In periods of uncontested subsystem politics, the dominant actors in the subsystem manage to maintain a low level of attention from outsiders, and policy under consideration can be predictable (Jones, 1994). When external shocks to the subsystem occur, stable policy actors can soften them, supported by a policy image and institutional arrangement that reinforces stability (Jones, 2014). When the subsystem occasionally becomes subject to significant reorganization, policy monopolies become vulnerable to redefinitions of policy image and the existence of multiple policymaking (Baumgartner & Jones, 1993).

The key for those who want to change an existing subsystem is to expand the conflict to actors not formerly involved in the subsystem through a redefinition of the issue (Jones, 1994). This resonates with greater intensity when conflict expansion is at a national macro-political level (Baumgartner, 1989). Empirical research has repeatedly demonstrated the existence of PET in a diverse set of policy domains (Mortensen, 2007). There are generally five characteristics of PET that induce the policy window. The policy window ties into Kingdon's Multiple Streams Theory. The five descriptions denoted by Mortensen (2007) are denoted in Table 5.

⁸ Racism or police misconduct is a macrocondition for society; however, its legitimacy may be viewed narrowly when evaluated on its relationship to ASMCI.

Table 5: Characteristics of Punctuated Equilibrium Theory

Punctuated Equilibrium Theory	
1	Policy interest configuration can change over time, paralleling redefinition and shifts in macropolitical attention.
2	The nature of the problem may vary over time and across policy issues.
3	Some issues are more attractive to the media.
4	Policy monopolies are constructed at various times, and the maturation of a subsystem may affect the probability and character of policy punctuation.
5	Conflict is much more likely to erupt in areas where not a particular group dominates.

Notes: Mortensen, P. B. (2007). Stability and Change in Public Policy: A Longitudinal Study of Comparative Subsystem Dynamics. *Policy Studies Journal*, 35(3), 373–394.

PET in public policy contends that policy changes occur due to the concurrence of a breakdown in an existing policy monopoly and a difference in the policy image⁹ (Baumgartner & Jones, 2009). Jennings and coauthors (2017) submit that moral panics are symbolic events or narratives that tap into broader societal anxieties or fears, impacting the set of frames associated with the issue. They are one of the processes by which policy equilibria are subject to rapid and dramatic change, representing an extreme and distinctive case. Understanding moral panic makes it possible to understand how policy change patterns might vary across issues (Jennings et al., 2017). As witnessed in ASMCI, moral panic moments guided the development of the late 1990 policies of a post-Columbine High School environment, which changed how law enforcement responded to the threat of active shooter emergencies. What came out of Columbine was the militarization of law enforcement. As a result of moral panic, law enforcement policies began to favor the command-and-control model of policing in society over time. As crime increased in our nation, including ASMCI, law enforcement budgets grew to support staffing and training needs. The shooting at Columbine High School claimed the lives of

⁹ The policing image is changing due to calls that they are a regressive organization that has demonstrated disparate treatment against minoritized groups.

12 students and a teacher and wounded 21 others: the threat of tragic loss of life focused policymakers on adopting a militarized form of policing (Fortenbery, 2018). As described by Givel (2010) earlier in this chapter, the period of instability viewed through the lens of PET quickly caused substantial modifications to the policy system of how law enforcement was expected to respond to an ASMCI. Police militarization became the process whereby police increasingly drew from patterns that shared the same tenets of militarism (Kraska, 2007). Militarism became society's coping response to the moral panic that children were being harmed with the increase witnessed at ASMCIIs.

Furthermore, the Columbine High School shooting thrust the phrase "active shooter" into our nation's lexicon. Law enforcement agencies across the country reviewed the attack at Columbine and treated it as a teachable moment to improve law enforcement response (Martaindale & Blair, 2019). Marked by this massacre and later events like the terrorists' attacks of September 11, 2001, responders and society built upon the modern approach that has enhanced support for police departments' increased militarization in the U.S. and worldwide (Fortenbery, 2018). Leading up to the movement to defund law enforcement, policies surrounding funding for law enforcement appeared to go unchallenged and expanded to include fire/EMS after the 2016 Pulse ASMCI. Table 3 discusses other policy windows induced by PET.

Application of Punctuated Equilibrium Theory to Systems Response

After the Pulse Nightclub tragedy, NFPA 3000 reviewed how coordination between law enforcement and fire/EMS occurred in a hostile environment like an ASMCI. This was the second time in NFPA's 121-year history that the Standards Council had authorized a provisional standard status. It established preparedness, response, and recovery benchmarks focusing on integrated protocol and responder safety. The standard was designed to guide organizing,

managing, and sustaining an active preparedness and response program to reduce hostile events' risk, effect, and impact (McCandless, 2018).

Before NFPA 3000, the fire/EMS and law enforcement systems were primarily independent, with law enforcement efforts focused on isolating or stopping the active shooter. With NFPA 3000 in place, law enforcement and fire/EMS integration became the thriving policy and procedure to manage an ASMCRI response. Since the standard's inception, policymakers have expected agencies to build a framework of joint response that focuses on saving lives (Jacobs et al., 2013). As such, law enforcement and fire/EMS regularly train and have developed policies and procedures centered on the cooperative execution of actions to increase victim survival.

However, current policing policies have been called into question involving race relations that jeopardize staffing and funding levels for law enforcement agencies. The movement for defunding police has proliferated into a civil unrest culture as America pushes back on law enforcement as part of a democratic system of policymaking demanding police reform. The current push to reform policing or defund them aligns with the PET tenet on how rapid and dramatic change can force policy changes. Jennings and colleagues (2017) state that PET rests upon the idea that much of policymaking is conducted outside of the world of high politics in the policy subsystem in which trigger events can prompt a significant and rapid shift in policymaking. Currently, the subsystem movement has energized activists who claim that the U.S. overinvests in police, leaving fewer resources to support other government services. Overinvestment in policing contributes to high rates of police misconduct and unnecessary criminalization, particularly in communities of color (Rushin & Michalski, 2020). This serves as an example of what Jennings referred to as policy shifts outside of the policy process, driven by

subsystem fears. Currently, societal anxiety outside the formal policy system has induced policy instability. Recent police-involved shootings on minoritized groups have been met by calls to reform and dismantle traditional policing and its funding.

Mortensen's (2007) five characteristics of PET, as shown in Table 6, apply the five characteristics to the application of the defund movement and its potential impact on law enforcement and fire/EMS in relationship to an ASMCI.

Table 6: Current Policy Application to Punctuated Equilibrium Theory

Application to Punctuated Equilibrium Theory	
1	Policy interest configuration can change over time, paralleling redefinition and shifts in macropolitical attention (Mortensen, 2007).
	Since early policies addressed ASMCI after the Columbine High School shooting, today's macropolitical attention has shifted to race equality policies targeted at reforming policing (Roll, 2020). These policy shifts occur independently of understanding what impacts may happen to the reliance of fire/EMS on law enforcement in managing an ASMCI.
2	The nature of the problem may vary over time and across policy issues (Mortensen, 2007).
	The nature of abolishing law enforcement has increased in intensity due to recent police shootings deemed brutal and racially biased. Over time supporters of eliminating law enforcement and replacing them with alternative services has grown (Lafontaine, 2020).
3	Some issues are more attractive to the media (Mortensen, 2007).
	Although ASMCI and the call to defund police command media attention, police reform's sensitization led to the 2020 Presidential election and beyond, which has energized the media (Alba, 2020).
4	Policy monopolies are constructed at various times, and the maturation of a subsystem may affect the probability and character of policy punctuation (Mortensen, 2007).
	The policy development system meant to address racial inequality has been affected by the subsystem of rioting and destruction meant to cause disorganization (Wilson, 2000).
5	Conflict is much more likely to erupt in areas where not a particular dominates (Mortensen, 2007).
	The democratic voting process of America allows voters to select which candidate will support their views. This characteristic is in full display as voters have been politically energized by mostly party lines that support defunding law enforcement (Barefoot, 2020).

Note: (Alba, 2020; Barefoot, 2020; Lafontaine, 2020; Rolls 2020; & Wilson, 2000)

Applying PET to this study can explain how public policy can impact police policies' transformational changes. Notwithstanding how PET provided context into how policy shifts can occur within our society, another theory to evaluate in this study is Resource Dependence Theory (RDT). As we assess the impact on fire/EMS in the wake of police reform, the fire/EMS

industry needs to outwardly evaluate the consequences of potentially losing reliance on joint response with law enforcement when managing an ASMCI. Since NFPA 3000 centered on a joint discipline model, new policies that can affect law enforcement and fire/EMS have emerged. RDT can explain how this phenomenon occurred between both professions, and it can help explain how fire/EMS may have to contend with and adjust its policies when facing the challenge that law enforcement may be rendered incapable of responding or fully mobilizing a response contingent on an ASMCI.

Resource Dependence Theory

The concept of RDT gained public awareness by Pfeffer and Salancik (1978), who provided context to how organizations depend on each other for resources. Their seminal work added to organizational research to explain how an organization, environmental interdependence, and uncertainty intersect. A fundamental assumption of RDT is that dependence on critical and import resources influences an organization's actions and that decisions and activities can be explained depending on the dependency situation (Pfeffer & Salancik, 2003). According to Pfeffer and Salancik (2003), RDT represents a general theoretical idea of a specific problem. Many scholars have used Pfeffer and Salancik's (1978) work to examine the effects of how RDT serves as the framework for understanding organizational relations. Kannan et al. (2017) explored linkages between firm innovation, product innovation, and suppliers; the framework of RDT can be seen in the work of Lee and Hwang (2020) on logistics integration; Ilyas (2020) in her work on volunteer engagement and financial sustainability; Brettel and Voss (2013) on antecedents of management control; or Edelman et al. (2006) on transaction cost economics.

To highlight the connection between environment, organization decisions, or actions, Nienhüser (2008) adapted Pfeffer and Salancik's (2003) diagram on how the framework of

logical interconnection propositions impacts RDT. Figure 3 lays out the connectivity to significant RDT tenets.

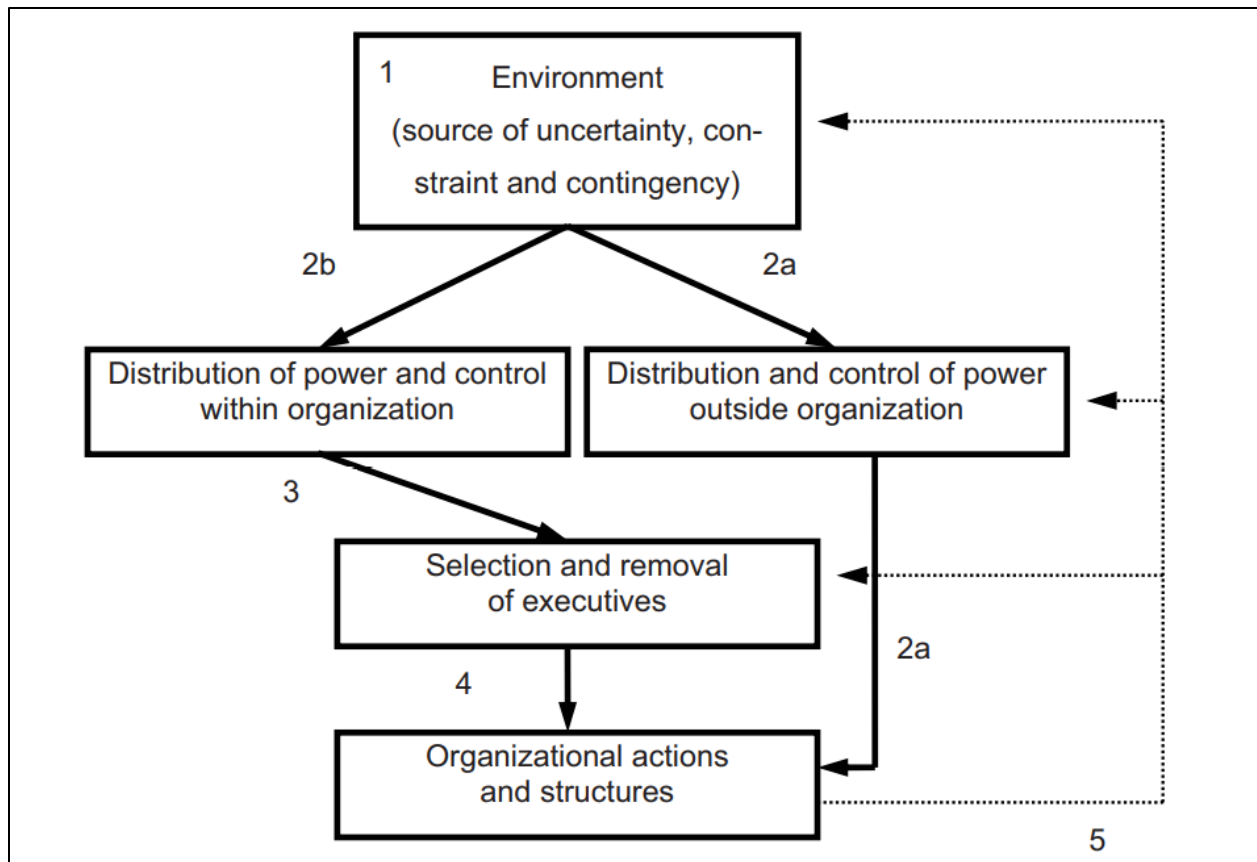


Figure 3: Resource Dependency Theory Interconnection

Note: Reprinted from Nienhüser, W. (2008). Resource Dependence Theory – How Well Does It Explain Behavior of Organizations? *Management Revu*, 19(1-2), 9–32

As seen in Figure 3, Nienhüser (2008) examined that the environment can be considered a source of uncertainty and constraint. He stated that to understand an organization's behavior, individuals must first understand the organization's context and view its ecology. He then expanded his model evaluation to include examining how the environment and dependency on critical resources can directly influence an organization's behavior. He summarized his examination by identifying that the environment is the central source of uncertainty, and the extent of its insecurity varies depending on the distribution of essential resources. Applying the model to the context of resource availability would reduce its dependency attributes if one organization exists with a vast reserve of resources. The inverse is also true, the fewer resources, the higher the concentration of power in the environment and the increased connection between

actors. Uncertainty on its own is not a significant contributor, as it is only factored in when uncertainty is combined with dependence on resources that an organization is forced to take measures to reduce uncertainty. In Figure 3 (2a) view of how external distribution of power and management of dependency relationship intersect, the model implies the environment and distribution of power are favored for whoever controls the resources over the actors who need it. The assertion is that actors who own a large segment of the resources required and do not necessarily require reciprocal relationships remain powerful. The rationale is that management is impacted when uncertainty caused by dependency becomes central to the organization and causes a blind mutation in management. The model further looks at the effects of (2b) and its role on stakeholder investors within and outside of the organization to control essential resources (Nienhuser, 2008).

Moving through the model in Figure 3 is Pfeffer and Salancik's (2003) RDT presentation, which denotes that sub-units that can cope with an organization's critical problems acquire power in the organization. A subsystem of Nienhuser's model adaption to sub-units is that they will extend their influence over and beyond their contribution to safeguard resources if the environment changes. It may not be in the dominant sub-unit's interest to make everyone aware of the environment's changes as it can endanger its current power structure. The model also looks at the connection between power and succession distribution. Those who possess great power prefer to select someone to fill a position that can enhance their ability. Maintaining control contributes to the organization's survival without significant environmental changes. Nienhuser's addition to the model looks at the relationship between management structure, distribution of power, and decisional structures as influential external stakeholders that influence the dominant coalition's crucial positions by retaining resources. The interest in influential

decision-makers is more likely to be realized than other interests. Line (5) in Figure 3 depicted in the model above is Nienhüser's adaptation that shows how feedback affects central arguments, decisions, and organizations' actions. Lastly, segment four of the model looks at the connection between structure, distribution of power, and decisions as controlling resources. Organizations cannot always balance themselves and can cause equilibrium challenges for the organization.

Another application to Pfeffer and Salancik's (1978, 2003) RDT model was captured by Hillman and coauthors (2009) in their resource management review of one organization and another. They recognized that RDT influences external factors on organizational behavior constrained by their context and environmental uncertainty and dependency. Also, inter-organizational relationships that form alliances and agreements can lead to the absorption of interdependencies. Central to the actions is the concept of control over vital resources (Ulrich & Barney, 1984). Hillman and colleagues (2009) advanced five essential perspectives to consider when evaluating organizations outlined in Table 7.

Table 7: Resource Dependence Theory Perspectives

Resource Dependence Theory	
1	The fundamental units for understanding intercorporate relations and society are organizations.
2	Organizations are not autonomous but are constrained by a network of interdependencies with other organizations.
3	When coupled with uncertainty about the actions of those who can impact the organizations' interdependency, interdependence leads to a situation in which survival and continued success remain uncertain.
4	Organizations take actions to manage external interdependencies, although such efforts are inevitably never wholly successful and produce new patterns of dependence and interdependence.
5	Patterns of dependence produce inter-organizational and intraorganizational power, where such control affects organizational behavior.

Note: Hillman, A. J., Collins, B. J., & Withers, M. (2009, September 30). *Resource Dependence Theory: A Review* - Amy J. Hillman, Michael C. Withers, Brian J. Collins, 2009. SAGE Journals

There is relational interdependency in RDT. Casciaro and Piskorski (2005) stated that although RDT is dyadic, a theory test focused on the constraint of one actor's dependence on the

other without considering reciprocal dependency. Their implementation of hypotheses maintained the dyadic nature of RDT, employing constructs of power imbalance and mutual dependence. The building blocks of organizational power and dependence can be traced to Emerson's (1962) theory of power-dependence relations. In the Emerson exchange framework, the power capability of an actor concerning the other actor is inverted. Dependence is a function of resource criticality and availability of critical resources. Actors are dependent upon other actors(s) in proportion to their needs for the resource the other can provide. It is simply an interchangeable relationship.

Application of Resource Dependency Theory to Systems Response

The interdependence created by NFPA 3000 includes a network of providers from both law enforcement and fire/EMS needed to manage an ASMCI. Moreover, law enforcement and fire/EMS' success are conditioned on sharing resources to increase victim survival. The dependence was created by the relational, situational, and mutual objectives of law enforcement and fire/EMS. There was an environmental need to strategize and combine resources to maximize victim survival potential, as supported above through the study by Jacobs (2013). As denoted above, RDT interdependency is premised on the environment and resources. Applying the five essential perspectives outlined by Hillman et al. (2009), the following evaluation is examined below in Table 8 on how RDT can impact the interdependency of law enforcement and fire/EMS concerning an ASMCI.

Table 8: Resource Dependence Theory and Fire/Emergency Medical Services

Resource Dependence Theory and Fire/EMS	
1	The fundamental units for understanding intercorporate relations and society are organizations (Hillman et al., 2009).
	Law enforcement and fire/EMS are part of a public safety network community that shares relationships with the objective of community protection (Hilal, 2014).
2	Organizations are not autonomous but are constrained by a network of interdependencies with other organizations (Hillman et al., 2009).
	Although law enforcement and fire/EMS have separate tactical objectives, they remain interconnected through public safety budgets and share an organizational aim of protecting life while improving community living conditions (Hamilton & Ricci, 2018).
3	When coupled with uncertainty about those who can impact the organization interdependent, interdependence leads to a situation in which survival and continued success remain uncertain (Hillman et al., 2009).
	With the recent defunding law enforcement movement, there is uncertainty on how law enforcement will continue to provide its services before making significant budgetary modifications. Moreover, the fiscal constraints are not entirely known; however, funding imperfections can negatively impact staffing and training budgets. Fire/EMS interdependence on law enforcement on ASMCI can be affected if law enforcement cannot train or provide the resources required to manage an ASMCI. As such, due to the interdependency of both professions, fire/EMS response policies may lead to a situation in which their survival and success in hostile environments remain uncertain (Fowler, 2020).
4	Organizations take actions to manage external interdependencies, although such efforts are inevitably never wholly successful and produce new patterns of dependence and interdependence (Hillman et al., 2009).
	Even if fire/EMS takes aggressive actions to manage their external interdependence on law enforcement, inevitably, they will have to shift their dependency towards another pattern. Whether it is expanding fire/EMS' ability to address a hostile threat without the presence of law enforcement, their reliance will shift. In this example, their interdependency would move towards training firefighters in military or law enforcement training to support their mission (Coppola, 2015).
5	Patterns of dependence produce inter-organizational and intraorganizational power, affecting organizational behavior (Hillman et al., 2009).
	If fire/EMS creates a response framework that includes firefighters armed with weapons that would reduce their dependency on law enforcement to mobilize their rapid extraction teams over time, arming firefighters can fundamentally alter organizational behaviors that produce changes in how society views firefighters (Kuipers et al., 2014).

Note: Data Retrieved from Hillman et al., 2009; Hilal, 2014; Hamilton & Ricci, 2018; Fowler, 2020; Coppola, 2015; Kuipers et al., 2014)

To illustrate the RDT network effects on ASMCI policy impact, Figure 4 shows how these policies interconnect with Hillman et al.'s (2009) RDT evaluation. Applying the five perspectives to ASMCI policy can be viewed as the intercorporate relationship between law enforcement and fire/EMS in response to an ASMCI as described through NFPA 3000. The power effects apply to how fire/EMS would have to undergo an organizational change in their behavior if their reliance on law enforcement changed. After the Pulse tragedy, the creation of

NFPA 3000 created a network approach of stakeholders needed to provide the most favorable outcome in managing an ASMCI. The interdependence with the environment is the current observation occurring in society through the defund law enforcement movement. The action to manage the external dependency can be required of fire/EMS if the current NFPA 3000 model is compromised.

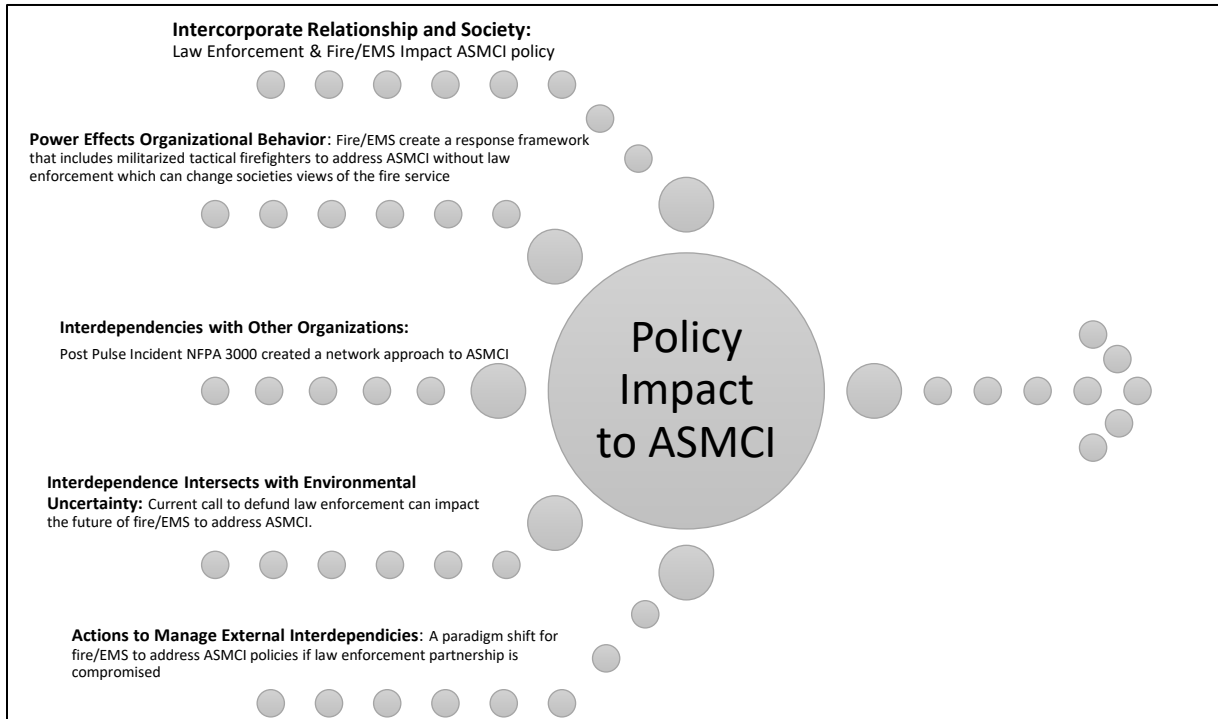


Figure 4: Resource Dependence Theory and Active Shooter Mass Casualty Incident

Note: Adapted from Hillman, A. J., Collins, B. J., & Withers, M. (2009, September 30). Resource dependence theory: A Review. *SAGE Journals*.

With the potential of law enforcement losing funding and, therefore, losing the required resources needed by fire/EMS to manage an ASMCI as described through NFPA 3000, the uncertainty for fire/EMS dependency may increase. If so, fire/EMS may have to examine how it connects its dependency with law enforcement. They may have to accept alternative models, including 1) linking with another organization to provide the services, 2) creating a different

external interdependency demand with law enforcement that allows for alternative approaches to managing an ASMCI, or 3) increasing internal fire centric capabilities. Change in fire/EMS can take many forms (e.g., policy, procedural, or complete transformation) (Antonellis, 2014). Many factors can affect the success or failure of change in an organization. Through the lens of Nienhüser's RDT model adaptation, as seen in Figure 3, the fire service must examine how the environment affects law enforcement and their ability to rely on them for training and response expectations. As ASMCI is a central source of uncertainty regarding when they occur and how quickly resources from law enforcement can converge, the fire service must ensure they have the required resources available to conduct their mission of saving lives. Currently, law enforcement has a vast number of resources to address an active shooter threat at an ASMCI. However, the fire service can reduce its dependency if it connects to control the actors needed to accomplish the task of rapid deployment at an ASMCI. It is less of a struggle for the fire service to distribute its own powers than to manage an ASMCI without law enforcement resources. When exploring alternative reliance models in change management, the fire service must consider the change and political-cultural impact to ensure a successful transition. Antonellis (2014) examined three steps in change management that have influenced the fire service: 1) preparing for the change, 2) managing the change, and 3) reinforcing the change. In each step, political and ethical practices can support the process of change or limit it.

The fire service has seen structural changes to its service over the years, directed by outside forces and demand. The fire service evolution includes diversifying past services, like managing fire-related emergencies and beyond. To provide an example of how the fire service has demonstrated its positionality in adjusting to change and associate the example with RDT, Byrne-Davis and colleagues' (2018) study highlights the evolution of fire-related incidents. They

stated the fire service had seen a decline in fire incidents in recent years, with a decrease of 60% from 1998 to 2008. With the declining demand for the fire service, and in contrast to the strain on other public-sector services, there is a need to continue diversifying and expanding the fire service role. The results of the service today are an industry that has redefined itself through 1) policy interest configuration over time, 2) addressing the reality that fire-related incidents have decreased over time, and 3) recognition that other service providers (subsystems) like private-sector EMS could impact the sustainability of the fire service if they do not evolve themselves into a fire/EMS service. Today's fire service either directly serves the community as an all-hazard¹⁰ department or indirectly contributes services beyond the scope of only fire suppression. This evolution of services demonstrates that the fire service is experienced in adapting, refocusing interdependence, and reinventing itself.

This section discussed how PET and RDT theories intersect with the police defund movement and how fire/EMS reliance on law enforcement at an ASMCI may have to evolve. It also demonstrated the past behavior of the fire/EMS industry in adjusting itself to meet the demands of the environment when it becomes uncertain, and the extent of uncertainty varies as applied by Pfeffer and Salancik (1978, 2003) and later Ninjuser (2008). Although PET demonstrates how law enforcement's policy windows may have occurred and remained elastic after the Columbine High School shooting, RDT offered the theoretical framework of how fire/EMS may have to adapt their ASMCI response policies in the future. As this study's scope

¹⁰ An "All Hazards" fire department represents every level of a hazard response whether it is trench rescue, hazardous materials, confined space, building collapse, rope rescue, fire extinguishment, EMS, dive rescue, swift water, and vehicle extraction. Typically, a large city fire department would consider themselves an all-hazard fire department. They have the personnel to train, they have the money to spend on equipment and they have the call volume to support it (Fire engineering training, n.d.).

remains centric on evaluating how fire/EMS services will adjust to the current dependence on law enforcement for ASMCI, RDT will be the primary theory applied to this study.

Research Hypotheses

By applying the two theories above, statements of expectations were designed to study the effects of the defunding law enforcement movement and its relationship to fire officials' perception of how their service may evolve. Although this study was exploratory, there are areas of prediction that helped guide the creation of the hypotheses. The hypotheses listed in Table 9 provide the literature research that was examined to support the creation of the predictions. These hypotheses were later tested and explained in Chapter 5 and offer opportunities to expand future research.

Table 9: Research Hypotheses

Research Hypotheses
<u>Hypothesis 1</u>
<ol style="list-style-type: none"> 1. There is an association between fire departments that have adopted NFPA 3000 and the number of permanent residents and visitors they provide service to. <ul style="list-style-type: none"> • Literature suggests that what separates a city beyond just providing essential police, fire, and emergency medical service are cities that incorporate other emerging public safety trends into progressive programs that serve the community (Nevins, 2015). Cities depending on size can modify the type of services that both law enforcement and fire service can provide. In certain circumstances, consolidation of services can be feasible; however, it may be less workable in larger ones (Morley, 2013). • Adopting NFPA 3000 through joint response to an ASMCI is considered a modern and progressive approach to saving lives. Furthermore, the ability to carry out NFPA 3000 training and response expectations may be influenced by communities that have consolidated partnerships between fire and law enforcement which can be found in larger populated cities. Alternatively, the adoption of NFPA 3000 may be factored by departments that service a larger metropolitan community where the fire department budget is larger and can absorb any funding challenges incurred by policies targeted at law enforcement and expand their role in managing an ASMCI.
<u>Hypothesis 2</u>
<ol style="list-style-type: none"> 2. There is an association between fire department type (volunteer or career) and the amount of time the department took to change its policies on an ASMCI.

Research Hypotheses

- Literature suggests that today's organizations operate in environments characterized by risk and uncertainty which significantly impact the organization. As part of the effective crisis management, learning efforts are important to the organization. It becomes more apparent to the organization to determine its ability to survive or adapt. Through evolving, an organization can continuously learn and create new policies that aid in its survival, adaptability, and long-term viability (Wang, 2007). Additionally, statistically there are a greater number of volunteer fire departments in the United States, which are an integral part of the emergency response framework (Doing the job with limited resources, 2020). The ability to train, respond to, and mitigate emergencies in small and rural areas challenges departments to effectively prioritize each response.
- Depending on resources that are inherited to volunteer or career department, regulatory and local legislative obligations may impact the department. The expectation to adapt NFPA 3000 policies in alignment with current trends may be attributable to the department's type of service delivery of being a volunteer-based or career-based system.

Hypothesis 3

3. There is an association between fire departments that provide EMS transport services and the population of permanent residents and visitors they serve.
 - EMS systems have evolved in the quest to improve the survival through the chain of actions. The International Association of Fire Chiefs which represents all nationwide fire departments, affirms its position in support of fire-based emergency medical service (EMS). Fire-based EMS should be delivered through first responders utilizing licensed fire apparatus (ambulance) to transport the sick and injured to an appropriate receiving facility (IAFC, n.d). Furthermore, as denoted by Nevins (2015) and Morley (2013) above, the size of a community may have an impact on how public safety services are provided and affect the scale of services rendered.
 - Generally, larger fire departments have greater resources through equipment and staffing that allows for a fire-based EMS system. The hypothesis suggests that with the size of the community, the department may be influenced to maintain a fire-EMS model that aligns with its community needs to provide primary medical treatment and transport. Rapid medical transport and the outcome of victim survivability remains a significant factor in the management of an ASMCI and alignment with NFPA 3000.

Hypothesis 4

4. There is an association between fire departments that have experienced an ASMCI and their perception of how the fire service delivery to an ASMCI has changed after the implementation of NFPA 3000.
 - There are conditional factors that influence crisis management. In the case of an ASMCI, leaders involved in a crisis incident can lead to changes in how future policies are developed and how incidents are managed. Bundy et al. (2016) denote that the traditional crisis management models are rooted in identifying the problem and then attempting to find solutions. In crisis outcome, literature further suggests that from a leadership perspective, organizations learn following a crisis episode.
 - In the context of evaluating an ASMCI, this type of crisis can influence how fire leaders may perceive how the fire service may change its delivery values to an ASMCI with or without the implementation of NFPA 3000 or law enforcement rapid response. These decisions may be

Research Hypotheses

factored through the professional experiences of fire officials based on the knowledge learned because of an ASMCI.

Hypothesis 5

5. There is an association between fire departments familiarization with NFPA 3000 and whether their community experienced an ASMCI.

- As denoted above in Hypotheses 2 through the literature of Bundy et al., (2016), there are conditional factors that influence crisis management. In the case of an ASMCI, leaders involved in a crisis incident can lead to changes in how future policies are developed and how incidents are managed. Traditional models of crisis management are rooted in identification of the problem and the attempt to find solutions.
- As fire officials contend with ASMCI experiences, they may be more likely to entrench departmental policies on finding suitable outcomes to these types of community threats.

Policies and procedures may be instituted through rapid familiarization on the principles of NFPA 3000 rooted at finding a sustainable solution for responder stakeholders in managing an ASMCI.

Hypothesis 6

6. There is an association that the defund law enforcement movement has impacted law enforcement budgets through legislative actions by fire department regions.

- As noted above in Chapter 1 and 2, the defund law enforcement movement budget impact may extend beyond contemporary and transitory policies and have real consequences for law enforcement agencies. The act of defunding law enforcement has taken a clear and bold legislative action in several cities throughout our nation. Secure America (2019) reports that cities like Minneapolis, Seattle, New York City, Chicago, Portland, Atlanta, Los Angeles, Baltimore, Philadelphia, and Washington D.C. have taken legislative actions to reduce the amount of funding earmarked for police departments. As it relates to regions, in accordance with the U.S. Fire Administration (n.d.) they report the distribution of the 27,228 fire departments nationwide is assigned as 36% South Region, 31% Midwest, 21% Northeast, and 13% West.
- Policies throughout the nation can have modifications to how the states carry out NFPA standards. As described by NFPA (2018), its NFPA 3000 standard was developed with the recognition that states/departments have differing abilities and protocols to respond to ASMCI related emergencies. As such, the standard was created to allow for a scalable response to implementation based on states/department capabilities. This allowance would suggest that states/departments may experience differences in their jurisdiction based on defund law enforcement legislative results.

Hypothesis 7

7. There is an association between fire officials' perception that the defund law enforcement movement can negatively affect an ASMCI and fire officials' experience in the fire service.

- Perception-based research has been studied in academia. Renn (2004) describes the term perception as a cognitive psychology application to the mental processes a person takes in, deals with, and assesses information from the environment via senses. Adding to the body of knowledge on perception-based risk studies, Sjoberg (2002) wrote that risk perception involves

Research Hypotheses

attitudes and expectations that can be studied with well-developed methods of attitude measurements. Furthermore, in the study by NewsRx Health & Science (n.d.), they found that experience does help when we have to make complex decisions based on uncertain or confusing information.

- As it relates to fire officials' perception of an ASMCI, it is valuable to understand how fire officials perceive ASMCI risk factors based on their experience in the fire service. As fire officials surveyed in the study are generally the decision-makers within their department that create policies on training and response, their underlying reasoning on policy response or reform paves the way for the fire service.

Hypothesis 8

8. There is an association between fire officials' perception that their department had measurable objectives to respond to an ASMCI before implementing NFPA 3000 and the time it took them to change their policies after implementing NFPA 3000 in 2018.

- As denoted above through literature by Wang (2007), today's organizations operate in environments characterized by risk and uncertainty, which significantly impact the organization. As part of practical crisis management efforts, learning from experiences, either from crisis or planned, are important to the organization. Organizations that had procedures for responding to an ASMCI may have had less dependence on law enforcement in response to an active shooter threat, and the introduction of NFPA 3000 may have only mildly impacted their policies. In those cases, any changes caused by the disruption in law enforcement's response to an ASMCI may influence the fire officials' perception differently than departments that have greater dependency.

Hypothesis 9

9. There is an association between fire officials' priority on training for an ASMCI response and whether their department is responsible for incident stabilization at an ASMCI.

- As presented by Martaindale & Blair (2019), incident stabilization in the context of rapid assessment at an ASMCI includes the establishment of the rapid integrated incident command system which has the objective to help control many of the challenges encountered in an ASMCI.
- Ford and Schmidt (2000) wrote about how emergency response training enhances real-world performance which applies to the significance of why both law enforcement and fire department agencies train on ASMCI responses. Learning is typically defined as a relatively permanent change in knowledge, skills, or attitudes. As applied to training, learning includes the acquisition of KSAs during the actual training event along with the transfer of training to the job. Learning processes are important in emergency response organizations because they can lead to the development of individual and team expertise. Expertise is defined as the achievement of consistent, superior performance through the development of specialized mental processes acquired through experience and training (Ford & Schmidt, 2000). Expertise can be built through a systematic, career guidance process that includes formal training programs, on-the-job activities, and other learning experiences
- Training for an ASMCI is one of the core tenets of NFPA 3000. Federal funding since the Columbine tragedy have targeted public safety communities and emergency managers with grant opportunities and mandates for the continuum of joint training as seen in Central Florida public safety agencies with their SAVE training program.

Research Hypotheses

Hypothesis 10

10. There is an association between fire officials' perception on joint training with law enforcement to respond to an ASMCI and the service area (in miles) their department provides services to.
- This perception-based hypothesis is centered on the fire official's perception of how joint training with law enforcement can impact the future of the fire services ability to respond to ASMCI as described through NFPA 3000. As studied by Renn (2004) and Sjoberg (2002), perception-based research has been adding to the body of knowledge by developing a method that allows for measuring the respondent's position on a topic. This research aims to measure the attitude of the fire service through its perception on how the defund law enforcement movement can affect joint discipline response to an ASMCI.
 - Service area may impact the fire department's delivery of services. Geography can create advantages or limitations in accessing resources. The aim of this hypotheses is to understand whether the size of coverage area that a department is responsible for can influence perception of importance on why joint training with law enforcement on ASMCI responses is needed when the outcome intersects with the theory of rapid prehospital actions saves lives.

Hypothesis 11

11. There is an association between the fire officials' perception that their fire department will modify their response to an ASMCI if law enforcement cannot assemble a rapid entry team and whether their community experienced an ASMCI.
- Fire officials who may have experienced an ASMCI may have perceived how to adjust to their role as prehospital providers and incident commanders. These experiences are essential to understand as policy development within the fire service has changed through the experiences of major ASMCI incidents like the Columbine High School and Pulse Nightclub tragedies. As the results of this study are centric on perceptions, academic research supported by Renn (2004) and Sjoberg (2002) on the cognitive psychology application to the mental processes through which information is accessed from the environment can provide insight into how fire officials can adjust to policies on how the fire industry may adapt to changes in NFPA 3000. The findings will be explored in concert with alignment with theories associated with Resource Dependency and Punctuated Equilibrium.

Hypothesis 12

12. There is an association between the perception of fire officials that if law enforcement cannot converge quickly at an ASMCI, causing a delay in treating the wounded and whether their department provides Emergency Medical Services transport.
- Optimal field triage is an action that is deliberate and primarily conducted by fire/EMS. These types of services can be impacted by service area and budgets. This statement is supported by Jacobs (2014) prehospital management acronym THREAT, which stands for threat suppression, hemorrhage control, rapid extraction at the scene for assessment by medical providers referring to triage and then final transport.
 - Departments that have taken on medical transport generally commit to medical transport services because it benefits the continuity of services and recognition that medical transport times can impact patient survivability. This study examines a fire officials' perception of the impact a treatment delay at an ASMCI can cause.

Research Hypotheses

Hypothesis 13

13. There is an association between fire officials' perception of the lack of training with law enforcement which can impact the outcome of an ASMCI, and the population of permanent residents they serve in fire department region.

- This area of research aligns with the studies of (Nevins 2015) and (Morley, 2013) on cities size fire department services as denoted in Hypotheses 1. Furthermore, it intersects with the work of Renn (2004) and Sjoberg (2002) on perception-based research in academia.

Hypothesis 14

14. There is an association between fire officials' perception of the fire service changing its practices to address deficiencies associated with victim survivability at an ASMCI and the frequency of ASMCI training their department has with law enforcement.

- Fire/EMS agencies have contended with ASMCI losses in the past, and now joint training with law enforcement has created a new response matrix to address future incidents. This study will be used to analyze fire/EMS' perspective on how defunding law enforcement might impact ASMCI responses and their continued confidence in joint training and responds to an ASMCI.
- The importance of training is supported by the research conducted by Ford and Schmidt (2000), and the usefulness of researching perception-based studies in academia is supported by the work of Renn (2004) and Sjoberg (2002).

CHAPTER THREE: METHODOLOGY

This chapter examines the research design, research questions, hypotheses, study variables, operational definitions, and data collection logic, including the pilot group and sample methodology used for survey distribution. Lastly, this chapter will discuss the logic for selecting statistical modeling used to analyze the data.

Research Design

The purpose of this study is to explore the perception of fire officials regarding how an impact in coordination with law enforcement due to defunding policies could affect joint training and response at an ASMCI. This study explores how the current perception of fire/EMS officials can change the fire services approach to managing an ASMCI. Specifically, it examines how fire officials may feel about modifying their response based on the potential impact law enforcement may experience if defunding or reimagining policies are ultimately enacted. Perception-based research has long been studied and revered in academia and is used in this study. Renn (2004) describes the term perception as a cognitive psychology application to the mental processes a person takes in, deals with, and assesses information from the environment via senses. Adding to the body of knowledge on perception-based risk studies, Sjoberg (2002) wrote that risk perception involves attitudes and expectations that can be studied with well-developed methods of attitude measurements. As it relates to fire department leaders, their perception of how the defund law enforcement movement can impact operational responsibilities for the fire service is essential to understand for public safety policy development.

Perception-based research is used in this study and approached using Likert Scale questions, which can be measured through ordinal data. Likert, Likert type, and ordinal-scale

responses are trendy psychometric item scoring schemes for attempting to quantify people's opinions, interests, or perceived efficacy of an intervention (Bishop & Herron, 2015). However, it must be noted that a long-running issue with Likert-type scales and ordinal responses has been the appropriate statistical treatment of the data. Scholars like Bishop & Herron (2015), Cohen (2001), Mircioiu & Atkinson (2017), and Sullivan & Artino (2013) have debated the space around parametric and nonparametric models for many years. Although the discussion about these methods concerning testing ordinal Likert Scale data is beyond the scope of this research, it must be briefly discussed, and its scholarly opinions are listed in this study as parametric modeling was used for analyses to interpret the survey results. This study observes ordinal data as a tool to conduct parametric statistics on perception; this researcher argues the following academic observations to justify the use of the design.

In a study on dental data conducted by Cohen, he argues that relevant statistical and scientific issues associated with non-normality and measure scale were reviewed in the research literature and concluded the following:

Parametric tests are sufficiently robust relative to typical violations of normality; 2) presumed statistical prohibitions against the application of parametric methods to ordinal data do not actually exist; and 3) 'ordinal' indices have sufficient quantitative meaning to be considered quasi-interval. For those reasons, parametric tests should not be avoided; they will be valid and usually more powerful and more easily applied to complex designs than nonparametric alternatives (Cohen, 2001 para 1).

However, it also must be noted that other scholars have voiced a divergent position to Cohen in stating that statistical literature on the robustness of parametric tests is reserved for normal data and that ordinal or non-normal data should employ nonparametric ranking methods. This approach has generally avoided the discussion that parametric procedures are powerful and capable of providing a more comprehensive approach to ordinal analysis. To counter the divergent opinions and provide reasoning for the opposing scholarly positions, Cohen (2001)

advanced the confusion of parametric versus nonparametric models may have started with Nelson Siegel in his (1956) and (1985) work, where he cited nonparametric methods. Siegel stated that one of the conditions that must be met before instilling confidence in evaluating any probability statement is that the variable must have an interval scale. His statement was surrounded by a numbering sequence of statements he was making. Specifically, statement four (4) would be later called into question. Siegel rejects this when he later notes, “All the above conditions (except [4]) the measurement requirement are elements of parametric statistical modeling” (Cohen, 2001, p. 311). Later, many other scholars have attempted to clarify what Siegel implied in his writing and concluded there is no inherent statistical invalidity in applying parametric methods to ordinal data (Cohen, 2001, p. 311). After factoring in the positionality of scholarly arguments that either support or challenge parametric modeling for ordinal and non-normal data, Cohen concluded that parametric methods are generally valid and more powerful in his work data that is not normally distributed. The approach should always be considered more versatile than nonparametric alternatives. The rejection of parametric tests for non-normal data ignores the documented robustness of the method, and rejection of ordinal data using parametric methods is not required by statistical theory (Cohen, 2001).

Mircioiu and Atkinson (2017) supported Cohen’s observations in their work by affirming that the opinions surrounding parametric versus nonparametric methods for the analysis of Likert scale ordinal data have raged for the past eight decades. Their study compared an analysis using parametric and nonparametric methods for actual Likert data on survey responses. Their findings showed that data without normal distribution gave the same significant or non-significant results in almost all cases. They concluded that restraining the analysis to

nonparametric methods would have led to information loss. They insisted that parametric methods' robustness allowed for graphical analysis, leading to more in-depth analyses.

Although Bishop and Herron (2015) state that ordinal data is generally considered to violate some statistical assumptions needed to evaluate them as a normal distribution, care should be taken in analyzing the interpretation, and the use of visual scales could be efficacious in providing better data interpretation along with parametric methods. After much discussion on the support factors for both Likert scale and ordinal-scale responses, they concluded the following:

The most important thing to keep in mind is that statistical analyses are not an end in themselves but rather a means to an end. Statistics is a tool to enable investigators to think about the data and, ultimately, the population. Statistics are not a substitute for thinking about what the data truly means and what data shows about the population (Bishop & Herron, 2015, p. 300).

Furthermore, Likert-type scales have been used in medical research for some time, which has greater nexus to this research by exploring perceptions of medical outcomes associated with an ASMCI. Fundamentally, one of the tenets of this research surrounds the dialogue on victim survivability and why policies related to an ASMCI are critically consequential. Likert-type scales in medical academia usually surround all outcome assessments in evaluating feedback and performance assessment (Sullivan & Artino, 2013). Developed in 1932 by Rensis, Likert to measure attitudes, a typical scale can be a 5- or 7-point ordinal scale to rate the degree of agreement or disagreement with a statement. Sullivan and Artino (2013) discussed the perceived differences between Likert and interval data in the traditional measurement approach of using parametric and nonparametric tests. They also reviewed the work of Dr. Geoff Norman, one of the world's leaders in medical education research methodology on the controversy, and concluded the work of Dr. Norman as such:

Dr. Norman provides compelling evidence, with actual examples using real and simulated data, that parametric tests not only can be used with ordinal data, such as data from Likert-scale, but that parametric tests tend to give “the right answer” even when statistical assumptions—such as normal distribution of data—are violated, even to an extreme degree. Thus, parametric tests are sufficiently robust to yield largely unbiased answers that are acceptably close to “the truth” when analyzing Likert scale responses (Sullivan & Artino, 2013, para. 7).

The scholarly work completed by the authors listed above crosses many disciplines, which adds to the discussion on ordinal and non-normal data interpretation management and frames the reasoning for its application in this study. As stated earlier in this chapter, parametric and nonparametric modeling is not the focus of this research. However, as this research is based on an exploratory perception-based design using Likert and ordinal scale responses, this researcher felt compelled to provide reasoning for the approach as these principles were used to develop the survey tool necessary to collect perception-based data and evaluate the hypotheses through parametric modeling.

This next section in the methodology chapter will highlight how the survey questions were rationalized and assign operationalization to the variables used in the study. Since the effects of the defund movement may not have materialized throughout the nation, perception of its impact can explain how fire department organizations may prepare to address the needs of responding to future active shooter mass casualty incidents. Furthermore, Siegrist and Arvai (2020) concluded that risk perception is essential to research and can add to the body of knowledge. They summarized in their findings that perception-based research could be grouped into three general approaches:

1. To focus on how participants perceived various characteristics of a hazard and how it influences perceived risk.
2. To identify characteristics of a hazard and how it influences perceived risk.

3. To allow for different heuristics to explain better the process behind how people formulate risk perceptions.

Additionally, studies have measured risk perception on other academic topics that have undergone content validation rigors. For example, a study by Rafferty and Griffin (2006) on organizations examined change perception within those institutions. Through the lens of association with RDT, they examined how aspects of change are the salient dimension of organizations. Their study measured questions like those listed below, which targeted organizational change through resource dependency. This study used their research questions which had undergone content validity and modified their questions for applicability to the focus of this research.

Original Question 1:

- 1) Change has been the result of the deliberate decision to change by management (Rafferty & Griffin, 2006).

Modified Question:

- 1) As a fire official, is it your perception that your fire department will modify its response to an active shooter mass casualty incident if law enforcement cannot assemble a rapid entry team as defined by NFPA 3000?
- 2) How quickly have your fire department policies on active shooter mass casualty incident response changed since NFPA 3000 in 2018?

Original Question 2:

- 1) How have large-scale changes significantly changed your unit's goals (Rafferty & Griffin, 2006)?

Modified Question 2:

- 1) How will the fire department change its response practices to address changes in conditions associated with the defund law enforcement movement?
- 2) Is it your perception as a fire official that the fire service can change its practices to address unintended deficiencies associated with victim survivability at an active shooter mass casualty incident if a response gap with law enforcement exists?

Although, as stated in the previous chapters, the effects of the defund movement may not be fully understood and not implemented throughout the nation, the topic remains worthy of exploration - if only perception-based - as it can impact significant public safety policies. To examine the perception of the fire service, this study used a mix-method approach to collect primary data. Primary data collection was necessary as this research could not be captured through other existing tools. Using mixed-method research aimed not to replace qualitative or quantitative methods but to build from their strengths and minimize a single research design's weakness. Mixed-method research can be considered the third paradigm (Johnson & Onwuegbuzie, 2004). A mixed-method approach offered tools for investigating the complex public safety policy processes and systems associated with ASMCI responses. Fetter and colleagues (2013) offered a simple variation on the benefit of mix-methods; qualitative and quantitative data collection occurs parallel, which this study employed in its design and further followed Creswell and Tashakkori's (2007) and Gutterman and coauthors (2015) approach to mixed methods. The integration of quantitative and qualitative data was interpreted and reported through three primary approaches: 1) narrative integration, involved explaining the quantitative results with the qualitative results of the survey. Quantitative research was used to describe the

topic of defunding law enforcement statistically. The qualitative inquiry was used to explore the phenomenon and understand fire officials’ experience; 2) data transformation integration was used in this study through the collection of quantitative and qualitative data sources. Once the data was collected, the transformation method included explaining, building, and reporting the level of integration; and 3) joint display integration included the interpretation of both writing about the data and presenting the data in tables and figures in a joint display format. The joint presentation of the data provided a visual means to integrate and represent mixed-method results that could be used to generate new inferences.

The survey questions for this research were designed to analyze the broader research question, “How could defunding law enforcement impact the coordination of nationwide fire departments’ ability to respond to an ASMCI if lessons from the past are bifurcated?” This approach led to a subset of questions that tested the hypotheses, as seen in Table 10. The data addressed fire/EMS confidence levels through the perception of a joint response to an ASMCI based on perceived outcomes associated with the defund law enforcement movement and the adoption of NFPA 3000 through nationwide fire officials’ operational perspectives.

Research questions, hypotheses, and variables were paired together to understand the defunding topic and its impact on public safety. The hypotheses aim to answer the research questions by examining relational observations.

Table 10: Research Questions Paired with Hypotheses

Research Questions Paired with Hypotheses
Research Question 1 How has the national fire service responded to NFPA 3000?
Hypothesis 1: There is an association between fire departments that have adopted NFPA 3000 and the number of permanent residents and visitors they provide service to.
Hypothesis 2: There is an association between fire department type (volunteer or career) and the amount of time the department took to change its policies on an ASMCI.

Research Questions Paired with Hypotheses
Hypothesis 3: There is an association between fire departments that provide EMS transport services and the population of permanent residents and visitors they serve.
Hypothesis 4: There is an association between fire departments that have experienced an ASMCI and their perception of how the fire service delivery to an ASMCI has changed after the implementation of NFPA 3000.
Hypothesis 5: There is an association between fire departments' familiarization with NFPA 3000 and whether their community experienced an ASMCI.
Research Question 2
What is the national fire service perception of the defund law enforcement movement regarding an ASMCI?
Hypothesis 6: There is an association that the defund law enforcement movement has impacted law enforcement budgets through legislative actions by fire department regions.
Hypothesis 7: There is an association between fire officials' perception that the defund law enforcement movement can negatively affect an ASMCI and fire officials' experience in the fire service.
Hypothesis 8: There is an association between fire officials' perception that their department had measurable objectives to respond to an ASMCI before implementing NFPA 3000 and the time it took them to change their policies after implementing NFPA 3000 in 2018.
Research Question 3
How will the fire department change its response practices to address changes in conditions associated with the defund law enforcement movement in relation to NFPA 3000?
Hypothesis 9: There is an association between fire officials' priority on training for an ASMCI response and whether their department is responsible for incident stabilization at an ASMCI.
Hypothesis 10: There is an association between fire officials' perception of joint training with law enforcement to respond to an ASMCI and the service area (in miles) their department provides services to.
Hypothesis 11: There is an association between the fire officials' perception that their fire department will modify their response to an ASMCI if law enforcement cannot assemble a rapid entry team and whether their community experienced an ASMCI.
Hypothesis 12: There is an association between the perception of fire officials that if law enforcement cannot converge quickly at an ASMCI, causing a delay in treating the wounded and whether their department provides Emergency Medical Services transport.
Hypothesis 13: There is an association between fire officials' perception of the lack of training with law enforcement which can impact the outcome of an ASMCI, and the population of permanent residents they serve in fire department region.
Hypothesis 14: There is an association between fire officials' perception of the fire service changing its practices to address deficiencies associated with victim survivability at an ASMCI and the frequency of ASMCI training their department has with law enforcement.

The following section in Chapter 3 will illustrate the study variables used for this research for hypotheses testing. Table 11 provides data on the variable categorization, the survey question that focused on exploring the results of the variable, the variable classification, and the variable scale used to measure the results. A reference to the complete survey questions and hypotheses logic are located in Appendix F.

Table 11: Measurement of Study Variables

Hypothesis #1				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Adoption of NFPA 3000	Dependent	Question 2	Categorical	Binary
Permanent Resident Population	Independent	Question 28	Continuous	Ratio
Peak Visitors	Independent	Question 30	Continuous	Ratio
Region	Control	Question A	Categorical	Nominal
Rural / Other	Control	Question 27	Categorical	Nominal
Fire Officials Experience	Control	Question 38	Continuous	Ratio

Hypothesis #2				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Time it Took to Update Policies Post NFPA 3000 Implementation	Dependent	Question 9	Continuous	Ratio
Department Type	Independent	Question 8	Continuous	Ratio
Rural/ Other	Control	Question 27	Categorical	Nominal
Region	Control	Question B	Categorical	Nominal

Hypothesis #3				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Does your Community Provide EMS Transport	Dependent	Question 26	Categorical	Binary
Permanent Population	Independent	Question 28	Continuous	Ratio
Peak Visitors	Independent	Question 30	Continuous	Ratio

Hypothesis #4				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception of Service Improvement Post NFPA 3000	Dependent	Question 9	Categorical	Ordinal

Hypothesis #4				
Community Experienced an ASMCI	Independent	Question 6	Categorical	Binary
Region	Control	Question A	Categorical	Nominal
Incident Stabilization	Control	Question 1	Categorical	Nominal
Fire Official Experience	Control	Question 38	Continuous	Ratio

Hypothesis #5				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Fire Department Familiarity with NFPA 3000	Dependent	Question 3	Categorical	Ordinal
Community Experienced an ASMCI	Independent	Question 6	Categorical	Binary

Hypothesis #6				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Defund Legislation has been Implemented	Dependent	Question 13	Categorical	Nominal
Region	Independent	Question B	Categorical	Nominal
Rural/ Other	Control	Question 27	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #7				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception that Defund Movement can Negatively Impact ASMCI Outcome	Dependent	Question 20	Categorical	Ordinal
Fire Official Experience	Independent	Question 38	Continuous	Ratio
Region	Independent	Question B	Categorical	Nominal
Highest Level of Education	Control	Question 37	Categorical	Nominal
Gender	Control	Question 39	Categorical	Nominal
Community Experienced an ASMCI	Control	Question 6	Categorical	Binary

Hypothesis #8				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception of ASMCI Policies in Department Prior to NFPA 3000	Dependent	Question 10	Categorical	Ordinal

Hypothesis #8				
Time it Took to Update Policies Post NFPA 3000 Implementation	Independent	Question 8	Continuous	Ratio
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #9				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Prioritization of Joint Training	Dependent	Question 11	Categorical	Ordinal
Incident Stabilization Responsibilities	Independent	Question 1	Categorical	Nominal
Joint Training Frequency	Independent	Question 5	Continuous	Ratio
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #10				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception that Defund Movement can Negatively Impact ASMCI Outcome	Dependent	Question 20	Categorical	Ordinal
Service Area in Miles	Independent	Question 31	Continuous	Ratio
Experienced an ASMCI	Control	Question 6	Categorical	Binary
Does your Community Provide EMS	Control	Question 25	Categorical	Binary
Level of Medical	Control	Question 26	Categorical	Nominal
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #11				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception of Fire Service Modification of Response	Dependent	Question 23	Categorical	Ordinal
Community Experienced an ASMCI	Control	Question 6	Categorical	Binary
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #12				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception of Delay in Treating Victims	Dependent	Question 21	Categorical	Ordinal

Hypothesis #12				
Does your Community Provide EMS Transport	Dependent	Question 26	Categorical	Binary
Level of Medical	Control	Question 26A	Categorical	Binary
Rural / Other	Control	Question 27	Categorical	Nominal
Service Area in Miles	Control	Question 31	Continuous	Ratio
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #13				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception of Training and Incident Outcomes	Dependent	Question 22	Categorical	Ordinal
Permanent Population	Independent	Question 28	Continuous	Ratio
Region	Control	Question A	Categorical	Nominal
Joint Training Frequency	Control	Question 5	Continuous	Ratio
Community Experienced an ASMCI	Control	Question 6	Categorical	Binary
Adoption of NFPA 3000	Control	Question 2	Categorical	Binary
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Hypothesis #14				
Survey Variable	Variable Type	Survey Question	Variable Classification	Scale
Perception the Fire Service will Fill the Gap at an ASMCI	Dependent	Question 24	Categorical	Ordinal
Frequency of Joint Training	Independent	Question 5	Continuous	Ratio
Region	Independent	Question B	Categorical	Nominal
Fire Official Experience	Independent	Question 38	Continuous	Ratio

Operational Definition of Survey Variables

This next section in Chapter 3 defines for the readers the pairing of the variables to the framework of this research. It will present how the dependent, independent, control variables and qualitative questions were used for the 14 hypotheses that were tested. The theoretical framework in viewing the impact that defund law enforcement policies can have on the fire service concerning joint response to an ASMCI served as a guide for the design selection of the

variables and, as discussed earlier in this chapter, rooted in modified questions from previous scholarly work that underwent 1) content validation and 2) the results of working with an industry focus group in designing the context of the survey questions. This researcher manipulated or changed the dependent variables to measure the effects. Independent variables considered predictors (s) were used to help forecast the value of the dependent variable in the models (Independent and dependent variables, n.d.). Control variables were evaluated for their influence on the outcome of the models. The qualitative questions allowed for confirmation of the findings, which supports the mix-method research design.

Dependent Variables

Adoption of NFPA 3000 for Hypothesis 1 is defined in this study as departments that have adopted the National Fire Protection Association (NFPA) framework that organizes, manages, and sustains an ASMCI hostile environment (NFPA, 2018). The standard is now known as NFPA 3000, which integrates risk assessment, resource management, training, incident management, and recovery. Currently, NFPA 3000 is the standard for law enforcement and fire/EMS agencies' training and response policies centered on a collaborative platform meant to enhance ASMCI victim survivability. The survey question asked, "If there was an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization?" Data were coded as 0,1 (0=No; 1=Yes). Data responses for 3=Not Sure were omitted from the analysis.

Time it Took to Update Policies Post NFPA 3000 Implementation for Hypothesis 2 is defined as the amount of time, measured as a unit in months, that it took the department to update its policies on training and response procedures to an ASMCI. The survey question read as follows: How quickly have your fire department policies on active shooter mass casualty

incident response changed since the implementation of NFPA 3000 in 2018? Data was coded as a continuous variable in months as a ratio value (0 - ∞).

Does your Community Provide EMS Transport for Hypothesis 3 is defined in this study as departments that provide medical transportation from a prehospital setting to a definitive care location. EMS systems have evolved to improve survival through the chain of actions. The International Association of Fire Chiefs, which represents all nationwide fire departments, affirms its position in support of fire-based EMS. Fire-based EMS should be delivered through first responders utilizing licensed fire apparatus (ambulance) to transport the sick and injured to an appropriate receiving facility (IAFC, n.d). The survey question asked of the respondent aimed to determine if the department conducts EMS transport. The question read as follows: “Does your department provide EMS transport?” Data were coded as 0,1 (0=No; 1=Yes). Data responses for 3=Not Sure were omitted from the analysis.

Perception of Service Improvement post-NFPA 3000 Implementation for Hypothesis 4 is defined in this study as a cognitive psychology application to the mental processes a person (fire officials) takes in, deals with, and assesses information from the environment via senses (Renn, 2004). Adding to the body of knowledge on perception-based risk studies, Sjoberg (2002) wrote that risk perception involves attitudes and expectations that can be studied with well-developed methods of attitude measurements. As it relates to fire department leaders, their perception of how the fire service delivery model has changed since NFPA 3000 is important for advancing research in ASMCI. Several survey questions asked the fire officials about their perception of the question related to training, responding to an ASMCI, or the ability of the fire service to adapt their service delivery. Perception-based research in this setting was measured

using Likert Scale questions through ordinal data. Data were coded as 0-5 (1 = Much Better; 2 = Somewhat Better; 3 = About the Same; 4 = Somewhat Worse; 5 = Much Worse.)

Fire Department Familiarity with NFPA 3000 for Hypothesis 5 is defined as fire departments that are well versed in the procedures of NFPA 3000 through organizing and managing a partnership with law enforcement. Currently, NFPA 3000 is the standard for law enforcement and fire/EMS agencies' training and response policies centered on a collaborative platform meant to enhance ASMCI victim survivability. The most significant policy change for fire/EMS agencies in responding to an ASMCI was the immediate need to conduct a threat evaluation and coordinate with law enforcement to extract shooting victims. The unified objective for law enforcement and fire/EMS agencies related to victim survivability is to quickly reach the shooting victim, stabilize them, and transport them to a definitive healthcare center. Today, NFPA 3000 has been circulating through the public safety responder community to educate nationwide departments on ASMCI best practices. The question asked the following of the survey participant, "As a fire official, what is your perception of how much the fire service improved its service delivery on active shooter mass casualty incidents since the implementation of NFPA 3000?" Data were coded as Likert / Ordinal data at 1-4 (1 = Very Familiar; 2 = Somewhat Familiar; 3 = Unfamiliar; 4 = Other)

Defund Legislation has been Implemented for Hypothesis 6 is defined as a community that has defunded its law enforcement agencies by reallocating funding away from law enforcement emergency response functions. *The New York Times* describes defunding law enforcement as calls to cut spending from departments that have consumed ever-larger shares of city budgets (Searcey, 2020). *The Washington Post* describes the need to defund law enforcement as a movement to slash funding for police departments or disband them entirely

(Hawkins, 2020). The survey question asked the following of the survey participant, “The term defund law enforcement is being defined in this study as proposed legislation to reduce law enforcement budgets or proposal to disband the police department. Has the defund law enforcement movement in your community proposed legislation to reduce law enforcement’s budget?” The responses to the survey were coded in a dichotomous variable format that allowed for the “Not Sure” option to be selected as a third response. Data were coded as 0,1 (0=No; 1=Yes). Data responses for 3=Not Sure were omitted from the analysis.

Perception that the Defund Movement can Negatively Impact ASMCI Outcome for Hypothesis 7 is defined in this study as a cognitive psychological application to the mental processes a person (fire official) takes in, deals with, and assesses information from the environment via senses (Renn, 2004). As it relates to fire department leaders, their perception of how the defund law enforcement movement can impact operational responsibilities for the fire service is essential to understand for public safety policy development. Perception-based research in this setting was measured using Likert Scale questions measured through ordinal data. Data were coded as 1-5 (1 = Strongly Agree; 2 = Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Perception of ASMCI Policies in Department Prior to NFPA 3000 for Hypothesis 8 is like other hypotheses that measure the perception of the fire official completing the survey. It is defined in this study as the work by (Renn, 2004) and Sjoberg (2002), who wrote that risk perception involves attitudes and expectations that can be studied with well-developed methods of attitude measurements. This question related to fire department leaders focused on the officials' perception of departmental objectives prior to implementing NFPA 3000. Perception-based research in this setting was measured using an ordinal scale. The survey

question asked the following of the participant, “As a fire official, on a scale of 1-10, what is your perception on whether there were (measurable) objectives in your department before the implementation of NFPA 3000 on how fire departments should respond to an active shooter mass casualty incident? Data were coded using a rating scale of 0-10 (0 = There were no measurable objectives, 5 = The department had adequate objectives for responding to an active shooter mass casualty incident, 10 = The department had clear objectives for responding to an active shooter mass casualty incident.)

Prioritization of Joint Training for Hypothesis 9 is defined in this study as the fire officials’ importance of how joint training with law enforcement can enhance or hinder responses to an ASMCI. Priority survey questions tie into perception-based research, which Sjoberg (2002) affirms. To understand how the nationwide fire service prioritizes the perception of how the defund movement could impact the fire service, the survey question asked the following, “As a fire official, please prioritize the importance of having law enforcement and fire departments train on how to respond to an active shooter mass casualty incident.” Data were coded using an ordinal rating scale of 0-10 (0 = Lower priority, 5 = About the same priority, 10 = Much higher priority.)

Perception that the Defund Movement can Negatively Impact ASMCI Outcome for Hypothesis 10, as with other perception-based questions in this study, is defined as a cognitive psychology application to the mental processes that a fire official contends with as described by (Renn, 2004). As it relates to fire department leaders, their perception of how the defund law enforcement movement can impact operational responsibilities for the fire service is essential to understand for public policy development in how the fire department will respond to a change in their resource dependency on law enforcement to manage an ASMCI. By examining the

perception of fire officials,' this research can expand on how RDT intersects with PET through the defund policy movement and management of an ASMCI. Perception-based research in this setting was measured using Likert Scale questions measured through ordinal data. Data were coded using a rating scale of 1-5, (1 = Strongly Agree; 2 = Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Perception of Fire Service Modification of Response for Hypothesis 11, as listed above, is defined as an approach to understanding the psychology of the mental processes a fire official deals with and assesses information from their environment. As it relates to fire department leaders, this perception-based question focused on whether fire departments will modify their response protocol if reliance on law enforcement is negatively impacted. Perception-based research in this setting was measured using a Likert Scale question through ordinal data. Data were coded on a rating scale of 1-5, (1 = Strongly Agree; 2 = Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Perception of Delay in Treating Victims for Hypothesis 12 is defined in this study following Sjoberg's (2002) approach to researching perception-based studies, "Risk perception involves attitudes and expectations that can be studied with well-developed methods of attitude measurements." To measure the attitude and expectations of fire officials throughout the nation in this random assignment study, this perception-based question focused on whether fire officials believe that if law enforcement cannot assist them at an ASMCI in a timely manner as outlined by NFPA 3000, it will create a delayed response in fire/EMS treating the victim. The perception-based question in this setting was measured using a Likert Scale question that was measured through ordinal data and coded using a rating scale of 1-5 (1 = Strongly Agree; 2 =

Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Perception of Training and Incident Outcomes for Hypothesis 13 is designed in this study to focus on whether fire officials associate a lapse in training with law enforcement in preparing for an ASMCI can lead to challenges in managing the successful outcome of an ASMCI. The formation of designing this question was principled on the value of perception-based research, as discussed above by Renn (2004) and Sjoberg (2002). This question employed a Likert Scale design question to respond to the following, “Suppose law enforcement cannot train with your fire department on active shooter mass casualty incidents; as a fire official, is it your perception it can impact the successful outcome of managing the emergency incident? Data were coded using a rating scale of 1-5, (1 = Strongly Agree; 2 = Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Perception of the Fire Service will Fill the Gap at an ASMCI for Hypothesis 14 is defined in this study as the decision and behavior of people based on their perception of risk. Siegrist and coauthors (2005) wrote that trust and confidence could influence the outcome of risk perception. Their research examined how some people can show stronger tendencies to trust or express confidence in systems than others. As it relates to fire department leaders, this perception-based question focused on whether fire departments will modify their response protocol if reliance on law enforcement is negatively impacted. Their decision may be influenced by their trust and confidence that the fire service is prepared through their experiences in managing an ASMCI to carry out the tenets of NFPA 3000 independently effectively. The perception-based question was designed to measure the following: “Is it your perception as a fire official that the fire service can change its practices to address unintended deficiencies associated

with victim survivability at an active shooter mass casualty incident if a response gap with law enforcement exists?" A Likert Scale design was created that measured participants' results through ordinal data, coded 1-5, (1 = Strongly Agree; 2 = Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Independent Variables and Control Variables

This next section will operationalize the definition of variables used in this study that are independent or control variables. The description of the variables and rating scales used to collect primary data are denoted. Some variables were used to test more than one hypothesis, and therefore its description was not repeated. However, if needed by the reader, the location of the variables can be referenced in Table 11.

Community Experienced an ASMCI for this study is defined as fire departments that have experienced an ASMCI in their service area. ASMCI is defined by the Federal Bureau of Investigation (FBI) description: an active shooter as an individual actively engaged in killing or attempting to kill people in a populated area (FBI, 2019). The World Health Organization defines mass casualty incidents (MCI) as "an incident which generates more patients at one time than locally available resources can manage using routine procedures" (Mass casualty management system, 2007, p. 30). The survey question asked to capture data on this variable was, "Has your community experienced an active shooter mass casualty incident?" Data were coded as 0,1 (0=No; 1=Yes). Data responses for 3=Not Sure were omitted from the analysis.

Department Type is defined in this study as department categorization of their workforce. Ninety-six percent of the registered departments are local fire departments, including career, combination, and volunteer fire departments. Seventy percent are volunteers, sixteen percent are most volunteer, nine percent are career, and five percent are mostly career (U.S. Fire

Administration, n.d.). The survey question asked the following, “What is your department type?” Data were coded using a nominal scale with no rank or order between them as 0-4 (Career = 1; Mostly Career = 2; Most Volunteer = 3; Volunteer = 4.)

Fire Department Familiarity with NFPA 3000 is defined for this research as fire departments that are well versed in the expectation of NFPA 3000 through organizing and managing a partnership with law enforcement. Currently, NFPA 3000 is the standard for law enforcement and fire/EMS agencies' training and response policies centered on a collaborative platform meant to enhance ASMCIs victim survivability. The most significant policy change for fire/EMS agencies in responding to an ASMCIs was the immediate need to conduct a threat evaluation and coordinate with law enforcement to extract shooting victims. Today, NFPA 3000 has been circulating through the public safety responder community to educate nationwide departments on ASMCIs best practices. The survey question that was designed to measure the participants' perception on the subject was as follows, “As a fire official, what is your perception of how much the fire service improved its service delivery on active shooter mass casualty incidents since the implementation of NFPA 3000?” Data were coded as Likert / ordinal data 1-4, (1 = Very Familiar; 2 = Somewhat Familiar; 3 = Unfamiliar; 4 = Other)

Gender for this study was defined by research conducted by Horak (2016), who summarized that differences between cultures (including gender) have generally been studied by comparing cultures according to conventional dimensions, such as individualism and collectivism, or how certain cultures respond to power differentials. Although gender differences in decision-making behavior have been observed in several disciplines of men and women, it is underdeveloped in emergency response, and as such, its study in this research was essential. In psychology, research has aimed to contextualize aspects of culture more deeply and

why decision-making behavior across cultures and genders differ (Weber & Hsee, 2000).

Research has found a difference between the impact of gender on risk perception where social, cultural, and political values, along with psychological factors, can interact and influence an individual's risk assessment (Brown & McMullan, 2021). To understand if gender affects a fire officials' role in perceived risk at an ASMCI, this survey question asked the following, "Which gender do you identify most with?" The response provided an option not to disclose 1-3 (0=male, 1=female, and 3 = Rather not disclose).

Highest Level of Education for this study was defined as a variable that measures the level of education of the fire official that completed the survey. Exploring variables in this study approaches Huffan (1974), who explored how education affects decision-making. He considered schooling augments skills that facilitate information gathering, processing, and interpreting, thereby enhancing allocative ability, reducing uncertainty, and contributing to efficient decision-making. Evaluating education and the decision-making of the fire officials as it relates to risk perception can help explain an association between education and risk perception behaviors. As such, the survey question asked the participant the following question, "What is the highest degree or level of school you have completed?" Data was coded 1-8, (1 = High school graduate, diploma, or the equivalent (for example: GED); 2 = Some college credit, no degree; 3 = Trade / technical / vocational training; 4 = Associate degree; 5 = Bachelor's degree; 6 = Master's degree; 7 = Professional degree; 8 = Doctorate degree)

Incident Stabilization for this study is defined as a fire official that establishes rapidly integrated incident command to help control many of the challenges encountered in an ASMCI, as the most significant contributor to loss of life, and the need for rapid prehospital intervention is predicated on mortality due to hemorrhage (Martaindale & Blair, 2019). The survey question

used to collect data on this variable was, “If there were an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization?” Data allowed a “Not Sure” response to be recorded. Data were coded as 0,1 (0=No; 1=Yes). Data responses for 3=Not Sure were omitted from the analysis.

Joint Training Frequency for this study is defined as the joint training between law enforcement and fire service personnel that aligns with policies created by NFPA 3000. An example of this policy and procedure can be found in Central Florida public safety agencies. Tactical joint training shared by a Fire-Rescue Department and the Sheriff’s Office in Central Florida includes introducing a swift assisted victim extraction (SAVE) program that guides how law enforcement and fire/EMS disciplines organize to extract victims involved in an ASMCI. The survey question used to capture primary data was, “How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident?” Data were captured in months as a ratio value (0 - ∞).

Visitor Population for this study is defined as inhabitants within a territory where the fire department provides fire-related services that are not considered permanent residents of that territory. Data were captured as a continuous variable as a ratio value, coded (0, ∞)

For the purpose of this research, Level of Medical is defined as the level of prehospital medical services the fire department provides to its service population. The U.S. Fire Administration reports that 59.6% of registered departments provide BLS services, and 21.2% provide ALS. BLS is primarily an Emergency Medical Technician that cannot administer medicines or take invasive medical treatment. In comparison, ALS is a paramedic that has greater medical training that includes administration of medication and takes invasive medical action like injections, making cuts to the skin, diagnosis cardiac conditions, intubation, pleural

decompression, etc. (What is the Difference, 2016). The survey question that measured this variable was dichotomous, asking, “What is the type of EMS services provided by the department: ALS or BLS.” Data were coded (1 = ALS, 2 = BLS).

Perception for this study as an independent or control variable is defined as the participating fire official’s perception. Perception-based research has been studied in academia by Renn (2004) and Sjoberg (2002). Regarding fire department leaders, their perception of how the defund law enforcement movement can impact their operational responsibilities is essential when developing public policy. Since the effects of the defund movement may not have materialized throughout the nation, perception of its impact can explain how fire department organizations prepare to address the needs of responding to future active shooter mass casualty incidents.

- For Hypotheses 8, the question asked the respondent for their perception, “How quickly have your fire department policies on active shooter mass casualty incident response changed since the implementation of NFPA 3000 in 2018?” Data was asked to be provided in whole days and was coded as a continuous variable using a ratio scale of (0 - ∞).
- For Hypothesis 14, the question was designed to measure the perception of how victim survivability could be impacted if a service gap in a joint response to an ASMCI was created due to the defund law enforcement movement. The question asked, “Is it your perception as a fire official that the fire service can change its practices to address unintended deficiencies associated with victim survivability at an active shooter mass casualty incident if a response gap with law enforcement exists?” Data was captured using a Likert Scale response coded 1 – 5, (1 = Strongly Agree; 2

= Somewhat Agree; 3 = Neither Agree nor Disagree; 4 = Somewhat Disagree; 5 = Strongly Disagree).

Permanent Resident Population for this study is defined as the number of permanent residents and not visitors that reside within the community where the fire department provides fire and/or EMS services. The data was collected as a continuous variable at a whole number value (0, ∞).

Region for this study is defined in accordance with the U.S. Fire Administration report of registered fire departments. In the distribution of the 27,228 fire departments nationwide in this research, the U.S. Fire Administration assigns 36% South Region, 31% Midwest, 21% Northeast, and 13% West. This variable intends to understand if policies and/or cultural differences between regions in the U.S. can affect risk perception about defunding law enforcement. Data was recorded as a nominal scale, coded 1-4, (West = 1; Midwest = 2; Northeast = 3; South = 4). Originally this variable was coded 0,1 (South/Other) for the ease of the reader and was presented with that coding scale in some of the regression models; however, after further evaluation, the regions were bifurcated as cultural and political differences exist between regions and understanding those perceived differences was critical to explore in this research. Dummy variables were used to evaluate the estimated regression equation of regions. Dummy variables divide a categorical variable into all its values, minus one. One value is always left out in a regression analysis as the reference category (Regression analysis with dummy, n.d.). The reference category for this analysis was *Region West*. The West Region had similar observations compared to the other regions (West = 41, Midwest = 47, Northeast = 40, and South = 44), so its selection, although not arbitrary, was interchangeable with any of the other regions for analysis.

A regression coefficient that is statistically significant when testing the models will also infer that *Region West* (reference group) is also statistically significant when compared.

Rural / Other for this study is defined as communities that are defined as 1) metropolitan, 2) urban, 3) rural, or 4) combination. Population density allows for a broad comparison of settlement intensity across geographic areas and defines the community's designation. In the U.S., population density is typically expressed as the number of people per square mile of land area (The United States Census Bureau, n.d.). The survey question used to capture primary data for this variable asked, "The community your department serves is considered:" Metropolitan, Urban, Rural, or Combination. Data were recorded as a nominal scale, coded 1-5, (1 = Metropolitan; 2 = Urban; 3 = Rural; 4 = Combination; 5 = Other). For the ease of reader of this study, Region was coded as Rural / Other (0,1).

Service Area in Miles, for this study, is defined as the area the department is responsible for in providing fire-related services, whether contractual or through jurisdictional obligations. ArcGIS defines a service area as a network service area encompassing all accessible streets (ArcMap, n.d.). To measure the service area of the surveyed participant, the question asked the respondent, "What is the service area (in miles) your department has primary responsibility to protect?" Data were collected as a continuous variable with a ratio value (0 - ∞).

Open-Ended Questions

To collect primary qualitative data to add to this mix-method approach, all surveyors were asked to respond to the two questions in Table 12. Responses were recorded as free text without limitation to how many characters the respondent could enter. This approach allowed this researcher to learn more about how fire officials perceived the defund movement and the impact on the fire service. The data collected from both open and closed-ended questions using

different methods helps explore the reasoning behind the fire officials’ perceptions. The respondents’ findings were evaluated for themes and then converged with the quantitative data. Those findings are further discussed in the result section of this study.

Table 12: Mixed-Method Open-Ended Questions

Open-Ended Questions	
1	Please describe in your own words what actions your department would take if faced with the need to revert to the exclusive stand-by model for law enforcement at an active shooter mass casualty incident.
2	In your own words, please describe how you think your community will respond if emergency law enforcement and fire service responses are delayed due to challenges mobilizing resources to respond to an active shooter mass casualty incident.

Population and Sample Selection

A survey instrument that included both open and closed-ended questions was completed through the pilot study of fire/EMS agencies that represented diversity on 1) what was their perception of how the defunding movement could impact an ASMCI response, 2) what was their willingness to expand their role to meet the expectations of an ASMCI response, 3) whether they had adopted NFPA 3000, and 4) whether their community had experienced an ASMCI incident in the past. Data was gathered by surveying the agencies selected for the focus group, and then the survey was sent to fire/EMS agencies throughout the nation. This approach assessed the broader research question on how nationwide fire/EMS perceived the potential impact that defunding law enforcement could have on their ability to respond to future ASMCIIs. Perspectives were essential to understanding, as ultimately, it can lead to policy formation. As such, a more defined approach to this study was taken to understand what actions fire officials were willing to take to navigate the potential challenges associated with the interruption of partnership dependency with law enforcement. To accomplish the research, this study proportioned sampled departments by the percentage logic of the national registry. The national fire department registry lists 27,228 fire agencies that are registered. Most of the registered

departments were in the Southern and Midwestern states. Distribution of the departments were compartmentalized as 1) South = 35%, 2) Midwest = 31%, 3) Northeast = 21%, and 4) West = 13%. As previously discussed, 96% of the registered departments are local fire departments, including career, combination, and volunteer fire departments. (U.S. Fire Administration, n.d.).

The U.S. Fire Administration reported that 59.6% of registered departments provided basic life support (BLS)¹¹ services, and 21.2% provided advanced life support (ALS)¹². This was an important distinction to make when surveying fire departments nationwide.¹³ Using a sample size calculator for a population of 27,228 at a 90% confidence level, the sample size was 270 departments. Recognizing that surveying a population can expect a return of 20%, the survey was sent to 1350 departments ($270 / 1350 \times 100 = .20\%$). The distribution logic by region and the department number the survey was sent to is denoted in Table 13.

Table 13: Sample Population Logic

Sample Population		
Region	Formula	Number of Departments
South (36%)	$(35 \times 1350) : 100$	473
Midwest (31%)	$(31 \times 1350) : 100$	419
Northeast (21%)	$(21 \times 1350) : 100$	284
West (13%)	$(13 \times 1350) : 100$	176
Total		1352*

*Rounding Error

¹¹ BLS is primarily emergency medical technicians that cannot administer medicines or take invasive medical treatment (*What's the Difference Between an EMT and a Paramedic*, 2016).

¹² ALS is a paramedic that has greater medical training that includes administration of medications and taking invasive medical action like injections, making cuts to the skin, diagnosis cardiac conditions, intubation, pleural decompression, etc. (*What's the Difference Between an EMT and a Paramedic*, 2016).

¹³ In the field of EMS, there are different levels of certifications for providers of care. Emergency Medical Technicians (EMTs) are the most common type of provider nationwide. Paramedics are advanced emergency medical care providers and are highly educated in anatomy and physiology, cardiology, medications, and medical procedures. Their skills include administering medication, starting intravenous lines, providing advanced airway management, and learning resuscitation for significant problems such as heart attacks and traumas (*What's the Difference Between an EMT and a Paramedic*, 2018).

This study employed a probability sampling method to determine departments that would be sent the survey for completion. Simple random selection using computer software was used to eliminate subjective bias in the selection process. Each department within the selected region had an equal probability of being selected. To undergo content validity for the survey design that went to the national fire service, a focus group was selected to provide content validation on the fire/EMS questions to the application of NFPA 3000 on policies and perspectives of how defunding law enforcement can impact future changes in response to an ASMCI. Since the movement to defund law enforcement is recent, and generally, only in the public discourse domain, the policy's effects are currently unknown; thus, this study was limited to only exploring the fire/EMS perspective on the topic. Using this design may increase threats to validity, as experienced in much perception-based research as discussed by Leung (2015), which suggests that in assessing the validity of qualitative research, the challenge can start from the ontology and epistemology of the issue being studied. As such, the associated constraints of this study will be further discussed in the limitations section of this research in Chapter 5. However, in the view of this researcher, the more significant contribution to the policy on ASMCI outweighs its limitations. The goodness in the contribution described by Renn (2004) and Sjoberg (2002) helped guide this perception-based research.

Pilot Group Study

Eight fire/EMS agencies served as a panel of experts that explored the theoretical construct of the survey that was later sent to a more substantial number of fire/EMS departments throughout the nation. The eight agencies served as a data collection tool for recording information on the topic of ASMCI, policies, and perceptions of the fire service about adapting

their response if reliance on law enforcement is affected. Although the focus group study primarily targeted two Florida counties, it has generalizability to nationwide departments. Florida's position for generalizability is supported by a survey conducted by McDonald (2015) on counties' fiscal health. McDonald advanced that generalizability for national application can come from the diversification of counties across Florida. Florida has large and urban counties, such as Orange County, and rural and agricultural attributes. His position is that generalizability also comes from the tradition of best practices in which governments observe policies and practices of other counties in Florida. With the diversification of Florida, which includes different compositions based on counties and service areas, there were opportunities to use Florida in broader application to the U.S. as being representative.

This pilot study observed a focus group approach to Orange and Seminole Counties departments. The reason these counties were selected was for the validity of the nationwide survey as these counties provide a diversified representation of fire departments that 1) provide EMS services, 2) have adopted NFPA 3000 to include training and response policies, 3) have experienced an ASMCI, and/or 4) have a reserve workforce – equivalent to volunteer staffing. Moreover, two other city fire departments outside of Florida participated in the focus group that introduced legislation on decreasing or reallocating funding for law enforcement. Recognizing that no fire department within Orange or Seminole has instituted policies that would redirect funding away from law enforcement, a stratified random sampling selection was made from Table 2, which depicts departments that research suggests have carried out or have introduced legislation on the defund law enforcement movement. Portland and Oakland were selected as representative departments for this research's focus group content validation phase. Table 14 lists all the departments that participated in the focus group. These departments represent all of

the attributes of nationwide departments to support the generalization of the results in this research.

Table 14: Focus Group Departments

Departments					
Department	State	EMS Provider	Past ASMCI	ASMCI Policies	Reserves / Volunteers
Orange County	FL	Yes	Yes	Yes	Yes
Orlando	FL	Partial	Yes	No	No
Maitland	FL	Yes	No	Yes	No
Winter Garden	FL	No	No	No	No
Ocoee	FL	Yes	No	No	No
Seminole	FL	Yes	No	Yes	Yes
Portland	OR	Yes	N/A	N/A	No
Oakland	CA	Yes	N/A	N/A	Yes

Survey results for the focus group departments resulted in a 75% completion rate. The survey results were validated through feedback from the survey participants, which helped improve the survey instrument. Feedback was solicited on suggestions of how perception-based questions were framed or if clarification of the survey question wording and its answer choices was appropriate for the audience of surveyed participants. Information from fire officials advised that the survey questions design was relevant for the fire service when measuring how the defund law enforcement movement could impact joint response between law enforcement and the fire service community. Communication from participants confirmed that NFPA 3000 provides them the roadmap on how to partner with law enforcement at an ASMCI, and of clinical importance, the topic and questions were both timely and relevant to fire officials and policymakers.

Data Collection

A simple random assignment was used for all departments listed in the registry on an Excel spreadsheet and assigned a whole number for identification to determine which nationwide

departments would receive the survey. Departments were captured by region. Using the logic denoted in Table 13, which represents the regional distribution of all registered fire departments, the associated number value of the departments was entered into a web-based random number generator. The selected numbers were then paired with the department list, and those selected departments represented the region population that would receive the survey email.

To distribute the survey to the randomly selected departments, it was determined that a web-based survey was the best way to reach the population. As such, individual research was conducted to identify the email address of all 1,350 departments selected to receive the survey. The department's website was searched to obtain the fire chief's email address. In many cases, the email address was not available to the public, requiring a call to the department requesting the fire chief's email address under public records laws. Once the information was obtained, email account data, email introduction, and the survey were entered into UCFs Qualtrics for mass distribution. Using a web-based survey tool allowed for the distribution of the survey and collection of data activity.

Furthermore, an email distribution model was selected for this research as it allowed this researcher to reach a nationwide population that targeted the department's fire chief and because of the ability to follow up with their office as needed. Dillman and coauthors (2009) refer to the personalization of all contacts in the web survey as it establishes a connection between the surveyor and the respondent. As denoted in Appendix D, an email introduction to the survey was sent to all respondents. After the first email was sent, Qualtrics distribution analytics affirmed that 160 out of the 1350 department's emails were rejected. The 12% rejection rate forced an additional round of randomized assignments to meet the intended survey population of 1350 departments. An additional 160 departments by targeted region were reselected using the

random number generator to augment the desired survey population. After the departments were identified, the same introductory email was sent to those departments. To further motivate participation after the first email that introduced the recipients to the survey and emphasized why their response was important, a second email message served as a thank you to those who completed the survey and a reminder to those that did not. This approach was recommended by Dillman and coauthors (2009). After that, a third email was subsequently sent with a different tone altogether, focusing, in a friendly way, on the short amount of time that was left to complete the survey and the importance of responding. Once the results of the survey population were known, it was determined that a disproportionate number of survey replies underrepresented the West by 27 departments and Northeast Region by 16 departments.

Moreover, both the West and Northeast Regions had less than 40 observations, creating statistical limitations to multivariate modeling. As such, a personalized email was sent to the fire chief's email account from a fire industry-related email that introduced the researcher advised them of an email that was sent from an academic institution several weeks ago, which may have been filtered through their spam mail and asking them for both professional and academic consideration in completing the survey. Twenty-seven departments received the email in the West Region and sixteen in the Northeast Region. The results were favorable, which led to the completion of at least 40 observations by all four regions.

It is essential to recognize why primary data was necessary for this study, and as such, using a survey tool was required. As of this research, no published findings measured the relevant impact of the defund law enforcement movement on the fire service and the relationship between public safety disciplines related to NFPA 3000. The primary purpose of this research remains to gather evidence on theory and inform actions through surveys, focus groups, and

open-ended questions for the field of public safety on the different objectives associated with a perceived gap in training and response to effectively manage an ASMCI. Although less than desirable at 173 observations or a 13% response rate, the total number of survey completion allowed for analysis; however, limitations associated with this study must be considered and discussed in the limitation section in Chapter 5.

At the peak of surveying this population for this study, the U.S. was undergoing an unprecedented pandemic challenge. Many fire departments were on the frontline of providing community services such as testing and vaccination for the COVID-19 virus. That led to many departments redirecting personnel resources and services to operational priorities. The emerging engagement and competing obligations reduced the opportunity to connect with officials and request time to complete and follow up on emails to finish the survey. Additionally, the fire service community has generally provided low results in completing surveys. To increase survey population information, this researcher connected through a colleague with NFPA who has conducted nationwide surveys. Their findings confirmed that recent attempts to survey the nationwide fire department via email, even with multiple mailings, committee members reaching out to their contacts, and expanding the survey to the U.S. and Canada, resulted in an inadequate response, much below 20%, and loss randomization.

Additionally, in a study conducted by the National Volunteer Fire Council, a report in 2019 that collects data via national surveys of fire departments reported a record low number of active volunteer firefighters in the U.S. The chair of the council advised that the finding is of significant concern to the fire service and the nation; however, he needed to point out that the numbers were estimated based on surveyed U.S. fire departments with only an 8.7% response rate to the survey (New NFPA reports finds significant decline, n.d., 2019, para. 3). The low

survey response rate was of concern as the national fire department policies are being proposed based on the data collected. This is a critical observation for this researcher to understand and accept as a limitation. The study population has historically yielded low survey participation due to the nature of the dynamic emergency response, time, or factors controlling the sensitivity of the researched political topic. Bashoor (2018), a Fire Chief strategist, wrote that fire and business of the fire service should be one of the true apolitical, non-discriminative equalizers (Bashoor, 2018, para. 6). The nature of politics is something different in every community across the U.S. and must serve to protect the core mission of the service. In another article published in a firehouse journal, Compton stated that fire officials should remain mindful of the following:

It is important that fire service leaders learn about the legislative process, how public policy is set and how decisions are made. Remember that fire service issues should be framed as non-partisan issues. They should not be viewed as Republican, Democrat, independent, or part of the political agenda of any political party or affiliation. As individual fire service leaders, what you think about a wide range of political issues is important to you, but it is just as important that we keep our personal politics and philosophies separate from fire service issues. Inserting one's personal political views into the process can (and has been) very harmful to specific issues, a fire department or even the fire service as a whole (Compton, 2010, para. 10).

Survey data collected was examined in the context of a mix-method application.

Responses to the dependent variables were either continuous or categorical and measured using a binary or Likert scale response, as illustrated in Table 11. A Pearson Correlation Variable Matrix was completed and used to conduct a bivariate analysis (a pre-test survey was not administered in this study; as such, the bivariate analysis required a descriptive data table). For the multivariate analysis, a regression model was used ranging from Logistic, Ordinal, or Multinomial Regression to observe the effects on the dependent variables. The results of the

quantitative data were then compared to the qualitative analysis in a convergence table. A diagram of the convergent mix-method application is shown in Figure 5.

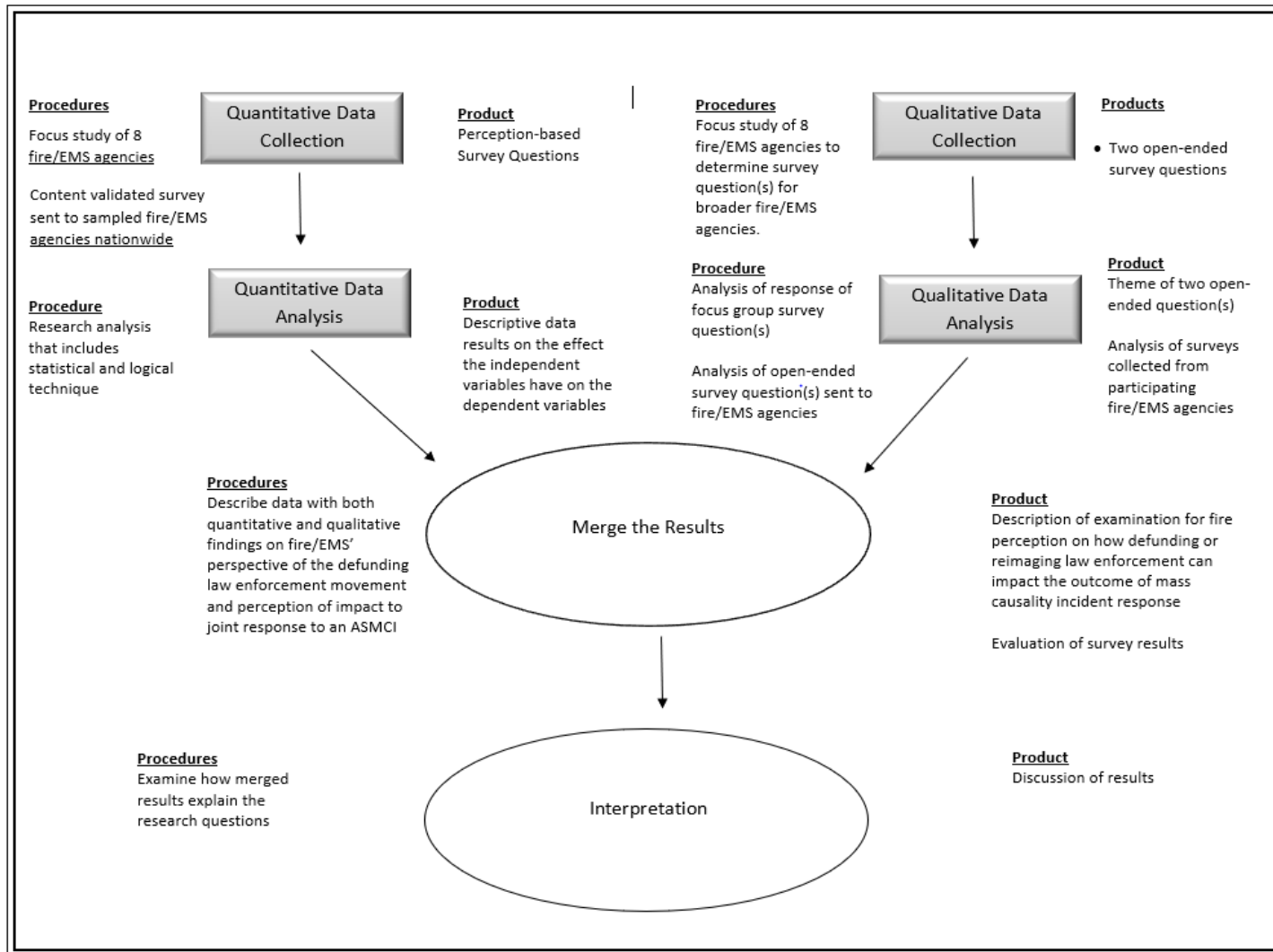


Figure 5: Mixed-Method Procedures Feasibility

Ethical Consideration

This study was submitted to the university's Institutional Review Board (IRB) for approval. The survey instrument used in this study analyzed fire officials' perspectives on how the defunding law enforcement movement can impact ASHCI responses. UCFs IRB determined this study to be exempt from regulation. All participants were provided with an explanation of the research study, including information about the research, voluntary participation option, confidentiality, and contact information to report any concerns or complaints. Participants received a 39-question survey that included two open-ended questions.

Researcher's Positionality

This researcher serves as a public safety official for two Central Florida public safety agencies. One agency is a law enforcement Sheriff's Office, and the other agency is a County Fire Department. Through those recent experiences, this researcher maintains awareness of law enforcement and fire/EMS roles and responsibilities. As a researcher, the goal is to understand how the perception of fire/EMS may impact future ASHCI incidents in accordance with the tenets of NFPA 3000. As legislative actions proliferate throughout the nation on defunding law enforcement and crime continues to present a significant societal threat, this understudied area of public safety can guide how to sustain the lessons learned in an active shooter incident. Exploring the research questions addressed in this study that measure the fire community's perception can optimistically lead to a broader discussion amongst policymakers, practitioners, and scholars.

Funding Source

There were no funding sources for this study.

CHAPTER FOUR: RESULTS

Data Analysis

Chapter four will present the study results through tables that include: 1) descriptive summary statistics and other univariate graphical analysis, 2) bivariate model, and 3) multivariate models. Descriptive statistics for this study will list information on the composition of the survey population and survey result characteristics. The bivariate model illustrates the variables and whether a correlation exists through a Pearson Correlation Matrix Table that evaluates the measure of strength relationship between the variables using coefficient values of -1 / +1 results. Lastly, the multivariate models will include regression statistics to interpret the effects of multiple variables on the dependent variables.

Univariate Analysis

Table 15 below contains summary statistics of the surveyed population as described by Mircioiu and Atkinson (2017) for the benefit of a more in-depth analysis. Using the fire department distribution region logic outlined by the U.S. Fire Administration, departments were categorized by four regions. Most of the survey respondents were from the Midwest region of the United States, representing 27.2%. States in the Midwest region are representative of North Dakota, South Dakota, Nebraska, Kansas, Missouri, Illinois, Indiana, Ohio, Michigan, Wisconsin, and Iowa. Other regions like West, Northeast, and South were all similarly represented. Most of the departments were career or mostly career representing a combined percentage of 72.3% (48.0% [c] + 24.3% [mc]). Most respondents were fire officials from an urban community, representing 34.7%. A majority number of survey respondents were males, at 92.0%, and females representing 6.0% of the population. Fire officials' age was represented as

34.3% under the age of (50), 47.9% between the age of (51-60), 17.2% between the age of (61-70), and 0.6% between the age of (71-80). Approximately 74% of the respondents had >25 years of experience in the fire service, with 80.4% of the population having post-secondary studies of an associate degree or higher.

Table 15: Surveyed Population Summary Statistics

Survey Population Summary Statistics			
Description	Data Characteristics	Observation Distribution	Response Percentage
Fire Department Region	West	41	23.7%
	Midwest	47	27.2%
	Northeast	40	23.1%
	South	44	25.4%
	Total	173	100%
Department Type	Career	83	48.0%
	Mostly Career	42	24.3%
	Mostly Volunteer	18	10.4%
	Volunteer	30	17.3%
	Total	173	100%
Community Type	Metropolitan	29	16.8%
	Urban	60	34.7%
	Rural	44	25.4%
	Combination	39	22.5%
	Other	1	0.6%
	Total	173	100%
	Male	147	92.0%
	Female	9	6.0%

Survey Population Summary Statistics			
Description	Data Characteristics	Observation Distribution	Response Percentage
Fire Officials' Gender	Not Disclose	3	2.0%
	Total	159*	100%
	30-40	9	5.3%
	42-50	44	29.0%
	51-60	73	47.9%
	61-70	25	17.2%
	70-80	1	0.6%
	Total	152*	100%
Fire Officials' Experience	0-10	2	1.0%
	10-15	7	5.0%
	15-20	8	5.0%
	20-25	22	15.0%
	>25	112	74.0%*
	Total	151*	100%
Fire Officials' Education	HS	2	1.2%
	Trade / Some College	29	18.4%
	College	119	76.0%
	Doctorate	7	4.4%
	Total	157*	100%

Note: *Blank values are not displayed in this table, and percentages are presented at 100%. However, total observations of the survey results are listed in Table 15.

Table 16 below provides a complete description of all variables measured in this research and the associated survey question. The mean for *Department Type* was 1.97, or 51.17% reporting they were Career and Mostly Career Departments. Most of the departments surveyed

responded that their department had implemented NFPA 3000, at a mean of 0.509 or 50.88%. However, only 20.83% of the departments had experienced an ASMCI at a mean of 0.225. Defunding law enforcement legislation had not affected a significant percentage of the departments, which were reported as a mean of 0.154 on a scale of (0,1) or 85.62% reported they had not experienced proposed defunding legislation. Of the departments that responded having experienced proposed legislation, only a minority responded that the legislation passed, reporting a mean at 0.45 using a scale of (0,1) or 45.45% of the departments. Joint training frequency was reported as a mean at 14-month intervals, and fire officials responded at a mean of 7.9 on a scale of (0=lower, 5= about the same, 10=much higher priority) for prioritizing the importance of having law enforcement train with the fire department.

Table 16: Descriptive Statistic for all Study Variables

Univariate Analysis						
Variable	Question	Obs	Mean	Std. Dev.	Min	Max
Department Type	QB	173	1.971	1.133	1	4
Incident Stabilization	Q 1	173	.965	.184	0	1
Adoption of NFPA 3000	Q2	171	.509	.501	0	1
Fire Department Familiarity with NFPA 3000	Q3	173	2.058	.705	1	3
Policy on ASMCI	Q4	173	.827	.38	0	1
Joint Training Frequency	Q5	173	14.197	14.346	0	72
Community Experienced an ASMCI	Q6	173	.225	.446	0	2
Time it Took to Update Policies Post NFPA 3000 Implementation	Q8	173	230.329	157.567	0	1095
Perception of Service Improvement post NFPA 3000 Implementation	Q9	173	2.11	.743	1	4
Perception of ASMCI Policies in Department Prior to NFPA 3000	Q10	173	4.358	2.98	0	10
Prioritization of Joint Training	Q11	173	7.971	2.796	0	10
Defund Legislation Proposal	Q13	169	.154	.362	0	1
Defunding Legislation Passed	Q14	22	.455	.51	0	1
Defund Legislation Implemented	Q15	22	.45	.51	0	1

Univariate Analysis						
Variable	Question	Obs	Mean	Std. Dev.	Min	Max
LEO Position Eliminated	Q17	20	.4	.503	0	1
Joint Training Impacted	Q18	25	.36	.49	0	1
Perception that Defund Movement can Negatively Impact ASMCI Outcome	Q20	173	1.607	1.066	1	5
Perception of Delay in Treating Victims	Q21	173	1.231	.584	1	4
Perception of Training and Incident Outcomes	Q22	173	1.272	.551	1	4
Perception of Fire Service Modification of Response	Q23	173	1.584	.842	1	5
Perception the Fire Service will Fill the Gap at an ASMCI	Q24	171	2.854	1.286	1	5
Does your Community Provide EMS Transport	Q25	171	.404	.492	0	1
Level of Medical Rural / Other	Q26	170	.624	.486	0	1
Permanent Population	Q27	173	.254	.437	0	1
Does Department have Surge Population	Q28	172	162,046.17	397,597.36	500	3,200,000
Peak Visitors	Q29	172	.61	.489	0	1
Service Area in Miles	Q30	91	379,191.31	2,725,637.2	30	26,000,000
Respondent's Age	Q31	171	289.08	1,594.246	1	19,400
Race	Q35	169	53.503	7.537	28	80
Highest Level of Education	Q36	171	1.2	.691	1	6
Fire Official Experience	Q37	169	4.627	1.534	1	8
Gender	Q38	169	30.32	8.13	1	48
Region South	Q39	165	.073	.26	0	1
Region Northeast	QA	172	.254	.437	0	1
Region Midwest	QA	172	.256	.438	0	1
Region Northeast	QA	172	.250	.425	0	1
Region Northeast	QA	172	.233	.424	0	1

As this is a perception-based exploratory study on the impact of joint training and response to an ASMCI if defunding law enforcement legislation impacts the fire service, Tables 17 and 18 below provide the descriptive statistics on how the respondents replied to perception-based questions. As demonstrated below, the mean for Question 10, *Perception of ASMCI Policies in Department Prior to NFPA 3000*, was recorded at 4.35 on a scale of (0-10). This value supports that respondents' primarily felt there were 'no measurable' to just under 'adequate measurable' department objectives before the nationwide implementation of NFPA 3000 in 2018. The mean value for Question 20, *Perception that Defund Movement can*

Negatively Impact ASMCI Outcomes, was recorded at 1.60 on a scale of (1-5). This result supports that many fire officials ‘strongly agreed to somewhat agree’ that the defunding of the law enforcement movement can negatively impact ASMCI outcomes. Question 21, *Perception of Delay in Treating Victims*, revealed a mean of 1.23 using a scale of (1-4). This finding supports the interpretation that surveyed respondents primarily ‘strongly agreed’ (over 95% reporting strongly to somewhat agree with the statement) that if law enforcement cannot converge quickly on the scene at an ASMCI, it can delay the treatment of victims. *Perception of Training and Incident Outcomes* was measured through Question 22, and the mean was recorded at 1.27 on a scale of (1-4). This result supports the finding that fire officials ‘strongly agree’ (over 97% reporting strongly to somewhat agree with the statement) that lack of training with law enforcement can adversely impact managing and ASMCI. As it related to Question 23, which measured the fire officials' *Perception of Fire Service Modification of Response*, a mean finding of 1.58 on a scale of (1-5) was recorded.

This finding is consistent with fire officials' survey perception that they agree at over 87% reporting strongly to somewhat agree with the statement) that the fire service will modify its response if law enforcement is negatively impacted due to defunding policies. Lastly, Question 24, which measured the *Perception that the Fire Service will Fill the Gap at an ASMCI*, resulted in a mean response of 2.85 on a scale (1-5). This result aligned with the response scale of closer to ‘neither agreeing nor disagreeing’ that the fire service will be capable of changing its service practices if victim survivability is impacted due to a response gap with law enforcement. Of the 171 respondents, 15.2% stated they ‘strongly agree’ with the statement; 31.5% ‘somewhat agree’ with the statement; 19.3% ‘neither agree nor disagree’ with the

statement; 20.4% ‘somewhat disagree’ with the statement; 13.4% ‘strongly disagree’ with the statement.

Table 17: Perception Scale Question

Perception Scale												
Q10- Perception of ASMCI Policies in Department Prior to NFPA 3000	0	1	2	3	4	5	6	7	8	9	10	Total
	22 (12.7%)	17 (9.9%)	19 (10.9%)	12 (6.9%)	9 (5.2%)	36 (20.8%)	16 (9.2%)	13 (7.5%)	13 (7.5%)	4 (2.3%)	12 (6.9%)	173

Table 18: Perception-Based Response Index

Perception-based Questions	Strongly Agree	Somewhat Agree	Neither	Somewhat Disagree	Strongly Disagree	Total Observations
Q20- Perception that Defund Movement can Negatively Impact ASMCI Outcome	115 (66.5%)	33 (19.1%)	11 (6.4%)	6 (3.5%)	8 (4.6%)	173
Q21- Perception of Delay in Treating Victims	139 (80.3%)	23 (13.3%)	2 (1.2%)	2 (1.2%)	0 (0.0%)	166
Q22- Perception of Training and Incident Outcomes	133 (76.9%)	34 (19.7%)	1 (0.6%)	2 (1.2%)	0 (0.0%)	170
Q23- Perception of Fire Service Modification of Response	101 (58.4%)	49 (28.3%)	16 (9.2%)	4 (2.3%)	2 (1.2%)	172
Q24- Perception the Fire Service will Fill the Gap at an ASMCI	26 (15.0%)	53 (30.6%)	33 (19.1%)	35 (20.2%)	23 (13.3%)	170

Bivariate Statistic

Chapter 3 explained the rationale for using parametric models for the variables contained within this research. To summarize the main points, Cohen (2000) advanced that the rejection of

parametric tests for non-normal data ignores the documented robustness of the method and that rejection is not required by statistical theory. Mircioiu and Atkinson (2017) affirmed that the opinions surrounding parametric versus non-parametric methods have raged for the past eight decades. They concluded that restraining the analysis to non-parametric methods would lead to loss of information and insisted that the robustness of parametric methods allows for graphical analysis that leads to more in-depth studies. These are the same scholarly discussions surrounding bivariate modeling and whether Pearson or Spearman rank correlation improves performance in non-normal data analysis. Li et al. (2012) concluded in an article on the performance of the translation approach for modeling correlated non-normal variables that Pearson and Spearman's methods produce very similar results. Neither method is consistently more accurate or conservative than the other in terms of failure probabilities.

The research conducted by Li et al. (2012) supports the academic approach to using parametric methods in social science research which is akin to this perception-based study on the contemporary topic of defunding law enforcement and the impact of joint training/response with fire/EMS on an ASMCI. One last relevant observation associated with connecting the strength of statistical modeling to exploratory social science research is R^2 . With exploratory research that leans toward this fire service's phenomenology, another condition that can exist and merits further examination is how to interpret the results of the R^2 value. Newman (2000) argued his position from a statement made by McNeil (1999, para. 1), who stated, "The recent debate attempting to replace statistical hypotheses testing (probability) with the amount of variance accounted for seems mis-specified. Both are needed, and their relative importance depends on the research stage".

Furthermore, Newman affirmed that predictive efficiency had been shown to have relatively little practical value in social science since many predictor variables tend to have small effects. Also, we do not expect to explain all the variances thoroughly due to a specific outcome in the social sciences. McNeil identified several conditions where a larger R^2 value might not be obtained. He consulted that if a researcher measures constructs such as attitude or self-concept, the researcher is not likely to measure those constructs perfectly (Newman, 2000, as cited by McNeil, 1999). This condition can be found in the focus of this research which is centered on perception-based questions for a policy debate on the impact of defunding law enforcement and the impact on joint fire service response to an ASMCI, which has not occurred to a significant scale in mainstream America; however, its policy implications are of great magnitude. Newman further advised that like McNeil's scholarly approach to R^2 there will be measurement errors in social science studies, and the researcher may not have perfect reliability and validity. To the extent that reliability and validity may be lacking, the researcher may not have replicable high R^2 values in their model. He further cautioned that this does not mean the researcher does not use the constructs, and although the researcher should continue to improve their measurements even if they believe it is not obtainable, they should not ignore the smaller R^2 value. Newman (2000) summarizes that there is usefulness in some small R^2 values and suggests they should not be discarded without careful consideration of the potential information they can offer.

The following section illustrates the Pearson Correlation Coefficients for the research variables. A review of Spearman Rank Correlation resulted in similar bivariate statistical and non-statistical findings; however, this researcher selected the parametric modeling approach for the reasons denoted above to support the furtherance of parametric modeling in social sciences research. Pearson's correlations were used to determine if a significant bivariate relationship

exists between the dependent and other variables. The bivariate relationship can explain how all the other variables, once controlled, affect the dependent variable in the next step, which is the results of the multivariate analysis. Only variables with statistical correlation to this study, either by bivariate relationship or multivariate analysis, are denoted below.

In evaluating the strength of the relationship between the variables for Hypothesis 1, a significant ($p < 0.01$) moderate at (0.29) positive correlation between the (DV) *Adoption of NFPA 3000* (variable 4) and the variable *Permanent Population* (variable 26) was observed. As the population increases, so does the propensity for adopting the national standard. A significant finding ($p < 0.01$) small at (0.24) negative relationship was observed in the DV and *Rural / Other*, (variable 25) that infer urban and metropolitan communities have adopted the standard compared to rural settlements.

In evaluating the dependent variable for Hypothesis 2, there is a significant ($p < 0.01$) small at (0.26) positive correlation between the (DV) *Time it Took to Update Policies Post NFPA 3000 Implementation* (variable 9) and (variable 25) *Rural / Other*. This finding infers that rural departments generally took longer to implement ASMCI related policies after NFPA 3000 became the standard. In evaluating the other variables, a non-statistical bivariate finding was found in (variable 8) *Community Experienced an ASMCI*; however, a statistical finding was observed in the multivariate analysis.

In evaluating the dependent variable for Hypothesis 3, there is a significant ($p < 0.01$) moderate (0.61) positive correlation between the (DV) *Does your Community Provide EMS Transport* (variable 23) and (variable 24) *Level of Medical Services*. Sixty-two percent of fire officials responded that their department provides advanced life support (ALS) pre-hospital transport compared to 38%. Rapid transport and ALS treatment at an ASMCI are crucial to a

victim's survival. In evaluating the other variables, a significant ($p < 0.01$) small at (0.23) negative correlation was observed between the (DV) and (variable 38) *Region Northeast*. This finding infers a regional difference in whether they provide EMS transport to their citizens. Alternative medical transport models exist throughout the nation. In non-fire-based services, there are market-based options.

In evaluating the dependent variable for Hypothesis 4, there is a significant ($p < 0.05$) small at (0.19) negative correlation between the (DV) *Perception of Service Improvement Post NFPA 3000 Implementation* (variable 10) and (variable 3) *Incident Stabilization*. The mean response was 2.11, which aligns with perception responses that departments have improved their response to an ASMCI since the implementation of NFPA for departments responsible for incident stabilization. In evaluating the other variables, a significant ($p < 0.01$) small at (0.18) negative correlation was observed between the (DV) and the variable *Fire Officials Experience*, (variable 33). The perception that fire departments have improved their response to an ASMCI post the implementation of NFPA 3000 aligns with an increase in the work experience of the surveyed fire official.

In evaluating the dependent variable for Hypothesis 5, there is a significant ($p < 0.05$) small at (0.17) negative correlation between the (DV) *Fire Department Familiarity with NFPA 3000* (variable 5) and (variable 8) *Community Experienced an ASMCI*. Evaluating the mean of responses for familiarity at 2.05 or 'somewhat familiar' aligns with the notion that departments whose community experienced an ASMCI agree with being familiar with the tenets of NFPA 3000 compared to departments that did not. In evaluating the other variables, a significant ($p < .01$) small at (0.22) positive correlation was found between the DV and (variable 25) *Rural /*

Other. A non-statistical bivariate finding was not observed between the DV and (variable 38) *Region Northeast*; however, a statistical finding was observed in the multivariate analysis.

In evaluating the dependent variable for Hypothesis 6, there is a significant ($p < .05$) small at (0.15) negative correlation between the (DV) *Defund Legislation has been Proposed* (variable 13) and (variable 39) *Region/Midwest*. However, a statistical finding was not observed in the multivariate analysis. In evaluating the other variables, a statistically significant ($p < .01$) moderate at (0.35) positive correlation was observed between the DV and (variable 8) *Community Experienced and ASMCI*.

In evaluating the dependent variable for Hypothesis 7, there was no significant bivariate correlation between the (DV) *Perception that Defund Movement can Negatively Impact ASMCI Outcome* (variable 18) and variables. However, a statistical finding was observed in the multivariate analysis for (variable 39) *Region Midwest*. The mean for this response for all regions was recorded at 1.6 or between statements 'strongly agree and somewhat agree,' with a majority of *Region Midwest* responding, 'somewhat to neither agree nor disagree' with the question.

In evaluating the dependent variable for Hypothesis 8, there is a significant ($p < 0.05$) small at (0.16) negative correlation between the (DV) *Perception of ASMCI Policies in Department Prior to NFPA 3000* (variable 11) and (variable 9), *Time it Took to Update Policies Post NFPA 3000 Implementation*. This area of the research suggests that it took longer for departments to update their policies after implementing NFPA 3000 if their 'perception' was that their department did not have measurable objectives to respond to any violent incident before the standard was created. In evaluating the other variables, a ($p < 0.01$) moderate at (0.35) positive

correlation was observed between the DV and (variable 4) *Adoption of NFPA 3000*, and (variable 8) *Community Experienced an ASMCI* at ($p < 0.05$) slight positive (0.14) correlation.

In evaluating the dependent variable for Hypothesis 9, there is a significant ($p < 0.05$) small at (0.16) positive correlation between the (DV) *Prioritization of Joint Training* (variable 12) and (variable 3) *Incident Stabilization*. The scale of a higher priority was designed from 0 to 10, with 10 being the highest priority. The mean was 8, which aligns with the priority of an incident commander responsible for the emergency scene outcome. Additionally, a ($p < 0.05$) slight at (0.15) negative correlation was observed between the DV and (variable 38) *Region Northeast*; however, a statistical finding was not observed in the multivariate analysis.

In evaluating the dependent variable for Hypothesis 10, there is a significant ($p < 0.01$) at (0.21) negative correlation between the (DV) *Perception that Defund Movement can Negatively Impact ASMCI Outcome* (variable 18) and (variable 23) *Does your Community provide EMS transportation*. The mean for this response was 1.6 or between 'strongly agree and somewhat agree.' This finding is consistent with the expected outcome that departments that transport victims of an ASMCI recognize the importance of continuity of patient care and rapid transport, which is one of the tenets of NFPA 3000.

In evaluating the dependent variable for Hypothesis 11, there is a significant ($p < .10$) small at (0.13) negative correlation between the (DV) *Perception of Fire Service Modification of Response* (variable 21) and (variable 39) *Region/Midwest*. This finding aligns with the Midwest region, statistically favoring the fire service perception that it will modify its response if required.

In evaluating the dependent variable for Hypothesis 12, there is a significant ($p < .10$) small at (0.10) negative correlation between the (DV) *Perception of Delay in Treating Victims*

(variable 19) and (variable 23) *Does your Community Provide EMS Transport*. Additionally, a small ($p < 0.10$) at (0.11) negative correlation was observed between the DV and (variable 24) *Level of Medical Care*; however, it was not observed in the multivariate analysis. Lastly, a ($p < 0.10$), (0.13) negative correlation was observed between the DV and (variable 33) *Fire Official Experience*.

In evaluating the dependent variable for Hypothesis 13, there is a significant ($p < 0.10$) small at (0.12) negative correlation between the DV *Perception of Training and Incident Outcomes* (variable 20) and (variable 4) *Adoption of NFPA 3000*. Additionally, there is a positive ($p < 0.10$) at (0.14 correlation) between the DV and (variable 33) *Fire Officials Experienced*. This finding aligns with greater favorable perception responses based on the propensity of the department to adopt the standard and with greater fire official experience in the workforce.

In evaluating the dependent variable for Hypothesis 14, there is a significant ($p < 0.10$) small at (0.14) positive correlation between the (DV) *Perception that Fire Service will Fill the Gap at an ASMCI* (variable 22) and (variable 7), *Frequency of Joint Training*. The mean for the perception response was 2.8 or between 'somewhat agree and neither agree nor disagree' in correlation to the frequency in months the fire department and law enforcement train, which was 14 months. It makes sense that more frequent training intervals should correlate with greater confidence that the fire service can fill the gap. The inverse in the unit of change would also suggest that with an increase in training interval, the perception of confidence that the fire service can fill the gap at ASMCI increases, or rates at 'strongly disagrees' with the question. If the department does not believe that joint training impacts the outcome of an emergency, they are not likely to frequently train on the topic.

Table 19 below shows Pearson Correlation coefficients for all dependent, independent, and control variables.

Table 19: Bivariate Model Pearson Correlation Table

Pearson Correlation Table										
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(1)	1									
(2)	-0.102	1								
(3) Q1	0.029	-0.145**	1							
(4) Q2	0.032	-0.093	0.194***	1						
(5) Q3	0.041	0.104	-0.164**	-0.525**	1					
(6) Q4	-0.053	0.002	0.33***	0.285***	-0.136	1				
(7) Q5	-0.152**	-0.003	0.029	-0.141*	0.017	0.117	1			
(8) Q6	-0.097	-0.022	0.096	0.176**	-0.171**	0.198***	-0.123*	1		
(9) Q8	0.018	0.123*	-0.182***	-0.234***	0.162**	-0.275***	0.08	-0.083	1	
(10) Q9	0.045	0.121	-0.185**	-0.16**	0.277***	-0.159**	-0.094	-0.04	0.067	1
(11) Q10	-0.08	-0.119	0.193***	0.349***	-0.254***	0.302***	-0.127*	0.136**	-0.155**	-0.126*
(12) Q11	-0.017	-0.283***	0.164**	0.418***	-0.321***	0.253***	0.005	-0.009	-0.246***	-0.197***
(13) Q13	-0.009	-0.037	-0.007	0.13*	-0.11	0.02	-0.114	0.346***	0.001	-0.084
(14) Q14	0.229	0.077	0.199	0.017	0.059	0.194	-0.408*	0.156	0.06	0.124
(15) Q15	0.114	0.391*	0.199	-0.069	-0.012	0.097	-0.408*	0.086	0.02	0.188
(16) Q17	-0.106	-0.299		0.385*	-0.244	0.057	-0.024	0.345	-0.283	-0.029
(17) Q18	-0.132	-0.021	0.153	0.389**	-0.342*	-0.127	0.208	0.14	-0.075	-0.361*
(18) Q20	0.044	-0.072	-0.1	-0.07	-0.001	0.032	-0.009	0.004	0.061	0.136**
(19) Q21	0.061	-0.025	-0.087	-0.082	0.137*	0.077	-0.066	0.022	-0.048	0.075
(20) Q22	-0.055	0.227***	-0.136	-0.124*	0.184	-0.051	-0.06	-0.014	-0.041	0.154
(21) Q23	0.065	0.091	-0.207***	-0.172	0.237**	-0.082	-0.048	0.019	0.223**	0.12

Pearson Correlation Table										
Variables	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)
(22) Q24	-0.066	-0.077	0.003	-0.052	0.008	-0.076	0.138*	-0.075	0.121	-0.125
(23) Q25	-0.153**	-0.076	0.157**	0.241***	-0.18***	0.191***	0.146**	0.056	-0.149**	-0.14*
(24) Q26	-0.01	-0.175**	0.296***	0.264***	-0.269***	0.182***	0.024	0.191***	0.178**	-0.202***
(25) Q27	0.137	0.266	0.01	-0.242***	0.223***	-0.079	-0.072	0.005	0.261***	-0.034
(26) Q28	-0.046	-0.102	0.067	0.292***	-0.275***	0.159**	-0.098	0.444***	0.11	-0.1
(27) Q29	-0.014	-0.09	0.108	0.127*	-0.154**	0.073	-0.026	0.112	0.17**	-0.052
(28) Q30	0.149	0.09	0.021	0.106	-0.012	0.052	-0.11	0.18*	-0.078	-0.003
(29) Q31	-0.165**	0.151**	0.033	0.072	-0.02	0.063	-0.029	0.161	-0.006	-0.036
(30) Q35	0.065	0.062	-0.085	-0.024	0.054	0.043	0.032	0.036	-0.057	-0.158**
(31) Q36	0.065	-0.07	0.055	-0.026	-0.034	-0.045	-0.092	0.138**	-0.002	-0.094
(32) Q37	-0.037	-0.024	0.246***	0.205***	-0.248***	0.176**	0.027	0.212***	-0.164**	-0.117
(33) Q38	0.115	-0.071	0.098	0.089	-0.075	0.161**	-0.025	-0.004	-0.132	-0.181***
(34) Q39	-0.08	-0.007	0.054	0.035	-0.086	0.061	0.082	0.116	-0.11	-0.073
(36) Q27	-0.075	0.426***	-0.179***	-0.239***	0.216***	-0.118	0.101	-0.147	0.263***	0.182***
(37) Region S.	0.787***	-0.059	-0.034	0.054	-0.044	-0.011	-0.016	0.039	0.012	0.056
(38) Region NE	0.244***	-0.025	0.03	-0.069	0.096	-0.11	-0.17**	-0.088	0.064	0.011
(39) Region MW	-0.279***	-0.034	0.117	0.051	0.047	0.11	-0.011	-0.188***	-0.112	-0.074

***p<0.01, **p<0.05, *p<0.10

Pearson Correlation Table										
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(1)										
(2)										

Pearson Correlation Table										
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(3) Q1										
(4) Q2										
(5) Q3										
(6) Q4										
(7) Q5										
(8) Q6										
(9) Q8										
(10) Q9										
(11) Q10	1									
(12) Q11	0.363***	1								
(13) Q13	-0.044	0.067	1							
(14) Q14	0.114	-0.053		1						
(15) Q15	-0.088	-0.323		0.809***	1					
(16) Q17	0.155	0.166		0.454**	0.568***	1				
(17) Q18	-0.15	-0.169		0.16	0.356*	0.471	1			
(18) Q20	-0.058	-0.068	-0.057	0.092	0.134	0.031	-0.351*	1		
(19) Q21	-0.118	-0.16**	-0.004	0.155	0.155	-0.043	-0.254	0.296***	1	

Pearson Correlation Table										
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(20) Q22	-0.201	-0.3	-0.066	-0.059	0.043	0	-0.375**	0.183***	0.309***	1
(21) Q23	-0.093	-0.259***	-0.078	0.083	-0.1	-0.458**	-0.442**	0.128**	0.315***	0.333***
(22) Q24	0.074	-0.022	-0.04	0.008	-0.068	-0.259	-0.407**	-0.05	-0.073	-0.073
(23) Q25	0.136*	0.241***	0.081	-0.083	-0.267	-0.204	-0.053	-0.212***	-0.104*	-0.218***
(24) Q26	0.222***	0.201***	0.093	0.059	-0.043	0.408**	0.097	-0.123*	-0.112*	-0.214***
(25) Q27	-0.069	-0.169	0.017	0.222	0	-0.048	-0.008	-0.017	-0.088	0.02
(26) Q28	0.139	0.177**	0.431***	-0.261	-0.007	0.431*	0.155	0.075	-0.029	-0.054
(27) Q29	0.098	0.181***	0.18***	0.059	0.059	0.057	0.167	-0.08	-0.131**	-0.145**
(28) Q30	-0.116	0.082	-0.027	0.433*	0.357*	0.443*	0.08	-0.032	0.002	-0.048
(29) Q31	0.079	0.1	0.01	-0.036	0.043	0.151	-0.152	-0.024	0.015	0.082
(30) Q35	-0.015	-0.082	0.046	0.268	0.329*	0.115	-0.132	0.078	-0.01	-0.044
(31) Q36	0.095	0.051	0.092	0.305*	0.305*	0.381*	0.457**	-0.028	-0.026	-0.06

Pearson Correlation Table										
Variables	(11)	(12)	(13)	(14)	(15)	(16)	(17)	(18)	(19)	(20)
(32) Q37	0.098	0.183**	0.142*	0.095	-0.022	0.3*	0.135	-0.016	-0.112*	-0.203***
(33) Q38	0.114	0.124	0.064	0.404**	0.496***	0.277	-0.088	0.007	-0.128*	-0.144*
(34) Q39	-0.022	-0.195	0.004	0.029	0.029	0.068	0.086	-0.054	0.186***	0.073
(36) Q27	-0.204***	-0.28***	-0.098	0.043	0.043	-0.408*	-0.1	-0.009	0.042	0.122*
(37) Region S.	-0.053	0.014	0.045	0.261	-0.036	-0.089	-0.282*	0.002	0.063	-0.001
(38) Region NE	-0.025	-0.149**	-0.001	-0.149	0.158	-0.089	0.164	0.059	-0.031	-0.048
(39) Region MW	0.005	0.198***	-0.152**	0.169	0.169	0.229	0.236	-0.008	0.024	-0.044

***p<0.01, **p<0.05, *p<0.10

Pearson Correlation Table																	
Variable	(21)	(22)	(23)	(24)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(36)	(37)	(38)	(39)
(21) Q23	1																
(22) Q24	0.007	1															
(23) Q25	-0.156**	0.004	1														

Pearson Correlation Table																	
Variable	(21)	(22)	(23)	(24)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(36)	(37)	(38)	(39)
(24) Q26	-0.271** *	-0.014	0.61***	1													
(26) Q28	-0.06	-0.039	0.067	0.169	1												
(27) Q29	-0.122	0.082	-0.015	0.019	0.216** *	1											
(28) Q30	-0.067	-0.08	0.13	0.084	0.133		1										
(29) Q31	-0.027	0.041	0.09	0.115	0.216** *	0.044	0.014	1									
(30) Q35	0.038	0.022	0.004	-0.001	0.018	-0.005	0.038	-0.13 *	1								
(31) Q36	-0.068	-0.009	-0.151**	0.01	0.118	0.021	-0.021	-0.019	-0.006	1							
(32) Q37	-0.108	0.062	0.112	0.126	0.263***	0.132*	0.021	0.023	-0.023	0.048	1						
(33) Q38	-0.019	0.094	0.121	0.043	0.03	0.015	0.075	-0.085	0.674***	-0.035	0.063	1					
(34) Q39	0.005	-0.002	-0.009	0.146*	0.061	0.026	0.434***	-0.027	0.078	0	0.085	-0.062	1				

Pearson Correlation Table																	
Variable	(21)	(22)	(23)	(24)	(26)	(27)	(28)	(29)	(30)	(31)	(32)	(33)	(34)	(36)	(37)	(38)	(39)
(36) Q27	0.005	0.003	-0.092	-0.146*	- 0.224***	0.004	-0.078	- 0.004	-0.07	- 0.027	- 0.281***	- 0.204***	- 0.053**	1			
(37) Region S.	0.102	- 0.062	0.004	0.102	0.032	-0.021	0.193*	- 0.053	0.083	0.034	0.066	0.046	-0.051	-0.038	1		
(38) Region NE	-0.004	0.039	- 0.233***	- 0.197***	-0.029	0.094	-0.061	- 0.085	-0.013	0.051	-0.141*	0.071	-0.047	-0.007	-0.323***	1	
(39) Region MW	-0.129*	- 0.055	0.052	0.049	-0.156**	- 0.15**	-0.059	- 0.094	-0.059	- 0.036	-0.021	0.022	0.037	-0.06	-0.36***	- 0.338 ***	1

***p<0.01, **p<0.05, *p<0.10

Multivariate Statistics

The following section will provide the different models used to conduct the multivariate regression analysis. A regression analysis was used to assess if a relationship between the independent and dependent variables selected for this study exists. In alignment with the construct of the dependent variable coding, whether continuous with ratio data or categorical with nominal or ordinal data, this study employed logistic (logit), ordinal, or multinomial regression models to study the variables. All 14 hypotheses were classified by a dependent variable and one or more independent and control variables as described in Chapter 3, Table 11. This researcher ran more than one model for hypotheses testing based on the statistical findings and the desire to investigate how the multiple variables affected the model. A variance inflation factor (VIF) was conducted on all models to explore if the variable displayed multicollinearity. Multicollinearity is a statistical phenomenon in which predictor variables in a regression model are highly correlated. According to *Identifying Multicollinearity in Multiple Regression* (n.d.), in statistics, the VIF is measured by a factor value where tolerance is always greater than or equal to 1. Values that exceed 10 indicate multicollinearity, and in weaker models, values above 2.5 may be of concern. The equivalent to VIF for logit models is the linktest (STATA command). Observing multicollinearity in statistical methods concerning logit models and data analytics (`_hatsq`) should not have a statistically significant value as it does not have predictive power except by chance (Home. IDRE Stats, n.d.). The STATA community advises that statisticians use linear regression procedures for ordinal data when testing for multicollinearity (*Does multicollinearity exist*, n.d.). The rule is that in testing for multicollinearity in ordinal or other regression models, the concern is with the relationship among predictor variables, thus ignoring the dependent variables. For the benefit of formatting Table 20, in models that

displayed a more considerable number of predictor variables, only the highest VIF output was recorded for that model; logit data was displayed with only the `_hatsq` output. Although examining the bivariate correlation matrix as found in Table 19 allowed for the detection of multicollinearity, a VIF and logit `_hatsq` table was created in Table 20 for reference. The models listed align with the hypotheses in this study. There was no multicollinearity observed in any of the models.

Table 20: Variance Inflation Factor Outputs

Variance Inflation Factor			
	Logistic	Ordinal	Multinomial
Model 1	<code>_hatsq= .36</code>		
Model 4			1.21
Model 3	<code>_hatsq =0.90</code>		
Model 2		1.72	
Model 5		1.58	
Model 7		1.58	
Model 6		1.74	
Model 8		1.57	
Model 9		1.62	
Model 10		1.81	
Model 11		1.68	
Model 12		1.77	
Model 13		1.78	
Model 14		1.59	

The following section in this chapter will review the results of the multivariate analyses. However, before moving into the multivariate results, it is essential to recognize how curvilinear

relationships between variables should be viewed in interpreting regression models involving social science or as found in this study, perception-based research. As a researcher, this is a condition to monitor when the coefficient value is low.

A curvilinear relationship is a type of relationship between two variables that has a pattern of correspondence or association between the two variables that change as the value of the variable changes increases or decrease. Whereas some relationships are straightforward to understand, explain, and detect statistically (i.e., linear relationships), curvilinear relationships are more complex because the nature of the relationship is different at different levels of the variables. Curvilinear relationships can occur often in communication research, given the complex, socially and contextually dependent phenomena that are the focus of such research. However, researchers may overlook the possibilities of curvilinear relationships in their data and miss the unique and valuable information they can provide. Curvilinear relationships are important to be able to understand (Curvilinear Relationship, n.d, para 1-5).

Recognizing these parameters, the 14 hypotheses were evaluated based on the construct of the dependent variable. Some models required additional analysis that included adding variables to explain the relationship of the dependent variable. For example, the variable region was originally coded at 0,1 or *South / Others*. Model one in the listed hypotheses ran the analysis without significant observations. Recognizing that regionality can have cultural and political differences, the model was rerun by separating the Regions (i.e., Midwest, Northeast, and South). Dummy variables were used to evaluate the estimated regression equation of regions. Dummy variables divide a categorical variable into all its values, minus one. One value is always left out in a regression analysis as the reference category (Regression analysis with dummy, n.d.). The reference category for this analysis was *Region West*. A statistically significant regression coefficient is compared to the (reference group) in examining the regression models below. In many cases, the change improved the model. Tables 21 - 34 will display the models used to assess all the hypotheses for comparison purposes, presenting the *Preferred Model* selected for the hypothesis interpretation discussed in Chapter Five. Models

will denote the raw coefficient, standard error results, and odds ratio from the regression output. The *Preferred Model*, which applies logit and ordinal regression, will observe the odd ratio results for statistically significant findings. Odds ratio is an effective manner to examine the association between two variables. Odds ratios are the odds of an event occurring given exposure to a particular condition versus no exposure (Sengupta, 2021).

Adoption of NFPA 3000 as a Dependent Variable

Table 21 shows logit regression results for Hypotheses 1 with the *Adoption of NFPA 3000* as the dependent variable (DV). The variable *Permanent Population* was a significant predictor at (p<.01) of the jurisdictions' decision to adopt the NFPA 3000 standard in all three models. A positive non-substantial correlation is observed in the *Preferred Model* at a coefficient of .004. The observation of the curvilinear relationship can be applied to this multivariate finding. The odds ratio is 1.004, which infers that the odds of having a fire department adopt NFPA 3000 is 0.004% higher if they serve a greater number of a permanent population when holding all other variables constant.

Table 21: Multivariate Models – Hypotheses 1

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odd Ratio)</i>
Adoption of NFPA 3000			
Permanent Population	.004*** (0.0)	0*** (0.0)	0.004*** (0) 1.004
Peak Visitors	0 (0.0)	0 (0.0)	0 (0)
Region South / Other	.04 (.58)		
Rural / Other	-.38 (.54)	-16	-.18 (.60)
Region South		.03	.50 (.76)
Region Northeast		-.002	.39 (.72)

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) (<i>Odd Ratio</i>)
Region Midwest		.012	.42 (.72)
Fire Officials' Experience		.005	.02 (.03)
Number of Observations	89	89	89
Prob > chi2 [F]	0.000	0.07	0.003
Adj R-square	.016	.10	
Pseudo R ²		.014	0.15

***p<0.01, **p<0.05, *p<0.10

Time it Took to Update Policies Post NFPA 3000 Implementation

Table 22 shows multinomial regression results for Hypotheses 2 with *Time it Took to Update Policies Post NFPA 3000 Implementation* as the dependent variable (DV). Across all three models, a positive statistical relationship at (p<.01) exists between *Rural /Other* and the DV. In examining the *Preferred Model*, this finding aligns with the coefficient unit at 82.69 that rural departments generally take longer to modify policies or implement changes due to logistical, funding, or staffing challenges when holding all other variables constant. The *Preferred Model* also observed a negative coefficient at 56.35 statistical finding between the DV and the variable *Community Experienced an ASMCI*. The observation supports that it took longer for departments to update their NFPA 3000 policies if they had not experienced an ASMCI. A unit increase in *Rural/Other* has a unit increase in updating policies when holding all other variables constant.

Table 22: Multivariate Models – Hypotheses 2

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)
Time it Took to Update Policies Post NFPA 3000 Implementation			
Department Type	-4.76	-4.97	-2.48

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error)
	(28.71)	(28.75)	(28.72)
Rural/ Other	92.64*** (29.39)	90.69*** (29.51)	82.69*** (30.42)
Region South / Other	8.437 (26.97)		
Region South		2.72 (33.66)	11.42 (33.48)
Region Northeast		15.18 (34.28)	11.92 (33.90)
Region Midwest		-28.33 (33.04)	-26.08 (32.70)
Community Experienced an ASMCI			-56.35** (23.973)
Number of Observations	172	170	170
Prob > chi2 [F]	.007	0.017	.002
Adjusted R ²	0.13	0.05	0.10

***p<0.01, **p<0.05, *p<0.10

Does your Community Provide EMS Transport

Table 23 shows logit regression results for Hypotheses 3 with *Does your Community Provide EMS Transport* as the dependent variable (DV). Model 1 and 2 displayed a coefficient of 0 as non-substantial findings for both permanent residents and peak visitors at (p<.01). The *Preferred Model* shows a relationship with the variables 1) *Level of Medical Care*, 2) *Region South*, and 3) *Region Northeast* as significant predictors of the DV. The odds ratio findings infer that departments that provide EMS transport are 130.32 times higher in the likelihood they provide ALS medical services than departments that do not. Additionally, the odds ratio for *Region South* is 0.28, which infers that *Region South* has a 72% lower likelihood to provide EMS transport compared to the reference group; and that *Region Northeast* at an odd ratio of 0.18 has an 82% lower likelihood of providing EMS transport as opposed to the reference group when holding all other variables constant.

Table 23: Multivariate Models – Hypotheses 3

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Does your Community Provide EMS Transport			
Permanent Population	0*** (0)	0*** (0)	-2.65e-07 (4.52e)
Peak Visitors	0*** (0)	0*** (0)	-.137 (.443)
Level of Medical		.69 (.08)	4.87*** (1.05) 130.32
Region South			-1.28*** (.627) 0.28
Region Northeast			-1.71*** (.69) 0.18
Region Midwest			-.930 (.65)
Number of Observations	57	57	57
Prob > chi2 [F]	0.003	0.002	.006
Adjusted R ²	.014		
Pseudo R ²		.016	0.30

***p<0.01, **p<0.05, *p<0.10

Perception of Service Improvement Post NFPA 3000 Implementation

Table 24 shows ordinal regression results for Hypotheses 4 with *Perception of Service Improvement Post NFPA 3000 Implementation* as the dependent variable (DV). A statistical relationship was not observed in Model 1 for any variables. This finding was not consistent with the expected outcome of the research, as it would have been hypothesized that communities that experienced an ASMCI would have greater confidence in service capabilities after implementing NFPA 3000. Questions 1 and 38 were added as additional variables to support the model (i.e., variables *Adoption of NFPA 3000* and *Fire Officials' Experience*) as they address perception attributes of the fire official that may guide decision making. A slight improvement to Model 2

was observed with the selected *Preferred Model* supporting a statistically negative linear relationship with significant findings at ($p < .05$) in predictor variables 1) *Incident Stabilization* and 2) *Fire Officials' Experience*. In evaluating the odds ratio for the *Preferred Model*, it supports that fire officials responsible for incident command functions at an ASMCI have a 0.81 or 19% scale response likelihood of selecting a more favorable agreement response of their perception of service improvement post the NFPA 3000 implementation as opposed to fire officials who do not have incident command responsibilities when holding all other variables constant. The odds ratio measuring experience supports that at 0.95 or 5% of fire officials' experience aligns with greater agreement supporting the statement of service improvement than fire officials with fewer years of experience when holding all other variables constant.

Table 24: Multivariate Models – Hypotheses 4

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception of Service Improvement Post NFPA 3000 Implementation			
Community Experienced an ASMCI	-.14 (.35)	-.03** (.35)	-.02 (.38)
Region South /Other	.22 (.33)	.32 (.34)	
Incident Stabilization		-2.14** (.96)	-.21** (.97) 0.81
Fire Officials' Experience		-0.46 (.02)	-.05** (.02) 0.95
Region South			.348 (.44)
Region Northeast			.036 (.46)
Region Midwest			.032 (.43)
Number of Observations	168	168	168
Prob > chi2 [F]	0.74	0.01	0.05
Pseudo R ²	0.002	0.04	0.04

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Fire Department Familiarity with NFPA 3000

Table 25 shows ordinal regression results for Hypotheses 5 with *Fire Department Familiarity with NFPA 3000* as the dependent variable (DV). Model one and the *Preferred Model* support a statistically negative relationship finding (at least $p < .10$) between the variable analyzing communities that have experienced an ASMCI and the department's familiarity with NFPA 3000. In the *Preferred Model*, the odds ratio supports that when measuring the perception of fire department familiarization with NFPA 3000 and communities that experience an ASMCI, officials exhibited a 0.55 or 45% likelihood of selecting a lower scale response to the statement. A lower familiarization unit measurement represents greater familiarity, closer to the survey response 1 = very familiar when holding all other variables constant. The *Preferred Model* also found a statistical odds ratio of 2.74 in how *Rural/Other* responded to the statement. Rural departments have a 2.74 times higher likelihood of responding to the scale in favor of less familiarity with NFPA 3000 at ($p < .01$) as compared to more urbanized settlements. *Region Northeast* at ($p < .10$) are 1.89 times more likely to have selected a response indicating less familiarity with the DV as compared to other regions when holding all other variables constant.

Table 25: Multivariate Models – Hypotheses 5

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Fire Department Familiarity with NFPA 3000			
Community Experienced an ASMCI	-.78** (.34)		-.59* (.374) <i>0.55</i>
Rural/ Other			1.01*** (.354) <i>2.74</i>
Region South			.254 (.43)
Region Northeast			.64* (.45) <i>1.89</i>

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Region Midwest			.47 (.44)
Number of Observations	173		172
Prob > chi2 [F]	0.021		.006
Pseudo R ²	0.02		0.05

***p<0.01, **p<0.05, *p<0.10

Defund Legislation has been Implemented

Table 26 shows logit regression results for Hypotheses 6 with *Defund Legislation Proposal* as the dependent variable (DV). The *Preferred Model* separated the regions by geography, and the analysis showed a negative statistical relationship between *Region Midwest* compared to the reference variable and the DV at (p<.05). A descriptive summary of these variables displayed that three Midwest departments reported proposed legislation compared to twenty-three departments distributed throughout the other regions. The odds ratio infer that the Midwest has a 1.08 or 0.08% higher likelihood of not having the DV condition as opposed to the reference group when holding all other variables constant.

Table 26: Multivariate Models – Hypotheses 6

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Defund Legislation Proposal			
Region South / Other	.27 (-1.7)		
Region South			-.06 (.08)
Region Northeast			-.08 (.09)
Region Midwest			-.17** (.08) 1.08

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) (Odds Ratio)
Rural/ Other			0 (.03)
Fire Official Experience			.003 (.004)
Number of Observations	168		164
Prob > chi2 [F]	.56		.036
Pseudo R ²	.002		.06

***p<0.01, **p<0.05, *p<0.10

Perception that Defund Movement can Negatively Impact ASMCI Outcome

Table 27 shows ordinal regression results for Hypotheses 7 with *Perception that Defund Movement can Negatively Impact ASMCI Outcome* as the dependent variable (DV). Model 1 did not support a statistical relationship finding even after adding additional variables. The *Preferred Model* then selected the variable regions by category to observe if they impacted the DV, as this was a variable of interest in the study. The findings quantified a statistically positive relationship between the variables at (p<.10). The odds ratio displayed a 97% higher likelihood of having *Region Midwest* when compared to the reference group of selecting responses leading up to ‘somewhat to neither agree nor disagree’ when holding all other variables constant.

Table 27: Multivariate Models – Hypotheses 7

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) (Odds Ratio)
Perception that Defund Movement can Negatively Impact ASMCI Outcome			
Fire Official Experience	-0.19 (.02)		-.03 (.02)
Region South / Other	-.017 (.40)		
Highest Level of Education	-.075 (.11)		-.05 (.11)
Rural/ Other			.02 (.39)

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Region South			.10 (.51)
Region Northeast			.44 (.53)
Region Midwest			.68* (.47) 1.97
Number of Observations	157		161
Prob > chi2 [F]	.793		.76
Pseudo R ²	.0005		.01

***p<0.01, **p<0.05, *p<0.10

Perception of ASMCI Policies in Department Prior to NFPA 3000

Table 28 shows ordinal regression results for Hypothesis 8 with *Perception of ASMCI Policies in Department Prior to NFPA 3000* as the dependent variable (DV). The *Preferred Model* supported a statistically negative unit association finding at (p<.10) in the variable *Time it Took to Update Policies Post NFPA 3000 Implementation* in relation to the DV when holding all other variables constant. The odds ratio supports the likelihood that it took departments longer to implement the changes of NFPA 3000 at 1.009 or a 0.009% higher likelihood when measuring the perception that there were measurable objectives in the department before the standard was implemented. This finding is consistent with the data and can be explained by the nature that policies on ASMCI took longer to implement with departments that had a lower confidence scale response on having measurable objectives to respond to an ASMCI before the standard was implemented. Additionally, the *Preferred Model* supports an odds ratio of 0.58 or a 42% lower likelihood in *Region South* responses as opposed to the reference variable in association with the DV. This finding supports that the odds of having survey participants in the south comparatively was 42% likely to favor the lower response scale, which supports the statement that their

department had clearer objectives for an ASMCI before implementing NFPA 3000 when holding all other variables constant. The *Preferred Model* also supported an odds ratio statistical finding at 3.26 times higher likelihood that departments in communities that adopted NFPA 3000 had a grander scale response favoring clearer objectives than those that did not adopt the standard.

Table 28: Multivariate Models – Hypotheses 8

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception of ASMCI Policies in Department Prior to NFPA 3000			
Time it Took to Update Policies Post NFPA 3000 Implementation	-.002** (.001)	-.002** (.001)	-.001* (.009) 1.009
Fire Official Experience		.03 (.02)	.021 (.018)
Region South		-.54 (.39)	-.54* (.39) 0.58
Region Northeast		-.418 (.40)	-.34 (.40)
Region Midwest		-.304 (.36)	-.36 (.38)
Adoption of NFPA 3000			1.2*** (.29) 3.26
Community Experienced an ASMCI			.10 (.32)
Number of Observations	173	168	166
Prob > chi2 [F]	.018	.061	.004
Pseudo R ²	.007	.01	.04

***p<0.01, **p<0.05, *p<0.10

Prioritization of Joint Training

Table 29 shows ordinal regression results for Hypothesis 9 with *Prioritization of Joint Training* as the dependent variable (DV). Across all three models, a statistical relationship (at p<0.05) was observed between the variable *Incident Stabilization Responsibilities* and the DV. The analysis infers that for Model 1, a unit increase in incident stabilization responsibilities leads

to an odds ratio of 5.05 times higher likelihood in prioritization of joint training when holding all other variables constant. Model 2 displayed an odds ratio unit increase at 4.05 times higher likelihood, and the *Preferred Model* showed an odds ratio unit increase at 3.32 times higher likelihood in the prioritization of joint training when holding all other variables constant. It should be noted that 81% of the departments reported a training interval of <12 months. With the explanatory data interpretation, the findings can be explained by the nature that incident command policies that govern multiagency response to a disaster require continuous training between cooperating disciplines/jurisdictions. Training and familiarization are associated with the preparedness phase of emergency management for public safety. The *Preferred Model* also displayed a 1.02 or 0.02% odds ratio higher likelihood at ($p < .10$) of having fire officials' years of experience affect the response scale of prioritization of joint training with fire and law enforcement. The model also supports a positive ($p < .10$) odds ratio that *Region Midwest* has a 2.11 times higher likelihood of having greater training intervals with law enforcement as opposed to the reference group. The *Preferred Model* also showed a .034 or 66% lower likelihood at ($p < .01$) in *Perception of Training and Incident Outcome* to the DV when holding all other variables constant. Recognizing that 81% of the respondents confirmed a training interval of 12 months or less, a unit increase in the training interval is primarily scaled at 0-12 months. It should be noted that these large-scale joint training evolutions are generally planned annually or biannually.

Table 29: Multivariate Models – Hypotheses 9

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Prioritization of Joint Training			
Incident Stabilization Responsibilities	1.62** (.64) 5.05	1.40** (.68) 4.05	1.20** (.70) 3.32
Joint Training Frequency	.001 (.01)	0 (.01)	-.003 (.10)
Fire Official Experience		.04 (.02)	.02* (.01) 1.02
Region South		.5 (.42)	.48 (.42)
Region Northeast		-.42 (.42)	-.51 (.43)
Region Midwest		.67 (.41)	.75* (.42) 2.11
Perception that Defund Movement can Negatively Impact ASMCI Outcome			.14 (.15)
Perception of Training and Incident Outcomes			-1.07*** (.28) 0.34
Number of Observations	173	168	168
Prob > chi2 [F]	.05	.004	.0001
Pseudo R ²	.01	.03	.06

***p<0.01, **p<0.05, *p<0.10

Perception that Defund Movement can Negatively Impact ASMCI Outcome

Table 30 shows ordinal regression results for Hypotheses 10 *Perception that Defund Movement can Negatively Impact ASMCI Outcome* as the dependent variable (DV). There was no evidence of the relationship in any of the models that the community's size (in-service miles), which increases the greater responsibility of the fire official, affected the official's perception. This finding was not consistent with the expected research as, generally, larger service area departments can be concerned about any interruption to their response protocol. This argument

can be made for whether the department has greater service miles due to size in population or widespread rural territory; either application would create a challenge for the fire service in managing an ASMCI. Additional relevant variables to the study of the hypotheses were added to see if they would strengthen the model. The *Preferred Model* displayed a negative statistical relationship at ($p < .01$), supporting the odds ratio at 0.28 or 72% lower scale response to the DV statement. When evaluating the response scale, this means that communities that provide medical transport have the perception of "strongly agree" that the defund movement can negatively impact ASMCI training and response when holding all other variables constant.

Table 30: Multivariate Models – Hypotheses 10

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception that Defund Movement can Negatively Impact ASMCI Outcome			
Service Area in Miles	0 (0)	0 (0)	0 (0)
Community Experienced an ASMCI	-.13 (.37)	-.05 (.38)	.08 (.40)
Does your Community Provide EMS Transport		-1.02 (.42)	-1.25*** (.46) 0.28
Level of Medical		.07 (.41)	.18 (.42)
Fire Official Experience			-.03 (.02)
Region South			-.29 (.53)
Region Northeast			-.07 (.54)
Region Midwest			.35 (.50)
Number of Observations	171	169	164
Prob > chi2 [F]	.92	.07	.13
Pseudo R ²	.002	.03	.04

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Perception of Fire Service Modification of Response

Table 31 shows ordinal regression results for Hypotheses 11 *Perception of Fire Service Modification of Response* as the dependent variable (DV). Model 1 found statistical relational findings in the variable *Region South / Other* and the DV at (p<.10). However, to remain consistent with the management of variables, Model 2 and the *Preferred Model* were conducted with the region variable's separation. The results of the *Preferred Model* supported a negative at (p< .10) unit relationship signifying that the odds ratio between *Region Midwest* and the DV was at 0.53. This finding infers a 47% likelihood in Midwest as opposed to the reference variable in supporting stronger agreement with the DV question through their survey response when holding all other variables constant. Furthermore, the *Preferred Model* also supports a negative odds ratio unit association of 0.76 or 24% likelihood at (p<.01) with the variable *Highest Level of Education* and the DV. This finding infers a 24% likelihood that fire officials with a greater level of education align with the decrease in unit response to the DV scale, meaning stronger agreement with the statement when holding all other variables constant.

Table 31: Multivariate Models – Hypotheses 11

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception of Fire Service Modification of Response			
Community Experienced an ASMCI	.129 (.33)	.06 (.25)	.022 (.036)
Region South / Other	.60* (.33)		
Region South		.37 (.42)	.40 (.44)
Region Northeast		-.23 (.47)	-.43 (.49)
Region Midwest		-.62 (.47)	-.63* (.48) 0.53
Fire Official Experience		-.01 (.02)	-.006 (.19)

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Highest Level of Education			-.27*** (.10) 0.76
Number of Observations	172	168	164
Prob > chi2 [F]	.18	.027	.08
Pseudo R ²	.01	.02	.03

***p<0.01, **p<0.05, *p<0.10

Perception of Delay in Treating Victims

Table 32 shows ordinal regression results for Hypotheses 12 *Perception of Fire Service Modification of Response* as the dependent variable (DV). There is no statistical evidence in Models 1 and 2 that departments that provide EMS, whether BLS (basic) or ALS (advanced), perceive that the defund movement will cause a delay in the fire service treating the wounded. This finding was not consistent with the expected outcome of the hypotheses, as departments that provide EMS transport services commit to transporting trauma patients because of the recognition that it can impact victim survivability. However, a considerable influence on the fire service is that many departments do not provide EMS transportation. Of the 171 survey respondents, 60% responded that their department does not provide EMS transport. Many departments fiercely opposed the pre-hospital medical/trauma transport model and legislated to remain fire-only responders. To expand the model for a more comprehensive evaluation, region and fire officials' experience variables were added to understand if a relationship exists with the DV. The *Preferred Model* found a statistically significant odds ratio at 1.66 at (p<.05) between the variables *Rural/ Other* and the DV. This signifies that more urbanized communities are 66% more likely to respond more favorably that their perception of a delay aligns with 'strongly

agreed' when holding all other variables constant. The *Preferred Model* also supported a relationship between the variable *Fire Officials Experience* at an odds ratio of 0.95 at ($p < .10$). This signifies that the odds ratio of having responses favoring greater agreement with the DV statement when holding all other variables constant has a 5% lower likelihood to affect the DV than responses from fire officials with less experience. It should be noted that 82.66% of respondents replied "strongly agree" to the DV statement. This further signifies that an overwhelming number of departments perceived that a delay in treating victims at an ASMCI can occur. Lastly, the variable *Region South* observed an odds ratio of 3.66 times higher at ($p < .10$) that the south 'strongly agrees' with the DV.

Table 32: Multivariate Models – Hypotheses 12

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception of Delay in Treating Victims			
Does your Community Provide EMS Transport	-.33 (.59)	-.48 (.61)	-.57 (.67)
Level of Medical Care	-.78 (.53)	-.77 (.54)	-.83 (.58)
Rural / Other		-.31 (.21)	-.51** (.24) 1.66
Service Area in Miles		0 (0)	0 (0)
Fire Official Experience			-.05* (.03) 0.95
Region South			1.3* (.73) 3.66
Region Northeast			.62 (.78)
Region Midwest			.8 (.73)
Number of Observations	170	169	164
Prob > chi2 [F]	.29	.07	.02
Pseudo R ²	.02	.04	.10

*** $p < 0.01$, ** $p < 0.05$, * $p < 0.10$

Perception of Training and Incident Outcomes

Table 33 shows ordinal regression results for Hypotheses 13 *Perception of Training and Incident Outcomes* as the dependent variable (DV). Model 1 did not show statistical evidence that variables *Permanent Resident Population* or *Region / Other* have a predictive relationship to the DV. To examine the relationship between other predictor variables, additional relevant variables to the focus of the study were added. The *Preferred Model* showed an odds ratio of 0.98 at ($p < .10$) for the variable *Joint Training Frequency*. In evaluating descriptive data on these two variables, most respondents train with law enforcement at the annual (76%) to biannual (87%) interval. When measuring a unit increase in training interval factoring this observation, the model supports that when associated with <24 months, the odds ratio of respondent responses to the DV is 2% lower likelihood in selection supporting ‘strongly agree’ when holding all other variables constant as opposed to expressing lesser agreement with the DV statement. In evaluating departments that train in <24 months intervals 88% responded ‘strongly agree or somewhat agree’ with the statement. This signifies that an overwhelming number of departments perceived training does impact ASMCI outcomes.

Additionally, the *Preferred Model* displayed a positive unit odds ratio at 1.58 for the variable *Community Experienced an ASMCI* when holding all other variables constant. That means the odds of having a stronger agreement response to the DV is 58% higher in communities that experienced an ASMCI as opposed to communities that did not. Lastly, the variable *Fire Officials' Education* supports an odds ratio statistical finding of 0.75 at ($p < .05$) that there is a 25% likelihood that education will affect the DVs increase/decrease response scale. For example, higher education still supports the ‘strongly agree’ response to DV when holding

all other variables constant. In examining the data, 117 fire officials or 83% with a college degree selected DV response 1 = strongly agree.

Table 33: Multivariate Models – Hypotheses 13

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception of Training and Incident Outcomes			
Permanent Population	0 (0)	0 (0)	3.98e (5.48e)
Region South / Other	.11 (.41)	.18 (.41)	.37 (.64)
Joint Training Frequency		-.02 (.02)	-.02* (.18) 0.98
Community Experienced an ASMCI		.26 (.47)	.46* (.55) 1.58
Adoption of NFPA 3000		.73 (.39)	-.72 (.46)
Fire Official Experience			.15 (.03)
Region South			omitted
Region Northeast			-.12 (.68)
Region Midwest			.08 (.64)
Highest Level of Education			-.28** (.14) 0.75
Gender			.86 (.73)
Race			omitted
Number of Observations	171	169	140
Prob > chi2 [F]	.08	.34	.15
Pseudo R ²	.001	.03	.08

***p<0.01, **p<0.05, *p<0.10

Perception the Fire Service will Fill the Gap at an ASMCI

Table 34 shows ordinal regression results for Hypotheses 14 *Perception the Fire Service will Fill the Gap at an ASMCI* as the dependent variable (DV). All three models support a statistically positive unit association finding at ($p < .10$). The *Preferred Model* supports that a unit increase in the odds ratio for training frequency is 0.01% higher in affecting the perception the fire service will fill the gap at an ASMCI when holding all other variables constant. The *Preferred Model* also shows a practically statistical finding in the variable *Fire Officials' Experience* at ($p < .10$) that a unit increase of the odds ratio has a 0.03% higher likelihood that years of experience has an association with a unit increase in the DV or observes a greater response tendency into the 'somewhat agree to somewhat disagree' scale when holding all other variables constant. Lastly, the *Preferred Model* reflects an odds ratio association at ($p < .10$) for the variable *Region Midwest* at 0.50. This finding infers a 0.50% likelihood that the Midwest aligns with the perception that the fire service will adjust its practices to meet gaps as opposed to the reference group.

Table 34: Multivariate Models – Hypotheses 14

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Perception the Fire Service will Fill the Gap at an ASMCI			
Frequency of Joint Training	.02* (.01)	.01* (.007)	.01* (.007) 1.01
Fire Official Experience		.02 (.01)	.03* (.19) 1.03
Region South		-.32 (.28)	-.85 (.42)
Region Northeast		-.02 (.29)	-.26 (.45)
Region Midwest			-.69* (.43) 0.50

Variables Title	Initial Model	Secondary Model	Preferred Model
	Coefficient (St. Error)	Coefficient (St. Error)	Coefficient (St. Error) <i>(Odds Ratio)</i>
Incident Stabilization Responsibilities			-.20 (.80)
Community Experienced an ASMCI			-.38 (.035)
Highest Level of Education			.79 (.09)
Gender			-.05 (.53)
Number of Observations	171	166	157
Prob > chi2 [F]	.06	.22	.26
Pseudo R ²	.006	.04	.02

***p<0.01, **p<0.05, *p<0.10

Open-ended Questions Thematic

This section introduces the survey participants' descriptions of the two questions listed in Table 12. It accounts for the fire officials' perception of their experiences related to the defund law enforcement movement and the impact on the fire service. This study used a pretest-only design that allowed fire officials the opportunity to add text to their responses (in their own words) to the questions on defunding policies. Using this design can introduce many threats to internal validity, such as history and maturation. Although reducing such threats to validity was not feasible as this study is perception-based and exploratory on a generally contemporary policy proposal, this researcher will address those limitations in Chapter 6. Using mixed-method research aimed not to replace qualitative or quantitative methods but to build from their strengths and minimize a single research design's weakness (Creswell, 2018). A mixed-method approach offered tools for investigating the complex public safety policy processes and systems associated with ASMCI responses.

Quantitative Results

This research would have conducted a paired t-test with the pretest and post-test data; however, the qualitative analysis was limited due to a lack of post-test data that could be evaluated for future research opportunities. As such, descriptive statistics were conducted with the quantitative data. The result of quantitative data was compared to themes that emerged from the qualitative analysis in the convergence table. Tables 17 and 18 above display the quantitative result of the fire officials' surveys. As shown, the mean of fire departments that had adopted NFPA 3000 was .50. Familiarity with the national standard was recorded at a mean of 2.05 (scale 1-3), favoring being familiar with NFPA 3000. Perception of training prioritization was at a mean of 7.9 (scale 0-10), which favored the importance of ongoing training with law enforcement, and a 1.6 mean (scale 1-5), favoring their perception that response to the defund law enforcement movement can negatively impact the outcome at an ASMCI. The mean response for the perception of whether the fire service could modify their response was 1.5 (scale 1-5), favoring stronger agreement with the statement. The mean for the perception of the fire service evolving to fill the gap at an ASMCI, if required, observed a mean of 2.8 (scale 1.5), acknowledging they 'somewhat agree to being neutral' of the statement.

Qualitative Results

The qualitative data were developed from the two open-ended survey questions. The question as seen in Table 12 were designed to allow the fire officials the opportunity to present written format of their perception on the topic of defunding law enforcement and challenges with mobilizing the required number of resources. Approximately 73% of the respondents replied to both questions. Question 32 was centered on the fire official's perspective on what actions they believe their department would take if the defund law enforcement movement would dictate

having to go back to a stand-by model at an ASMCI. This question recorded 126 responses categorized into 81 codes, later refined into 26 codes, and developed into seven themes.

Question 33 asked about the officials' perceived view of their community's reaction to a delay in mobilizing resources at an ASMCI. This question resulted in 129 responses pared down to 54 codes, later reduced to 18 codes, and developed into seven themes. Once the data was collected, the selected approach to analyzing the data was centered on grounded theory methodology, applying Strauss and Corbin's (1998) open selective coding. All responses were broken up by questions (topics) and analyzed. This method aimed to identify a core idea, develop it, and describe it (Gorra & Kornilaki 2010). The approach used in vivo coding allowed the codes to reflect the fire official's perspective. All responses were labeled into sections in which phrases were taken from the fire official's direct quote. This process is what Strauss and Corbin (1998) termed *concept* and *category*. As *concepts* emerged, they were developed into a dimension of *category*. The consistent themes which offered an interpretation of the data resulted in the thematic titles dedicated in Table 35 and Figures 6 and 7.

Table 35: Opened-ended Questions Results

Open-ended Question for Qualitative Analysis		
Question 1	Coding / Themes	Sample Response
Please describe in your own words what actions your department would take if faced with the need to revert to the stand-by model for law enforcement at an active shooter mass casualty incident.	Return to staging policies	“Stage in the fire station until call declared secure.”
	Delay in treatment	“The lack of action would lead to a possible delay in patient care.”
	Explore new models	“We would build a new model.”
	Work within capabilities	“Adapt as best as we can and do what we can.”
	Engage community political action	“Engage the political process to evoke public education and concern.”

Open-ended Question for Qualitative Analysis		
Question 1	Coding / Themes	Sample Response
	Demoralization of public safety	“Demoralizing as it was preventable if logic would prevail.”
	Push back against it	“Push back against it.”
Question 2	Coding / Themes	
In your own words, please describe how you think your community will respond if emergency law enforcement and fire service responses are delayed due to challenges mobilizing resources to respond to an active shooter mass casualty incident.	Negative impact on public safety as a whole	“It would have a negative impact on both organizations.”
	Community disappointment	“The community would be extremely disappointed in our performance.”
	Expectation of fire service to evolve to meet new demand	“I believe there would be intense scrutiny and an immediate call for changes.”
	Increase mortality	“It could lead to an increase in patients or an increase in mortality of patients.”
	Not a concern for the fire service	“Ignore it.”
	Political retribution for elected officials	“There would be a significant political battle as the City Council has repeatedly failed to take corrective action to raise the ceiling they created in the number of LEO.”
	System loss of trust	“Systemic loss of trust.”

Evaluating the significant themes enforces the notion that fire officials generally perceived that a lack of response action from both the fire service and law enforcement would not be well received by the community. Fire officials felt the fire service would be forced to explore alternative models that sustain society's response service expectations with the implementation of NFPA 3000. Additionally, even though the fire service has aimed to remain

apolitical on polarized topics, a major observation in the thematics listed above was the acknowledgment that the fire service should engage the political process to evoke public education and concern. A paradigm change to the fire service’s approach to addressing political matters can have greater consequences to how the public sphere views the fire service in social justice policies. This qualitative finding should be further explored in future studies to examine how political advocacy interests the fire service. The other qualitative finding concerns the open-ended question on the mobilization of resources. Generally, fire officials felt a significant community movement demanding that services are not impacted at an ASMCI. If the service faced the uncertainty of resource management at an ASMCI, officials felt they would be expected to modify their service approach.

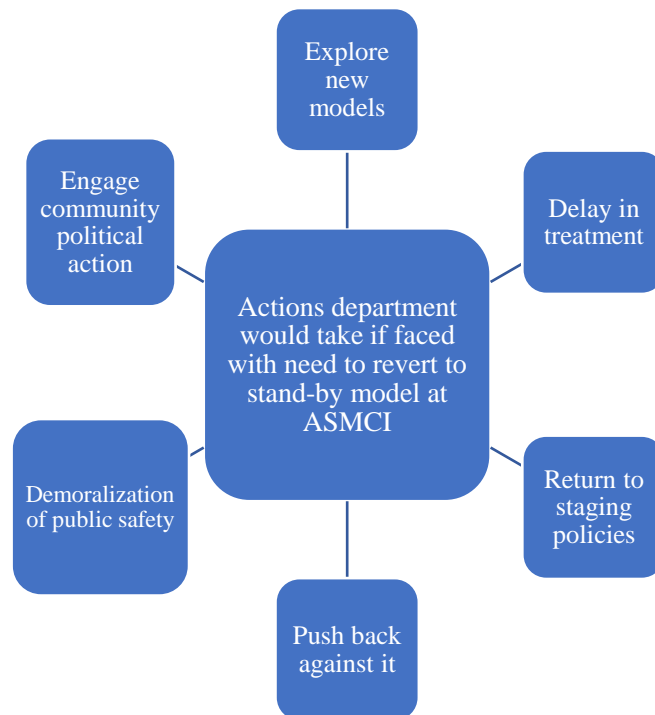


Figure 6: Coding for open-ended question: Reverting to Stand-By Model

Description: Response to the following question: Please describe in your own words what actions your department would take if faced with the need to revert to the stand-by model for law enforcement at an active shooter mass causality incident.

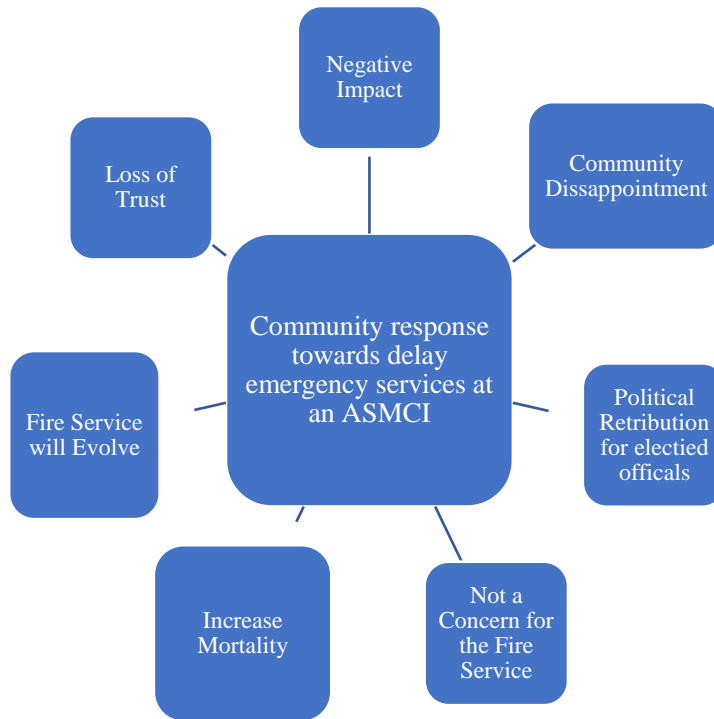


Figure 7: Coding for open-ended question: Community Response

Description: In your own words, please describe how you think your community will respond if emergency law enforcement and fire service responses are delayed due to challenges mobilizing resources to respond to an active shooter mass casualty incident.

Convergence of Designs

Table 36 illustrates a convergence table for this research's primary quantitative and qualitative data factors. To develop this table, survey results were primarily used to measure the official's perception of the defund law enforcement movement and NFPA 3000. The qualitative data for the convergence table was examined using the codes collected from both survey questions. Selected quotes from the fire officials were chosen to represent their perception of the topic.

Table 36: Data Convergence Table

Data Convergence Table			
Factor	Quantitative Data	Qualitative Data	Convergence
Question 32			
Delay in treatment	Q21 – Perception of Delay in Treating the Victims – mean response	<ul style="list-style-type: none"> The lack of action would lead to a 	Convergence

Data Convergence Table			
Factor	Quantitative Data	Qualitative Data	Convergence
	at 1.2 favoring 'strongly agree.'	<p>possible delay in patient care.</p> <ul style="list-style-type: none"> The community would be upset by delayed response and actions during such an event. 	
Explore new models	Q23 - Perception of Fire Service Modification of Response – mean at 1.58 favoring 'strongly agree.'	<ul style="list-style-type: none"> We would build a new model. The department would update the Public Safety Director on the need to change tactics to explore other alternatives, such as certifying a contingent of members as LEOs. 	Convergence
Work within capabilities	Q22 - Perception of Training and Incident Outcomes – mean of 1.23 favoring training preparation to response to an ASMCI.	<ul style="list-style-type: none"> Adapt as best as we could and do what we can. Our community would be very concerned, because they know our capabilities today. 	Convergence
Question 33			
Expectation of fire service to evolve to meet new demand	Q24 - Perception the Fire Service will Fill the Gap at an ASMCI – mean of 2.8 favoring 'somewhat' to 'neither agree nor disagree.'	<ul style="list-style-type: none"> I believe there would be intense scrutiny and an immediate call for changes. Depending on the impact of the event, unify for change more than likely. 	Convergence
Increase mortality	Q20 - Perception that Defund Movement can Negatively Impact ASMCI Outcome – mean of 1.61 favoring 'strongly agree.'	<ul style="list-style-type: none"> It could lead to an increase in patients or an increase in mortality of patients. There would be unnecessary death as a result of the inability to treat patients. 	Convergence

The quantitative and qualitative data were consistent as there was convergence in the primary areas of this research. The results reveal that fire officials are confident in training to address the threat of an ASMCI and recognition the community would expect the fire service to explore new models to evolve their role. Treating the wounded was another significant observation by fire officials in that the consensus is that mortality would increase if a delay occurred.

Chapter four presented the results of the hypotheses tested for this study. It introduced the qualitative analysis and how coding was developed to converge the themes of the qualitative analysis with the quantitative findings. Chapter 5 will organize the research questions and describe if the hypotheses for this research can be supported or unable to assess.

CHAPTER FIVE: DISCUSSION

Study Discussion

This study provides an examination into the exploration of how the defund law enforcement movement can be perceived by the fire service in relation to training and responding to an ASMCI. Its purpose is to contribute to the body of knowledge in public safety policies by showing the results of perception-based research. This chapter will review and interpret the quantitative and qualitative results found in Chapter 4 in relation to whether the association of the 14 hypotheses can support the findings. The findings will then be explained in connection to the three research questions. The terms of the hypotheses testing are designated as 1) supported, 2) partially supported, 3) not supported, or 4) unable to access (see Table 37).

Table 37: Hypotheses Testing Results

Hypotheses Testing	
Hypotheses	Supported, Partially Supported, Not Supported, Unable to Assess
H₁ : There is an association between fire departments that have adopted NFPA 3000 and the number of permanent residents and visitors they provide service to.	Supported
H₂ : There is an association between fire department type (volunteer or career) and the amount of time the department took to change its policies on an ASMCI.	Partially Supported
H₃ : There is an association between fire departments that provide EMS transport services and the population of permanent residents and visitors they serve.	Not Supported
H₄ : There is an association between fire departments that have experienced an ASMCI and their perception of how the fire service delivery to an ASMCI has changed after the implementation of NFPA 3000.	Supported
H₅ : There is an association between fire departments' familiarization with NFPA 3000 and whether their community experienced an ASMCI.	Supported
H₆ : There is an association that the defund law enforcement movement has impacted law enforcement	

Hypotheses Testing	
Hypotheses	Supported, Partially Supported, Not Supported, Unable to Assess
budgets through legislative actions by fire department regions.	Supported
H7: There is an association between fire officials' perception that the defund law enforcement movement can have a negative affect an ASMCI and fire officials' experience in the fire service.	Not Supported
H8: There is an association between fire officials' perception that their department had measurable objectives to respond to an ASMCI before the implementation of NFPA 3000 and the time it took them to change their policies after the implementation of NFPA 3000 in 2018.	Supported
H9: There is an association between fire officials' priority on training for an ASMCI response and whether their department is responsible for incident stabilization at an ASMCI.	Supported
H10: There is an association between fire officials' perception on joint training with law enforcement to respond to an ASMCI and the service area (in miles) their department provides services to.	Unable to Access
H11: There is an association between the fire officials' perception that their fire department will modify their response to an ASMCI if law enforcement cannot assemble a rapid entry team and whether their community experienced an ASMCI.	Partially Supported
H12: There is an association between the perception of fire officials that if law enforcement cannot converge quickly at an ASMCI causing delay in treating the wounded and whether their department provides Emergency Medical Services transport.	Partially Supported
H13: There is an association between fire officials' perception of the lack of training with law enforcement which can impact the outcome of an ASMCI and the population of permanent resident they serve by fire department region.	Not Supported
H14: There is an association between fire officials' perception of the fire service changing its practices to address deficiencies associated with victim survivability at an ASMCI and the frequency of ASMCI training their department has with law enforcement.	Supported

The following section will interpret the results of the hypotheses associated with the research questions and apply the literature that supports the finding.

Research Question 1: How has the national fire service responded to NFPA 3000?

Research question one focused on hypotheses 1- 5 and aimed to understand how the national fire service has evolved in its introduction to service delivery since the implementation of NFPA 3000. What was found is that the national fire service's perception lends itself to the interpretation of being responsive to the standard. The findings to the research question were not particularly surprising as it can be explained by data supporting Hypothesis 1, which displayed that departments that provide services to a more significant number of permanent residents were statistically more inclined to have adopted NFPA 3000. This finding aligns with the literature from Nevins (2015) and Morley (2013) that supports city population can be a condition that municipal leaders consider in determining the size and composition of the services they provide to their citizens. Moreover, responses from fire officials in urban departments provided the following direct quotes in response to the open-ended question on community service impact. "Our community would be very concerned because they know our capabilities today," "The community would be up in arms over such an event. They pay taxes to feel protected, and when we cannot provide that protection, they have every right to be upset. This would also affect any future involvement by taxpayers in other funding requests. Our industry is changing all the time, and we need to keep up, not go backwards." Much of the ability of larger cities are centered on having more resources than smaller jurisdictions, which allows them to expand their services. The adoption of NFPA 3000 through joint response with both law enforcement and fire service at an ASMCI can be considered a modern and progressive approach that requires the community's financial commitment and the vision of its leaders. These types of commitments in

services are what Nevins (2015) and Morley (2013) highlighted on how the size of a community can impact public safety services.

Recognizing that community density is associated with the adoption of NFPA 3000, another metric of the research hypotheses was to examine responsiveness in the time it took for departments to update their policies based on service demand and department resource composition. Policies can be viewed as akin to managing risk. Risk factors are a significant consideration for public safety and elected leaders to manage. Through their survey responses, fire leaders confirmed how risk could impact their community. Two fire officials responded, “There will be a greater risk of lives lost without immediate care” “The Fire/EMS department takes a calculated risk daily. We protect and provide for the safety of the public.”

Systemic application to how policy is created that builds procedures and practices requires a continuous proactive strategy by organizations (Ennouri, 2013). As risk management can be viewed as one of the core services that governments are responsible for, it is contextualized that organizations must manage their policies to manage risk. The perspective on how change occurs can be seen through Pfeffer and Salancik's (1978) theory, which examines environmental and resource constraints that impact organizations. Their application to organizational change is explored in this area of the research on how quickly fire organizations were able to change by updating their policies to address the societal and environmental threat of an ASMCI after implementing NFPA 3000 in 2018. The question also allows for current and future examination of how quickly the fire service would change its practices if forced due to environmental or resource constraints to transform its service delivery approach to an ASMCI.

Hilal (2014) looked at the relationship between public safety organizations and the community and determined that they are a network with shared objectives that focus on

protecting the community. With a more significant number of citizens to protect, it can be advanced that so does risk and the requirement for departments to have governing policies to help them effectively manage community emergencies like an ASMCI. The hypothesis was explicitly designed to measure departments by classification (i.e., career, mostly career, mostly volunteer, or volunteer) and the time it took them to update their policies. The results of the hypothesis testing were not statistically significant. However, evaluating the rural variable in the analysis displayed a statistical result that supports the finding that it took longer for rural departments to update their policies. Rural jurisdictions are generally comprised of volunteer or mostly volunteer departments that can impact resources. Data of the surveyed population revealed that approximately 60% of respondents had a volunteerism component in their department within a rural settlement. This finding is consistent with what Nevins (2015) and Morley (2013) found in their study of how population affects the scope of public safety services. The importance of this association can be examined by literature from Wang (2007) on how organizations need to create new policies to aid in their survival, adaptability, and long-term viability. It can also be examined through the article *Doing the job with limited resources* (2020), which addressed how small rural areas remain challenged to effectively prioritize response due to resource ineffectiveness. Fire leaders responsible for providing service with a volunteer workforce are concerned about sustaining their commitment to the community. “We are a 100% volunteer fire department with declining membership,” or “They would be upset, but in a volunteer department, the public realizes that response can be minimal,” are some of the direct quotes received from fire officials in smaller volunteer departments. This area of research should remain a continued focus for the fire industry as rural volunteer departments make up a significant segment of the national fire service at over 70% (U.S. Fire Administration, n.d.).

Another observed condition is that departments that reported having experience an ASMCI took less time to update their policies. This finding in the hypothesis testing can be seen through Siegrist and colleagues' (2005) research, who wrote that trust and confidence through experiences can influence the outcome of risk perception. The fire officials' decision-making to update their department policies could have been influenced by their experiences managing past ASMCI emergencies.

Another observation was on the familiarity with the national standard associated with having experienced an ASMCI. Being familiar with the standard can help explain how the fire service has responded and may respond to future changes in the standard. The standard helps fire officials integrate risk assessment, resource management, training, incident management, and recovery at an ASMCI (NFPA 3000, 2018). With slightly over 50% of all surveyed departments adopting the standard and over 72% of all departments affirming they are 'very' to 'somewhat familiar' with the standard, not surprisingly, a statistical relationship was observed in departments that had experienced an ASMCI and their survey responses of having greater familiarity with the standard. Approximately 67% of respondents advised that their department had experienced an ASMCI and were 'very to somewhat familiar' with the standard.

Recognizing that departments with experience in an ASMCI were more familiar with the standard, the attention then focused on whether a regional difference exists. This area of the results was revealing as it observed geographical differences in recognition of the standard. The data suggest the South, Midwest, and West regions were more familiar with NFPA 3000 than the Northeast region. This area of the research can be explained by the fact that the southern region was on the front end of sponsoring NFPA 3000. In Orlando, FL, efforts to establish NFPA 3000 began in October 2016, shortly after the Pulse Nightclub incident on June 12, 2016. A technical

committee was formed in Orange County, FL, working with NFPA to create the standard that addressed adverse events (NFPA 3000, 2018). Western regions have generally been considered progressive within the fire industry in implementing new service model policies that transcend throughout the nation. This type of environment can be seen in an article by Walter (2022, para. 1), who states, “Politicians are fond of touting California policies and programs as the nation’s first and/or foremost.”

Lastly, another observation in reviewing the results from the first research question is that prior ASMCI incidents are associated with fire officials’ perception of improved service delivery since NFPA 3000. As standards are generally constructed and reevaluated through industry feedback, this observation suggests the fire service has accepted the standard as a service enhancement. This is an important finding as it speaks to how the national fire service views its ability to manage an ASMCI based on the 2018 national guidance. Although only one of the models supported the variable's statistical finding and was not selected as the *Preferred Model*, it provides relevant data on the subject. Approximately 68% of all surveyed respondents replied that the service delivery was ‘somewhat’ to ‘much better’ post the implementation of NFPA 3000. The majority (63%) of those respondents replied that their department had experienced an ASMCI and maintained a ‘somewhat’ to ‘much better’ perception of the current NFPA 3000 service delivery model. The *Preferred Model* further evaluated additional variables and found statistical support for the association between the perception of service improvement and whether the fire official was responsible for functioning as an incident commander at an ASMCI and their experience as a fire official. These results can be explained as presented by Martindale and Blair (2019) on what incident stabilization in the context of rapid assessment at an ASMCI signifies. As incident commanders are responsible for the stabilization of the

incident, the dynamic process requires them to approach their responsibilities in a multi-dimensional and multi-participant approach. Having the policy to help guide their decisions about the distribution of resources in a stressful situation can influence the perception of prioritizing having policies and procedures in place.

To finalize the examination of research question one, it can be deduced that the fire service, through the survey results, has demonstrated statistically that they have responded to the implementation of NFPA 3000 with a regional and territorial difference.

Research Question 2: What is the national fire service perception of the defund law enforcement movement regarding an ASMCI?

Research question two focused on hypotheses 6 -10 and aimed to examine through hypotheses testing the perception of nationwide fire leaders on defunding law enforcement and its impact on NFPA 3000 training and response protocols. Literature from Renn (2004) on how the environment influences perception and NewsRx Health & Science (2009) connection on how experience affects decision-making led this research to examine the association of experience to the perception of training and resources needed to remain effective at an ASMCI. In 2020 and 2021, the defund law enforcement movement had captured the attention of public discourse and the public safety community. Many law enforcement agencies were vocal about the service impact the movement would cause to communities. With the nexus to public safety, the general expectation would have been that fire officials who equally monitor risk and experience in critical incident response would have considered a disruption in joint response as a consequential impact. Fire officials supported this position through statements like, “The concept of defunding any law enforcement or citizen protection has to stop, and we need to think about our actions as politicians and community leaders,” or “ I do not think the community as a whole views the

"defund police" movement as affecting an active shooter response," and " It would be very negative and any thought of defunding law enforcement in any way is a half hazard and really does not make logical sense." However, surprisingly, the association between the defund law enforcement movement through a perception scale and experience was not observed. There can be several reasons that can explain this finding. Primarily, the fire service championed an apolitical position on many polarizing topics, as discussed by Bashoor (2018) and Compton (2010, para. 10) when he stated, "Remember that fire service issues should be framed as non-partisan issues."

Although experience did not reflect a significant observation, additional research that examined the difference between regions and perception resulted in a statistical finding. Midwest respondents favored the response 'somewhat agree' and 'neither agree nor disagree' 83% compared to other regions when responding to the question measuring perception that the defund law enforcement movement can have a negative effect on ASMC training and response. 'Somewhat agree' to 'neither agree nor disagree' can be viewed as the Midwest generally being concerned about the policy impact but not decisively concerned. Alternatively, the response 'strongly agreed' with the statement was selected by other regions at 81% compared to 29% for Region Midwest. Those are contrasting differences between regional perceptions on the topic. An interesting observation was denoted when examining whether defunding proposals were presented as legislation by region. Statistically, other regions proposed defunding law enforcement legislation more times than the Midwest. For example, after removing the response 'not sure,' other regions represented 61 observations or 48% of respondents reporting proposed defunding policies in their community.

In comparison, the Midwest with the same conditions represented a 6% reporting. When interpreting the findings of perception to the question of the negative effects of ASMCI training and response outcomes on the proposed legislation's actual performance, the Midwest would have been expected to have a greater number of proposed legislation incidents in their communities. Although this observation would have to be studied further before inferences can be made, a consideration in the finding can be that perhaps through political awareness that can influence response, the Midwest elected to remain neutral on the topic. Since the inverse was observed, it is denoted that there can be other influencing factors that guided the perception of the Midwest for this study. This subject will be discussed further in evaluating how training influences decision-making.

As the research advanced into answering questions on perception, hypothesis 8 focused on testing fire officials' perception of whether their department had adequate policies in place to address violent incidents prior to the implementation of NFPA 3000 in 2018 and the time it took their department to update their policies to align with the new standard. The question in hypothesis one focused on the time it took to update department policies based on the territory the fire official is responsible for. It was meant to examine how resource allocation can impact policy development within an organization as described through RDT. This hypothesis examined the relationship between the time it took to update department policies post NFPA 3000 and their perception of existing department policies. The model supported a statistical association in measuring the time it took to update policies after implementing NFPA 3000. Survey data supported that it took departments longer to implement the changes of NFPA 3000 if the fire official's perception was that there were measurable objectives in the department before the national standard was implemented in 2018. This finding was not surprising as it can be

explained that if the department had guiding policies on how to manage an ASMCI, the immediate threat to act through policy development and implementation might not have been urgently required. Alternatively, it may be that the department was satisfied with its current response standard to an ASMCI and did not adopt it. This statement is not meant to provide an inference but to highlight an additional opportunity for future research to examine if a relationship exists between pre/post-decision-making on policy implementation for the fire service on ASMCI responses.

Another observation that provides depth to the research question was the finding that Region South had a statistical perception of existing policies and time of implementation. Compared to other regions, the south at approximately 50% responded that their department had no measurable objectives to manage an ASMCI before implementing NFPA 3000. This observation is not surprising as the south discussed implementing a standard after the tragic Orlando Pulse incident. With the Pulse tragedy, the south was at the forefront of leading the discussion that a unified response plan with law enforcement was needed to improve the management of ASMCI's. It was also observed that departments that adopted the standard perceived that their department did not have measurable policies in place, with approximately 66% reporting (5) or less, on a scale of (1= no measurable, 10= clear objectives).

Another statistical association observed in the hypothesis testing was responsible for incident command responsibilities and joint training time intervals. Although the relationship was positive, which would suggest an increase in both units of measurement, it should be noted that 81% of the departments reported a training interval of <12 months. With the explanatory data interpretation, the findings suggest the unit increase was generally seen in months leading up to the one-year (12 months) interval. Training has been discussed in this research as a

significant predictor of performance and confidence in doing the job. Ford and Schmidt (2000) wrote about how emergency response training enhances real-world performance, which applies to the significance of why both law enforcement and fire department agencies train on ASMCI responses. What was observed in the results is that fire officials that have the responsibility to manage ASMCI have training intervals that are consistent with the training schedule of NFPA 3000 and have a perception that training affects outcomes.

Data for this research question also supported that fire officials' years of experience correlate with the prioritization of joint training with fire and law enforcement and that Region Midwest places a higher degree of importance on joint training with law enforcement. In all 47 responses from the Midwest, respondents replied on a rating scale of 5 or higher (from 'about the same priority' to 'much higher priority') that training was an essential element of successful management of an ASMCI. This Midwest training response observation can help explain what was seen in research question one why respondents stated more favorably than other regions that they 'somewhat' to 'neither agree nor disagree' that the defunding law enforcement movement can negatively impact the outcome at an ASMCI. With the Midwest prioritizing training, the results can be interpreted as they feel better prepared to manage an ASMCI independent of law enforcement. This is an important finding as it can provide insight into how the fire service may respond to an ASMCI if defunding law enforcement legislation causes training and resource challenges. This observation connects with RDT, which looks at how organizations adjust to ensure survival. This statement does not infer a statistical response to the phenomenon but urges future studies to explore the association.

To finalize the examination of research question two, it can be interpreted that there are regional differences in how the perception of the fire service is thought of in relation to the impact on training for ASMCI.

Research Question 3: How will the fire department change its response practices to address changes in conditions associated with the defund law enforcement movement in relation to NFPA 3000?

Research question three focused on hypotheses 11-14 and aimed to examine through hypotheses testing the perception of nationwide fire leaders whether the fire service can transform its current practices to adjust for changes if the defund law enforcement movement impacts their ability to carry out the core competencies of NFPA 3000. This area of the research represents a significant focus of what this study aimed to examine. If changes to an ASMCI response are altered in a manner that inhibits responders from treating the wounded, it can unravel best practices that have been implemented to address this community danger. It speaks to the core of the broader question, “How could defunding law enforcement impact the coordination of nationwide fire departments' ability to respond to an ASMCI if lessons from the past are bifurcated?”

When examining the perception of whether the lack of training moving forward with law enforcement could impact the outcome at an ASMCI, there was no association between a community that had experienced an ASMCI and a fire official's perception. However, in evaluating perception and region, a significant ($p < .10$) small (at 0.13) correlation was observed in the bivariate model. Additionally, the multivariate model supported a negative (at $p < .10$) unit relationship between the Midwest and perception. This finding infers that the Midwest, compared to the reference group, statistically aligns with favoring the perception that the fire service will modify its response if required. Fire officials responded resolutely in support of

changing the fire service to meet new demand. Responses like, “I believe there would be intense scrutiny and an immediate call for changes,” “The department would update the Public Safety Director on the need to change tactics to explore other alternatives such as certifying a contingent of members as law enforcement firefighters,” and “Our current response relies heavily on law enforcement for joint mitigation of such incidents. We would need to have discussions with law enforcement and fire department leadership to determine changes in fire department response and actions.” This type of finding and qualitative response can be explained through the application of RDT and how the fire service can evolve to meet future work demands. Even if fire/EMS takes aggressive actions to manage their external interdependence on law enforcement, inevitably, they will have to shift their dependency towards another pattern.

A new policy paradigm is what PET references in that environment often drive policy development and implementation. Their reliance may shift depending on whether it expands fire/EMS' ability to address a hostile threat. The fire service has seen structural changes to its service delivery over the years, directed by outside forces and demand. The evolution of the fire department includes diversifying past services, like managing fire-related emergencies and beyond. The EMS system within the fire service will have to evolve to improve the survival of ASMCI victims through their chain of actions. The International Association of Fire Chiefs, which represents all nationwide fire departments, affirms its position in support of fire-based emergency medical service (IAFC, n.d). In their study, Byrne-Davis and colleagues (2018) highlighted the evolution of fire-related incidents that a decline in demand for fire services, the service will continue diversifying and expanding its role. This finding was not surprising as it starts to align a theme between regions that with adequate training received to date, the fire

service is demonstrating an attitude to changing its practices to meet a gap of service response to an ASMCI if the movement impacts law enforcement.

As Smith and coauthors (2018) discussed, rapid transport of the wounded impacts, the chain of survival and remains a critical element of managing an ASMCI under the tenets of NFPA 3000. In examining a relationship between pre-hospital transport to the perception of victim outcome, a significant bivariate small correlation was observed between the perception of a delay in treating the victims and whether the fire department provided EMS transport. Interestingly an association in the multivariate model was not observed for the two variables. Of the 171 survey respondents, 60% responded that their department does not provide EMS transport. Many departments still oppose the pre-hospital medical/trauma transport model. However, that paradigm is starting to shift as fire-based EMS continues to be endorsed as a sustainable model that provides enhanced services. Although the observation was not seen in the transport variable, the community density classification (i.e., rural/other) variable did observe an association with how fire officials perceived a delay in treating the victims and how it could impact outcomes. Nearly 83% of all respondents felt that a delay in law enforcement converging at an ASMCI would result in a delay in treating the wounded. Fire officials' experience was also determined to statistically influence the perception of whether there would be a delay in treating the wounded. Experience in incident management has been recognized to guide perception. As seen in the naturalistic decision-making theory framework by Togg and Gigerenze (2001). Decision-making under uncertainty, time pressure, and stress – often encountered by military commanders and firefighters – occurs where there is not always time for careful consideration of each criterion for each alternative choice. “Experienced personnel can better predict behavior

and make decisions to maintain personal safety” (Togg & Gigerenze, 2001, p. 52). Experience does help when having to make complex decisions based on uncertain or confusing information.

Training was another relevant consideration in determining whether the fire service feels it can adjust its practices even if they respond as a single agency to an ASMCI. When evaluating the variables that study perception on how training can impact outcomes, it was determined that training intervals statistically matter. Most respondents (79% annually interval & 90% biannual interval) train with law enforcement at the annual to the biannual interval. The model supported an association at <24 months in which respondents supported ‘strongly agree’ that lack of training can impact ASMCI outcomes. As this research attempts to explain how the fire service could change its practices in response to the defund law enforcement movement, filling the gap to supplant law enforcement’s partnership at an ASMCI was another evolutionary observation this study looked for. Training frequency and experience support stronger agreement with the perception that the fire service can fill the gap to maintain the protective services associated with NFPA 3000.

To finalize the examination of research question three, it can be interpreted that the fire service is willing to change its practices to address changes in conditions associated with the defund law enforcement movement. The support for that perception can be observed through the regional assertion that presents more assertive confidence statements that the fire service, through training, can address preparedness and response sustainability.

Convergence of Qualitative and Quantitative

As seen in Chapter 4, Table 36 Convergence Data Table, the quantitative and qualitative data were consistent as there was convergence in the primary areas of this research. The findings support the survey data while providing an additional qualitative explanation of how the fire

service perceived the defund of law enforcement and its direct application to NFPA 3000. The results reveal that fire officials regard the training to address the threat of an ASMCI and recognize that the community would expect the fire service to explore new models to evolve their role if required. This research area is emergent to policy discourse as the movement to defund law enforcement or funding reform can affect fire/EMS in managing an ASMCI emergency. Treating the wounded remains another significant observation by fire officials in that the consensus is that mortality would increase if a delay occurred.

CHAPTER SIX: CONCLUSION

Chapter 6 concludes this research dissertation. This study examined the perception of fire officials in determining how the fire service could evolve its response practices to an active shooter mass casualty incident (ASMCI) if confronted with resource challenges associated with the defund law enforcement movement. Through a mixed-method design, this study applied primary data to measure the perception of nationwide fire officials on the implementation of the National Fire Protection Association (NFPA) 3000. By examining the theories of Punctuated Equilibrium Theory (PET) and Resource Dependency Theory (RDT), this study evaluated how policy windows have impacted legislation on active shooter emergencies over the years; and how reliance on one public safety department can change if the environment forces it to modify itself. This chapter will also discuss the theoretical and practical implications, research limitations, and future research opportunities.

Summary

Policy discussions on the defund law enforcement movement continue to resonate throughout the nation. Community leaders have explored ways to re-appropriate police funding in the face of race sentiments. These actions come at a time when law enforcement and the fire service are interdependent on how they respond to an ASMCI. ASMCI has been a threat to society for decades. Incidents like the Columbine High School tragedy in 1999, Virginia Polytechnic University in 2007, Aurora Cinemark Century in 2012, and Newtown Sandy Hook Elementary in 2012 opened policy windows that led to an evolution of how law enforcement responds to an ASMCI. The outcome of these events directed the national policy discourse on addressing school security, mental health, and gun control policies.

Following the Pulse Nightclub Shooting in 2016, NFPA 3000 became the new standard. The purpose of NFPA 3000 was to identify the minimum program elements necessary for organizing and reducing or eliminating risk and impact on organizations or communities affected by adverse events (NFPA 3000, 2018). However, as the new standard started to circulate through the nation's fire/EMS and law enforcement communities, it appeared to be confronted with challenges. Within months after the formal adoption of NFPA 3000, a public outcry centered on defunding law enforcement introduced the potential to force another policy reaction. However, the defund law enforcement movement's magnitude and its impact on an ASMCI may not be fully understood. With the looming threat of defunding law enforcement, the accepted method by fire/EMS and its alignment with policies created by NFPA 3000 may be threatened due to a lack of law enforcement resources or training associated with funding challenges. If law enforcement lacks the resources to support fire/EMS in conducting rapid extraction and treatment protocols, the systems approach to an ASMCI can be impacted.

The purpose of this study was to explore the perception of fire officials regarding how an impact in coordination with law enforcement due to defunding policies could affect joint training and response at an ASMCI. This study explored how the current perception of fire/EMS officials can change the fire services approach to managing an ASMCI. Specifically, it examined how fire officials may feel about modifying their response based on the potential impact law enforcement may experience if defunding or reimagining policies are ultimately enacted. As seen by Renn (2004) and Sjoberg (2002), perception-based research has long been studied and revered in academia and was used in this study. As it relates to fire department leaders, their perception of how the defund law enforcement movement can impact their ability to respond to an ASMCI remains essential for public safety policy development.

A survey design employing probability sampling methods that used simple random selection was designed with closed and opened-ended questions. The 39-question survey was sent to fire department leaders in all regions of the U.S., representing 1,352 departments. Primary data collected perception-based Likert Scale responses and employed Siegel (1956, 1985) and Cohen (2001) work on parametric and nonparametric models to interpret the results to answer three research questions, 1) How has the national fire service responded to NFPA 3000? 2) What is the national fire service perception of the defund law enforcement movement regarding the ability to respond to an ASMCI? and 3) How will the fire service change its response practices to address changes in joint response conditions associated with the defund law enforcement movement concerning NFPA 3000? The findings of the study concluded that 1) the fire service has demonstrated statistically that they have responded to the implementation of NFPA 3000 with regional and territorial differences; 2) the fire service has regional differences in how they perceived the impact of training due to defunding policies; and 3) the fire service is willing to change its response practices to address changes in conditions associated with defunding law enforcement policies.

Implications for Theory

Theoretical Framework for Punctuated Equilibrium Theory

This study employed Punctuated Equilibrium Theory (PET) to examine how the modern-day phenomenon of defunding law enforcement intersects with fire officials' perceptions of training and response threats associated with an ASMCI. This study indicates that the tenets of PET hold in that policy windows have changed how law enforcement and the fire service respond to an ASMCI. This theory is an area that other scholars can examine in future public safety responder studies. As discussed in Chapter 2, PET is explicitly a theory of policy dynamics that focuses on the mechanism which leads to policy change (Jones & Baumgartner, 2012). PET was evaluated in this research in the context of applicability to policy changes that occurred in ASMCI through the years leading up to the creation of NFPA 3000. What was observed through this research is that the fire service has experienced several policy equilibrium moments since the Columbine High School active shooter tragedy that has forced the alteration of how the fire service has evolved and will continue to change post an NFPA 3000 environment. Since the implementation of the standard, the period of stability allowed the fire service to become familiar with the standard.

However, a recent punctuated moment in policy that is changing law enforcement policies is creating a moment of instability that can jeopardize funding levels for law enforcement agencies. The movement for defunding police has proliferated into a civil unrest culture as America pushes back on law enforcement as part of a democratic system of policymaking demanding police reform. The current push to reform policing or defund aligns with the PET tenet on how rapid and dramatic change can force policy changes. Jennings and colleagues (2017) state that PET rests upon the idea that much of policymaking is conducted

outside of the world of high politics in the policy subsystem in which trigger events can prompt a significant and rapid shift in policymaking. Currently, the subsystem movement has energized activists who claim that the U.S. overinvests in police, leaving fewer resources to support other government services. This serves as an example of what Jennings referred to as policy shifts outside of the policy process, driven by subsystem fears. Currently, societal anxiety outside the formal policy system has induced policy instability.

The fire service was presented with the perception-based question on how instability in the policy domain would impact the fire service, and the current policy shifts being experienced within society were not of consensus concern to the national fire service. Training policies by region support that the fire service can continue to respond to ASMCI as they generally feel prepared to evolve their service delivery. This finding suggests that another punctuated equilibrium moment can occur when managing an ASMCI, even if it requires a significant paradigm change. Although the policy window opening may extend beyond a specific period and cross other policy issues, it appears to be one that the fire service believes they can overcome. Although PET offered an understanding of hypotheses testing for this study, it did not explain the service improvement perspective post the implementation of NFPA 3000 as tested in Hypothesis One. PET did not explain how communities that had experienced an ASMCI and did not have confidence in service capabilities after implementing a national standard did not force another policy transformation. Recognizing how PET creates policy moments, this researcher would have expected a push to reform NFPA 3000 if the community did not feel it adequately addressed the dangers of an ASMCI. A reason for the lack of policy adjustment could be that not enough time has elapsed since the implementation of NFPA 3000 in 2018, and there have not been significant ASMCI that would force the policy moment.

Birkland's (1997) approach to policy windows can also present an alternative reason for the absence of the PET moment. Focusing events operate differently at different times and in different policy domains. Although the idea of focusing on events is firmly rooted in the policy process, not every event works as a focusing event. The process of focusing events in many ways remains undeveloped and must continue to be researched by scholars.

Theoretical Framework for Resource Dependency Theory

This study employed Resource Dependency Theory (RDT) to examine how the modern-day phenomenon of defunding law enforcement intersects with fire officials' perceptions of training and response threats associated with an ASMCI. The results of this study indicate that the tenets of RDT hold in that the fire service recognizes the interdependence created by NFPA 3000, including the network approach of providers from both law enforcement and fire/EMS at an ASMCI. This theory is an area that other scholars can examine in future public safety responder studies. A fundamental assumption of RDT is that dependence on critical, and import resources influence an organization's actions (Pfeffer & Salancik, 2003). Casciaro and Piskorski (2005) stated that RDT is dyadic, a theory test focused on the constraint of one actor's dependence on the other. The building blocks of organizational power and dependence can be traced to Emerson's (1962) theory of power-dependence relations. Dependence is a function of resource criticality and availability of critical resources. Actors are dependent upon other actors in proportion to their needs for the resource the other can provide; it is simply an interchangeable relationship. When the fundamental elements of RDT were examined by surveying the nationwide fire service on their current interdependency on law enforcement and their ability to evolve their services, the fire service recognized they are a public safety network community that depends on each other for resources at an ASMCI. Although the threat of a social push to

dismantle an essential partner of the fire service, they remained unwavering in their dependence on law enforcement. This is not a traditional theoretical application to RDT.

However, when the fire service was asked about uncertainty, which Pfeffer and Salancik (2003) presented in their theoretical work on how the environment can be considered a source of uncertainty and constraints, they responded differently. In conditions that force the fire service to select a strategy that promotes its mission to save lives over its reliance on law enforcement at an ASMCI, it believes it will institute policies to evolve its service to meet the demand. This remarkable finding in applying RDT theory to this research observed that the fire service does not see taking on law enforcement responsibilities and resources at an ASMCI as an attractive option; however, if confronted with jeopardizing the public trust or compromising their assignment, they view their willingness to adjust differently. When considering if the fire service can identify a new pattern of organizational behaviors that can address their new environment, history has shown that the fire service has seen structural changes to its service over the years, directed by outside forces and demand. The evolution of services demonstrates that the fire service is experienced in adapting, refocusing interdependence, and is willing to reinvent itself. Hillman and colleagues (2009) discussion on perspectives of RDT state that when organizations are coupled with uncertainty about who can impact their interdependency, their interdependence can lead to a situation in which survival and their continued success remain uncertain. Thus, causing organizations to take action to manage external interdependences, although such efforts can produce new patterns of dependence and interdependence. This leaves the fire service to evaluate that even if it takes aggressive actions to manage its external interdependence on law enforcement, inevitably, they will have to shift their dependency towards another pattern. Whether it is expanding fire/EMS' ability to address a

hostile threat without the presence of law enforcement (example: train firefighters in military or law enforcement tactics) or finding an alternative model to provide the sustainability of the service.

Implications for Practice

This study has implications for the fire service profession as the exposure to losing their protection of law enforcement at a violent incident can cause a delay in treating the wounded. With losing reliance on law enforcement due to defunding policies, the fire service may find themselves at a crossroads in determining their interdependency. The impact of defunding or reimagining law enforcement policies on fire/EMS agencies nationwide that share the interest of joint responsibilities should be factored into the long-term strategy of the fire service. As the fire service continues to develop itself in a postmodern policy system where external influences drive the reshaping of public safety interaction with society, solutions to address the phenomena should remain at the forefront. Research such as this study aims to examine the effects of consequences that can allow fire officials to respond to the possibility of losing law enforcement's rapid assembly and coordination when jointly responding to an emergency. This is critically important as the fire service must decide which policy to accept if faced with the degradation of resource partnership with law enforcement. Fire service leaders will have to determine if they revert to policies that require them to stage and wait for the time it may take to assemble law enforcement and fire/EMS contingent, or will they modify their response to include actions that would direct fire/EMS professionals to enter a warm zone to treat the injured independent of whether law enforcement accompanies them.

As policymakers and fire/EMS agency heads grapple with these decisions, they must recognize the impact these policies can have on the future management of ASMCI and allow

them to rethink policies and procedural actions when confronted with future threats. These decisions can have the potential to create regressive measures that rethink years of best practice. These types of threats can impact the fire service as a whole. Although this study revealed regional differences in perception, historically, mission-centric policies have shared similarities throughout the nation. If the regional differences in perception transform into policies, the fire service can experience fundamental differences by region that could redefine the nation's fire service. The fire service must consider the initial question of this research, "How could defunding law enforcement impact the coordination of nationwide fire departments' ability to respond to an ASMCI if lessons from the past are bifurcated?"

Study Limitations

This research had limitations that could impact the results of the study. A limitation was that since this was generally a contemporary topic and one of political sensitivity, there is not much literature on defunding law enforcement and its impact on fire service joint response towards life safety policies. Another limitation was the timing in which this national survey was distributed. At the peak of surveying this population, the U.S. was undergoing an unprecedented pandemic challenge. Many fire departments were on the frontline of providing community services such as testing and vaccination for the COVID-19 virus. That led to many departments redirecting resources and services to operational priorities. The emerging engagement and competing obligations reduced the opportunity to connect with officials and request time to complete and follow up on emails to finish the survey. Additionally, the fire service community has generally provided low results in completing surveys due to the nature of emergency response or factors controlling their political environment. The low survey response rate was of concern as national fire department policies are being proposed based on the data collected. This

is a critical observation for this researcher to understand and accept as a limitation. In factoring conditions that are impacted by an emerging policy topic, low survey result population, and a community that generally remain apolitical, these settings can impact generalizability of the results for the nationwide fire service. The survey response to the nationwide survey resulted in an approximate 13% response rate and of that population approximately 17% reported that legislative defund policy actions were either proposed or implemented. That left a majority of participants responding that no legislative actions had been taken. However, with the collection of qualitative data at approximately 73% response rate to the open-ended questions this researcher was able to overcome the low qualitative response rate for the legislative related survey question.

Another limitation was associated with connecting the strength of statistical modeling to exploratory social science research, R^2 . With exploratory research that leans toward this fire service's phenomenology, a low R^2 was observed in many of the models. This was caused because of the perception-based design, which scholars like McNeil (1999) argue does not mean the researcher does not use the constructs, and although the researcher should continue to improve their measurements even if they believe it is not obtainable, they should not ignore the smaller R^2 value. Newman (2000) summarizes that there is usefulness in some small R^2 values and suggests they should not be discarded without careful consideration of the potential information they can offer. As such, the results of this research study offer valuable insights to expand on future research regarding public safety policies.

Lastly, a limitation that existed in the study that future studies should attempt to reduce is 1) to have a comparison group and 2) to develop a pre-test/post-test design. However, even with the limitations denoted in this section, this research study was able to collect primary data from

the nationwide fire service through closed and open-ended questions that can offer opportunities for future studies.

Opportunities for Future Research

There are limited perception-based research studies on the importance of public safety policies that impact the resource and training management of two disciplines. As this study only observed the perception of policy impacts that could affect joint critical response services at an ASMCI, it did not extend to actual performance caused by the implementation of legislation. However, this study can be used as a roadmap and starting point for future studies on similar topics. Future studies can focus on a pre-test /post-test design that examine the impacts of defunding law enforcement policies and the effects it has on ASMCI management. Future studies can also evaluate the psychological impact on performance and morale of public safety responders if the policy gains popularity across the nation. As seen by the open-ended question coding theme “demoralization of public safety,” this was an area of concern for responders. The study also did not focus on how law enforcement perceived the defund movement on their ability to execute the response practices framed in NFPA 3000. There is an opportunity to build from this research and explore through academic validation a study on the impact on how law enforcement can adapt to the defund movement through alternative strategies to manage the expectations of NFPA 3000 on ASMCI. This study can also span beyond ASMCI response into additional joint-related services where law enforcement and the fire service intersect in their interdependency capacity. Future research should monitor secondary issues that impact law enforcement response times to violent incidents (beyond an ASMCI) that can include crimes like domestic violence, assaults, or felony and misdemeanor battery in which a person is injured. Equal attention should be given to nonviolent emergencies where the fire service performance is

predicated on their partnership with law enforcement and rapid transport. For example: successful management of emergency incidents like major traffic crashes and structure fires with injuries require the coordination of both disciplines. Generally, future studies should focus on the staging and on-scene times to determine elongation and whether unintended consequences are associated with defunding law enforcement.

**APPENDIX A:
FIRE DEPARTMENT SURVEY**

The survey instrument for this research is composed of 25 questions that aim to answer three categories of questions: 1) NFPA 3000 Related Questions, 2) Defunding Law Enforcement and 3) Department Demographics.

Fire Department's Perceptive on NFPA 3000 and Defund Law Enforcement Movement

Introduction As the nation enters a new era of policing, it is essential to understand the association of how the fire service and law enforcement intersect when responding to an active shooter mass casualty incident. In 2018, the National Fire Protection Association (NFPA) formalized the framework necessary for organizing, managing, and sustaining an Active Shooter/Hostile Event. The standard, which integrates risk assessment, resource management, training, incident management, and recovery, has become the fire service model in managing active shooter mass casualty incidents.

This survey is intended to explore the perception of fire department leaders' view on the impact of defunding law enforcement against the joint fire and law enforcement preparedness and response model to an active shooter mass casualty incident as defined by NFPA 3000. Again, thank you for agreeing to participate in this de-identified survey and remember your responses are confidential. There are no right or wrong responses, and it should only take about 15 minutes to complete.

Q1 If there was an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization?

- Yes
 - No
 - Not Sure
-

Q2 Has your department adopted National Fire Protection Association (NFPA) 3000? (Any segment of NFPA 3000 would be considered adoption of the standard.)

- Yes
 - No
 - Not Sure
-

Q3 How familiar is your fire department with the NFPA 3000 standard?

- Very familiar
 - Somewhat Familiar
 - Unfamiliar
 - Other
-



Q4 Does your fire department have policies on how to respond to an active shooter mass casualty incident.

- Yes
 - No
 - Not Sure
-

Q5 How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident? (Use the first slider to record response in month(s) interval, or second slider to record response in year(s) interval.)

Frequency of
Training

0 1 2 3 4 5 6 7 8 9 10 11 12

If training interval occurs in months. (Example: every 6 months)	
If training interval occurs in years. (Example: every 3 years)	

Q6 Has your community experienced an active shooter mass causality incident?

- Yes
- No
- Not Sure

Display This Question:

If Has your community experienced an active shooter mass causality incident? = Yes

Q7 What was the date(s) of the active shooter mass casualty incident? (Please write your response in the following date format: mm/dd/yyyy)



Q8 How quickly have your fire department policies on active shooter mass casualty incident response changed since the implementation of NFPA 3000 in 2018? (Please provide your response in days. (Example: It took three (3) months to update your department policies/procedures = 90.)

Transition In the next section of the survey, you will be asked perception-based questions. Remember there are no right or wrong responses. Perception-based questions are aimed at identifying the processes that underlie how you

interpret, organize, and form beliefs about the topic of fire service response to an active shooter mass causality incident based on individual past experiences, expectations, and goals.

Q9 As a fire official, what is your perception of how much the fire service improved its service delivery on active shooter mass causality incidents since the implementation of NFPA 3000?

- Much better
 - Somewhat better
 - About the same
 - Somewhat worse
 - Much worse
-

Q10 As a fire official, on a scale of 1-10, what is your perception on whether there were (measurable) objectives in your department before NFPA 3000 on how fire departments should respond to an active shooter mass causality incident? (0 = There were no measurable objectives. 5 = The department had adequate objectives on responding to an active shooter mass casualty incident. 10 = The department had clear objectives on responding to an active shooter mass casualty incident.)



Q11 As a fire official, please prioritize the importance of having law enforcement and fire departments train on how to respond to an active shooter mass causality incident. (0 = Lower priority. 5 = About the same priority. 10 = Much higher priority)



End of Block: NFPA 3000 - Standard for an Active Shooter/Hostile Event

Start of Block: Defund Law Enforcement

Q12 You are making great progress. For the next section of the survey, you will be asked questions regarding the defund law enforcement policies within your community.

Q13 The term defund law enforcement is being defined in this study as proposed legislation to reduce law enforcement budgets or proposal to disband the police department. Has the defund law enforcement movement in your community propose legislation to reduce law enforcement's budget?

- Yes
 - No
 - Not Sure
-

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes

Q14 Did the legislation pass?

- Yes
 - No
 - Not sure
-

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes

Q15 Has the legislation been implemented?

- Yes
 - No
 - Not sure
-

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes



Q16 Please provide the date of implementation. (Provide date in the following format: mm/dd/yyyy).

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes

Q17 Have any law enforcement positions been eliminated?

- Yes
 - No
 - Not sure
-

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes

Q18 Has cross-training with your fire department in responding to an active shooter mass causality incident been impacted?

- Yes
- No

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Yes

Q19 As a fire official, is it your perception the defund movement can negatively affect joint training and response with fire departments as defined by NFPA 3000?

- Strongly Agree
- Somewhat Agree
- Neither Agree nor Disagree
- Somewhat Disagree
- Strongly Disagree

Display This Question:

If The term defund law enforcement is being defined in this study as proposed legislation to reduce... = No

Or The term defund law enforcement is being defined in this study as proposed legislation to reduce... = Not Sure

Q20 You indicated that your community may not have been directly impacted by the defund law enforcement movement. However, in the event your community would experience a public call to defund law enforcement, is it

your perception that the movement could negatively affect active shooter mass casualty incident training and response?

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q21 If law enforcement cannot converge quickly at an active shooter mass casualty incident, as a fire official, is it your perception there can be a delay in treating the wounded?

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q22 Suppose law enforcement cannot train with your fire department on active shooter mass casualty incidents; as a fire official, is it your perception it can impact the successful outcome of managing the emergency incident?

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q23 As a fire official, is it your perception that your fire department will modify its response to an active shooter mass causality incident if law enforcement cannot assemble a rapid entry team as defined by NFPA 3000.

- Strongly agree
 - Somewhat agree
 - Neither agree nor disagree
 - Somewhat disagree
 - Strongly disagree
-

Q24 Is it your perception as a fire official that the fire service can change its practices to address unintended deficiencies associated with victim survivability at an active shooter mass causality incident if a response gap with law enforcement exists?

- Strongly agree
- Somewhat agree
- Neither agree nor disagree
- Somewhat disagree
- Strongly disagree

End of Block: Defund Law Enforcement

Start of Block: Department Demographics

Q25 You are more than halfway done. The next section will evaluate the demographics of your department. This information will assist in the interpreting the data results.

Q26 Does your department provide Emergency Medical Service - Please select all that apply.

- Advance Life Support (ALS) and Basic Life Support (BLS) services
 - ALS only
 - BLS only
 - First responders only
 - Medical transport for both ALS and BLS patients
 - Medical transport for ALS patients only
 - Medical transport to BLS patients only
 - No transports
 - None of the above
-

Q27 The community your department serves is considered...

- Metropolitan
 - Urban
 - Rural
 - Combination
 - Other
-



Q28 Population (permanent residents) your department has primary responsibility to protect. (Please provide your response in whole numbers.)

Q29 Does your department have a surge visitor population during a season or event?

Yes

No

N/A

Display This Question:

If your department have a surge visitor population during a season or event? = Yes



Q30 What is the peak (daily) number of visitors (Please provide your response as a whole number without comma separation: example 10000000)?



Q31 Please provide the area (in square miles) your department has primary responsibility to protect (Please provide your response as a whole number without comma separation: example 1000).

Q32 Please describe in your own words what actions your department would take if faced with the need to revert back to the exclusive stand-by model for law enforcement at an active shooter mass causality incident.

Q33 In your own words, please describe how you think your community will respond if emergency law enforcement and fire service responses are delayed due to challenges mobilizing resources to response to an active shooter mass causality incident.

End of Block: Department Demographics

Start of Block: Demographic Information

Q34 You are almost done with the survey. This is the last block of questions. This next section is designed to help me (the researcher) determine what factors may influence your perception on the topic.

Page Break

Q35 What is your age? Please enter a two-digit number (example: 42)

Q36 Please specify your ethnicity.

- White
- Black or African American
- Hispanic or Latino
- Native American or American Indian
- Asian / Pacific Islander
- Other

What is the highest degree or level of school you have completed? If currently enrolled, then your highest degree received.

- High school graduate, diploma, or the equivalent (for example: GED)
- Some college credit, no degree
- Trade / technical / vocational training
- Associate degree
- Bachelor's degree
- Master's degree
- Professional degree
- Doctorate degree

Q38 How long have you worked in the fire service? (Service years in the fire service should include combined tenure.)

Q39 Which gender do you identify most with?

- Male
 - Female
 - Rather not disclose
-

Closing Remark Thank you for completing the Fire Department's Perceptive on NFPA 3000 and Defund Law Enforcement Movement Study. After I analyze the results of this survey, I may have some additional questions. If you are willing to have me reach back out to you for follow-up questions (if needed), please provide your email address below.

End of Block: Demographic Information

**APPENDIX B:
INSTITUTIONAL REVIEW BOARD DOCUMENTS**



UNIVERSITY OF CENTRAL FLORIDA
Orlando, FL 32826-3246

Institutional Review Board
FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway

EXEMPTION DETERMINATION

July 21, 2021

Dear Anthony Rios:

On 7/21/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Modification / Update
Title:	Defunding Law Enforcement: Fire Departments' Perspective on Implementing Nation Fire Protection Association 3000 Standard When Preparing for an Active Shooter Mass Casualty Incident.
Investigator:	Anthony Rios
IRB ID:	MOD00002050
Funding:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Email Introduction_Focus Group_IRB_v4.docx, Category: Recruitment Materials; • Email Introduction_IRB_v2.docx, Category: Recruitment Materials; • EXPLANATION OF RESEARCH_Focus Group_IRB_v4.pdf, Category: Consent Form; • HRP-255-FORM - Request for Exemption_v4.docx, Category: IRB Protocol;

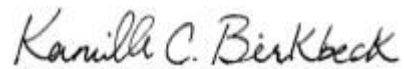
This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB Library within

the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Page 1 of 2

Sincerely,

A handwritten signature in black ink that reads "Kamille C. Birkbeck". The signature is written in a cursive, slightly slanted style.

Kamille Birkbeck
Designated Reviewer



UNIVERSITY OF CENTRAL FLORIDA

Institutional Review Board

FWA00000351
IRB00001138, IRB00012110
Office of Research
12201 Research Parkway Orlando, FL 32826-3246

EXEMPTION DETERMINATION

July 6, 2021

Dear Anthony Rios:

On 7/6/2021, the IRB determined the following submission to be human subjects research that is exempt from regulation:

Type of Review:	Initial Study, Category 2
Title:	Defunding Law Enforcement: Fire Departments' Perspective on Implementing Nation Fire Protection Association 3000 Standard When Preparing for an Active Shooter Mass Casualty Incident.
Investigator:	Anthony Rios
IRB ID:	STUDY00003230
Funding:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • HRP-251- FORM - Faculty Advisor Scientific-Scholarly Review_IRB.pdf, Category: Faculty Research Approval. • Email Introduction_Focus Group_IRB_v2.docx, Category: Recruitment Materials. • Email Introduction_IRB_v2.docx, Category: Recruitment Materials. • EXPLANATION OF RESEARCH_Focus Group_IRB_v3.pdf, Category: Consent Form. • EXPLANATION OF RESEARCH_IRB_v2.pdf, Category: Consent Form. • Fire Department Perception Survey_IRB.docx, Category: Survey / Questionnaire.

	<ul style="list-style-type: none">• HRP-255-FORM - Request for Exemption_v3.docx, Category: IRB Protocol;
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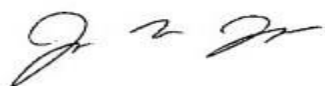
This determination applies only to the activities described in the IRB submission and does not apply should any changes be made. If changes are made, and there are questions about whether these changes affect the exempt status of the human research, please submit a modification request to the IRB. Guidance on submitting Modifications and Administrative Check-in are detailed in the Investigator Manual (HRP-103), which can be found by navigating to the IRB

Page 1 of 2

Library within the IRB system. When you have completed your research, please submit a Study Closure request so that IRB records will be accurate.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,



Racine Jacques, Ph.D.
Designated Reviewer



Institutional Review Board

FWA00000351

IRB00001138

Office of Research

12201 Research Parkway Orlando, FL 32826-3246

UNIVERSITY OF CENTRAL FLORIDA

CLOSURE

February 7, 2022

Dear [Anthony Rios](#):

On 2/7/2022, the IRB reviewed the following protocol:

Type of Review:	Continuing Review
Title:	Defunding Law Enforcement: Fire Departments' Perspective on Implementing Nation Fire Protection Association 3000 Standard When Preparing for an Active Shooter Mass Casualty Incident.
Investigator:	Anthony Rios
IRB ID:	CR00001486
Funding:	None
Grant ID:	None
IND, IDE, or HDE:	None

The IRB acknowledges your request for closure of the protocol effective as of 2/7/2022. As part of this action:

- The protocol is permanently closed to enrollment.
- All subjects have completed all protocol-related interventions.
- Collection of private identifiable information is completed.
- Analysis of private identifiable information is completed.

If you have any questions, please contact the UCF IRB at 407-823-2901 or irb@ucf.edu. Please include your project title and IRB number in all correspondence with this office.

Sincerely,

UCF IRB

**APPENDIX C:
EXPLANATION OF RESEARCH DOCUMENT**

This appendix illustrates the explanation of research that will accompany survey participants. It is meant to be distributed as an attachment to the survey email.



UNIVERSITY OF
CENTRAL FLORIDA

EXPLANATION OF RESEARCH

Title of Project: Defunding Law Enforcement: Fire Department's Perspective on Implementing National Fire Protection Association 3000 Standard When Preparing for an Active Shooter Mass Casualty Incident

Principal Investigator: Anthony Rios, Ph.D. Candidate

Other Investigators: N/A

Faculty Supervisor: Claire Connolly Knox, Ph.D.

You are being invited to participate in a survey because you are a fire service leader in your community. Your participation is voluntary and whether you take part in this survey is up to you.

My name is Anthony Rios, and I am a Ph.D. Candidate at UCF's Public Affairs Ph.D. Program. I also have the honor to share leadership responsibilities in the fire service for the Orange County, FL, Fire-Rescue Department. The purpose of this research is to understand the perception of fire service leaders as it relates to the implementation of NFPA 3000, and its impact associated to the defund law enforcement nationwide movement. This research is interested in how the defund movement may affect the joint law enforcement and fire department response to an active shooter mass casualty incident.

Along these lines, you will be presented with questions about policy and procedures within your department in response to an active shooter mass casualty incident and your perception on the impact it can have on the fire service. There are no right or wrong answers to these perception questions.

As a voluntary participant in this research, I am asking you to participate in an online survey, which should take you about 15 minutes to complete. There is an only minimal risk as a research participant. The data collected will be de-identified and aggregated for general study results.

Your participation is entirely voluntary, and you are free to withdraw your consent and discontinue participation in this research at any time without prejudice or penalty. Since your participation is voluntary, you are also not obligated to answer any question that makes you feel uncomfortable.

Confidentiality:

Only my dissertation committee chair, Dr. Claire Knox, and I will know of your participation in this study. Please be assured that your responses will be kept entirely confidential. Your research results, minus any identifying information, may be used in future research studies examining similar topics. The research results may be published, but your department, name, or other identifying information will not be used. The material findings and conclusions will be combined rather than discussed as originating from an individual source.

You must be 18 years of age or older to take part in this research study.

Study contact for questions about the study or report a problem: If you have questions, concerns, or complaints, please contact Anthony Rios, Ph.D. Candidate, Public Affairs Program, College of Community Innovation and Education, 321-303-4227 or by email at anthonyriosucf@knights.ucf.edu

IRB contact about your rights in this study or to report a complaint: If you have questions about your rights as a research participant or have concerns about the conduct of this study, please contact Institutional Review Board (IRB), University of Central Florida, Office of Research, 12201 Research Parkway, Suite 501, Orlando, FL 32826-3246 or by telephone at (407) 823-2901, or email irb@ucf.edu.

**APPENDIX D:
INTRODUCTION SURVEY EMAIL**

The following email will serve as the introduction and solicitation for the research survey to pilot and nationwide fire departments.

Dear Fire Service Leaders,

You are receiving this email because your leadership position is related to the national fire service. Anthony Rios, Ph.D. Student at the University of Central Florida, and fire service leader in Orange County, FL, is requesting your participation in a study of how the defund law enforcement movement can impact policies and procedures related to NFPA 3000 Standard for an Active Shooter/Hostile Event. This study is part of an academic dissertation research for completion of the Public Affairs Doctoral Program. The intent is to understand how the fire service may have to adapt its environment if the interdependency with law enforcement through training and responding to an active shooter mass casualty incident is impacted.

As a voluntary participant in this study, I am asking you to participate in an online survey, which should take you about 15 minutes to complete. There is an only minimal risk as a study participant. Your participation is entirely voluntary, and there will be no penalty for choosing not to participate. Since your participation is voluntary, you are also not obligated to answer any question that makes you feel uncomfortable.

Only my dissertation committee chair and I will know of your participation in this study. Please be assured that your responses will be kept entirely confidential. Your research results, minus any identifying information, may be used in future research studies examining similar topics. The research results may be published, but your department, name, or other identifying information will not be used. The material findings and conclusions will be combined rather than discussed as originating from an individual source. Although there is no direct benefit from your participation, you may request a copy of a project report documenting the main findings.

If you would be willing to participate in the study, please follow the link provided here: [URL] Your consideration and participation in the project are appreciated. If you have any questions, please do not hesitate to ask. You can reach Anthony Rios @ anthonyriosucfknight@ucf.edu.

Thank you again!

Sincerely,

**APPENDIX E:
OPENED-ENDED QUESTION RESPONSE**

Opened-Ended Question Responses

Q32:

Please describe in your own words what actions your department would take if faced with the need to revert to the exclusive stand-by model for law enforcement at an active shooter mass causality incident.

1. If we had to stand by, lives would be lost
2. Delayed bleeding control and treatment
3. Reevaluate rescue task force
4. We would continue to train on triage -trauma - and patient transport in MCI -type setting. We would continue to use the RTF training and equipment that we have to the best of our abilities without putting our people in harm's way.
5. Heck, that is the way it still is now. The county trained a few people in tactical medicine, but that is it. The standard FF/Medic has no specialized equipment or training to perform anything otherwise. We have ballistic vests, but they have expired hand-me-downs from a police department.
6. Unfortunately, we would have no other choice but to muster and stage at our main station.
7. Work with law enforcement to ensure that step backwards does not happen.
8. We would change our response plan. We also have two sworn LE personnel within our department and our own ORI.
9. Provide shielding with equipment and prepare to provide medical treatment.
10. Reverting to a stand-by only model for active shooter response would destroy positive steps achieved to operate with a common concept for active shooter response and would create inefficiencies for all parties, delay patient care and reunification, as well as hamper law enforcement investigation and other efforts.
11. We would not operate in the warm zone without Law enforcement
12. We would implement a policy that would require EMS/Fire to stage until the scene has been secured.
13. We will not have firefighters working in "hot zones". Without PD clearing areas for us to work, patient treatment would suffer.
14. Ignore it
15. Our current response relies heavily on law enforcement for joint mitigation of such incidents. We would need to have discussions with law enforcement and fire department leadership determine changes in fire department response and actions.
16. We would wait if we do not know definitively the status of the shooter
17. The lack of action would lead to a delay in patient care.
18. By incident would have to do a risk assessment whether can enter certain or not depending on information provided regarding the incident.
19. We would assemble our rapid entry team and standby until enough law enforcement arrived on scene. we would start performing rescues.
20. We would have to revamp our policies and procedures. This would present us with a step in the wrong direction and would be a setback for the training we have done and the measures we have already put in place based on a joint response and the Rescue Task Force concept.
21. We would not enter a scene until secured and accompanied by law enforcement
22. Depending on incident Fire/EMS would make entry with maximum protection
23. no comment
24. The department would show up at an event and stage in a cold zone awaiting an all clear from law enforcement. Then triaging would begin for the injured parties still inside or awaiting care.

Opened-Ended Question Responses

25. We would hail people who could follow directions and hope to get them out of a hot or warm zone to allow treatment and transport where force protection is not available. Otherwise, there will be a delay in LEO being able to create warm zones and for an RTF to be able to assemble and operate.
26. These services in our area govern by unified command, which would be a decided based on incident.
27. Fire units would stage away from the incident waiting for police to secure the scene
28. Stand-by until scene is fully cleared
29. Stage in quarters until call declared secure.
30. Just as the name applies
31. We would have an extremely tough time with that. We might act anyway.
32. We would have a unified command system in place. I would strongly encourage the police chief to use the members of our fire department in some form.
33. It would put us back to the days of standing by while victims die - unacceptable
34. We would have to wait until the scene was secure so we could triage and treat patients.
35. Would wait until cleared by LE
36. They will still wait for the scene to be cleared of danger.
37. Not respond to the scene but stage a great distance away, wait for Law Enforcement to arrive and clear the scene before coming to the scene.
38. FD would stage in cold zone until threat was neutralized
39. Stand fast until cleared by PD
40. Would explain to borough, County, and state officials of the situation and how it would negatively impact response.
41. We would have to wait for the PD to allow the FD access to a scene
42. demoralizing as it was preventable if logic would prevail
43. Standby until notified the scene is safe
44. Wait for additional outside law enforcement agencies to neutralize the threat before we could assist with medical aid.
45. we would have to wait until incident is cleared before treating wounded
46. We would standby and await the police, we would not enter the building/hot zone
47. We would do so to protect our members. However, it appears that such a move would cost lives based on experience at other events around the country.
48. As per condition
49. An officer would report to the Command post while equipment and personnel would stand-by at our main station until they received instructions.
50. Respond and safely stage, until incident is secured.
51. We would have to wait until the shooter (s) are neutralized before making entry to treat
52. we would be going backward in both response and training not to interdict
53. Revert back to Level 1 staging and wait for all clear from Police.
54. We would be forced to do so, creating ethical and moral dilemmas
55. The department would update the Public Safety Director on the need to change tactics to explore other alternatives such as certifying a contingent of members as LEOs.
56. In my opinion to revert back to this model would take us back 20 years prior to Columbine and that means that more people with die. The only way for the system to work is in conjunction with both Police and Fire working together. Fire crews would not be able to enter without the protection of police.
57. We would do as much as we can while keeping our firefighters as safe as we can.
58. Units would need to make a "go-no go" decision based on patient location and acuity and best information available.
59. We would have to place Fire Department personnel in ballistic vests in order to save lives.

Opened-Ended Question Responses

60. No impact except increased risk of patients
61. Re-evaluation of standard operating guidelines, with an increase in regional input and coordination.
62. We will continue to stand by until the scene is rendered safe by law enforcement.
63. Community outreach in conjunction with LE would be needed. A stand-by model does not meet the expectations/standards we will be judged by following the event.
64. The FD has three-armed fire investigators and would consider using them to provide force protection to allow a rapid entry team of firefighters in full body armor (level IV)/ballistic helmets to locate and extract viable victims to save lives. This is the highest risk activity imagined.
65. I do not believe we would ever go back.
66. staging and prep for incoming casualties
67. We would retrain and adapt.
68. There would be a drastic increase in fatalities due to delays in patient care.
69. Adapt as best as we could and do what we can to deliver care.
70. We would have to wait until law enforcement arrived and secured the area, removed the victims to our location, or eliminated the threat/suspect.
71. Adapt to the situation and keep personnel safe until shooter is neutralized by LEO.
72. This would not happen in our jurisdiction
73. Listen to and obey all commands from law officials.
74. Stand by
75. Probably will not happen
76. It is difficult to imagine stepping back to a stand-by model. We simply would not leave life and safety in the front yard. It's not a reasonable approach. Our department is pro-active in training and response.
77. Require staging until scene can provide a level of safety
78. We can immediately shift to a stand-by approach
79. treat wounded
80. We would do the best we could treating patients within the safety confines of member safety.
81. We will always focus on firefighter/responder safety when responding.
82. We would have to review our options if this occurred.
83. revisit staging policies
84. We would wait for law enforcement to stabilize the incident.
85. It would require extensive retraining, firefighters in our area have always trained to work side by side with police in this type of situation The patient treatment time would be impacted.
86. We would not revert back. There is no indication that any change in our response would be necessary.
87. Not an option
88. We are almost at that point still. We have very few law enforcement personnel to handle such an event in my rural county. Until law enforcement gets on board and wants to prepare for an active shooter event, we are at their mercy.
89. stand-by
90. Currently countywide we stand by for law enforcement to notify FIRE that the scene is secure for entry. The difference now in Washington State with HB 1310 is that each LE agency takes a different view of what the law requires, ranging from: do not arrive at the scene unless a crime has been committed, to no changes from pre-HB1310 practices of arrive quickly, support FIRE.
91. Safety would still be number one. We would have a delay in care for the wounded, but firefighter safety is number one and we would have to stage until proper LE was on scene.
92. We love blue canaries.

Opened-Ended Question Responses

93. Select risk reward-based actions based on best intelligence we could gather from CCTV, drones, apps, and other technology.
94. My department would assist to the fullest capacity once safe for the EMTs. This would be frustrating.
95. Wait for law enforcement
96. Our department will work in conjunction with available law enforcement in the training and response to such incidents. Law enforcement is scarce in our County and travel times can be extensive (up to 1.5 hours).
97. Greater Loss of Life
98. We would build a new model
99. Assist EMS with causality assessment and care.
100. Your research project has some significant bias on the defund the police concept. In my jurisdiction, the decision makers are looking to properly fund the right people to respond for the right need.
101. Longer wait times with communication issues
102. Fire personnel would have to stand-by and/or stage away from the incident, as well.
103. We would revert to the old model of standing by, in the cold zone, until the threat was completely neutralized.
104. Reverting to past practices for active shooter could reduce the chances of victim survivability.
105. We are stand by in cold zone
106. We are in standby as we have not been funded with NFPA 3000 PPE and police have not transitioned to including Fire in Active shooter incidents even in training despite attempts to change that
107. Push back against it
108. revert back to stage until clear in
109. We would revert to the old model of standing by, in the cold zone, until the threat was completely neutralized.
110. Our personnel would stage at safe location until the arrival of LE. With this, there would be serious decline in patient care resulting in possible dire outcomes. It would be hard to go back to this model, we need LE for everyday events, not only active shooters.
111. We would work hard to get back to assuring PD had the appropriate resources. When crews have to wait while someone needs help, that is unhealthy for the patient and for the firefighters. We are called to help...this will absolutely put our firefighters at risk because they will put themselves in harm's way to help someone in need.
112. "Denver Fire considers the safety of the members seriously. Although the job of a
113. firefighter is inherently dangerous, in the instance of a standby model, DFD will not aggressively mediate patient care or scene stabilization until an all-clear declared by Denver Police."
114. This would be difficult as our staff are equipped and trained for these scenarios.
115. We would consider arming our personnel
116. Engage the political process to evoke public education and concern. What risk is the community when informed willing to take. Make sure the community knows the service level and who owns the decision.
117. There would be unnecessary death as a result of the inability to treat patients
118. Push back against it
119. Our personnel would stage at safe location until the arrival of LE. With this, there would be serious decline in patient care resulting in possible dire outcomes. It would be hard to go back to this model, we need LE for everyday events, not only active shooters.
120. We would work hard to get back to assuring PD had the appropriate resources. When crews have to wait while someone needs help, that is unhealthy for the patient and for the firefighters. We are

Opened-Ended Question Responses

called to help...this will absolutely put our firefighters at risk because they will put themselves in harm's way to help someone in need.

121. "Denver Fire considers the safety of the members seriously. Although the job of a
122. firefighter is inherently dangerous, in the instance of a standby model, DFD will not aggressively mediate patient care or scene stabilization until an all-clear declared by Denver Police."
123. This would be difficult as our staff are equipped and trained for these scenarios.

Q33: In your own words, please describe how you think your community will respond if emergency law enforcement and fire service responses are delayed due to challenges mobilizing resources to response to an active shooter mass causality incident.

1. It would have a negative impact on both organizations
2. Before an event occurs, little notice...after the fact, there would be a cry for change.
3. Unfavorably
4. I think overall the community would be displeased if they knew we had the resources and training to provide rapid response with the chance of increased survivability and it was hindered due to mobilizing resources.
5. EVERYTHING in this world occurs as a reaction to something else. After 9/11, police and fire were put on a pedestal and got whatever funding they needed. Then recent events reverted that back to being worse than before in some areas. It's only a matter of time before we have another Columbine incident where law enforcement was slow to assemble, because of their defunding, and suddenly people will start demanding the very thing they fought against once before.
6. The community would not stand for it. The support for Fire, EMS, and Law Enforcement in this community is very strong and the community would do what it would have to in order to support both agencies to get what they would need.
7. there will be an outrage
8. The community would be extremely disappointed in our performance based on their expectations of emergency services they pay for.
9. It would be negative and any thought of defunding law enforcement in any way is half hazard and really doesn't make logical sense. If anything, they need more funding to ensure training is at the highest level possible. The issues that are arising in law enforcement now are a direct derivative of poor training and a lack of getting out clear facts early on in incidents. Some of these issues are culture of law enforcement departments and some are direct results of bad case laws dictating bad procedures within the departments.
10. Question why it was not done
11. With almost routine exposure to active shooter events elsewhere and news cycles of immediacy, it has become unacceptable for public safety agencies to not have contemplated and prepared for plans and contingencies for these types of events. Our community would rightfully be frustrated and angry if we were not prepared to mobilize a response, regardless of the effectiveness of that response.
12. They would be outraged at the notion there was a delay.
13. It is my opinion that the community would be highly critical of both departments. This would negatively impact department budgets, morale, recruitment, and retention...etc.
14. There is an expectation that we will be trained and able to get to the injured in an active shooter scenario. The community would be upset, and rightfully so. An active shooter is a painful incident for the entire community. If there is a perception that not everything was done to save the injured or stop the shooter, city leadership may face difficulties.

Opened-Ended Question Responses

15. They would be angry
16. Adapt with expectation to provide care
17. The community would be upset by delayed response and actions during such an event.
18. They would be outraged
19. It could lead to an increase in patients or an increase in mortality of patients.
20. The community would be disappointed. Our community strongly supports fire and law enforcement.
21. I do not believe they would support a delay in response due to a reduction in law enforcement.
22. Our community would not tolerate any delay in mobilizing resources for these types of critical events and would voice their concerns to the elected officials and chiefs of both departments very quickly.
23. Our community would be displeased
24. The Fire/EMS department take calculated risk on a daily basis, we protect and provide for the safety of the public
25. There are high expectations of public safety, most in part due to our mayor's support. The village would support any needs we have
26. I believe there would be intense scrutiny and an immediate call for changes.
27. I feel the community would be in an uproar and there would be a significant political battle as the City Council has repeatedly failed to take corrective action to raise the ceiling they created in the number of LEO.
28. Outrage would be first, then rational thinking would begin to take over
29. Not Well
30. There is an expectation when someone calls 911. That expectation is help is on its way. Any deviation from that would be unacceptable.
31. Negative perception. Taxes are paid to provide services with highest priority services including public safety.
32. Our community would respond negatively if they knew our public safety agencies were not providing services as outlined by NFPA and best practices. They expect a high level of service.
33. The community would look for someone to challenge and expect answers
34. I don't know if the majority of the public really understand what responses are or if a delay occurs.
35. The community would be outraged if we failed to meet their expectations, but it would probably make it easier for us to get funding for more frequent training, and more adequate equipment.
36. I feel our community would not be satisfied with a delayed response in any form. As a rural/urban community we have several law enforcement agencies to respond to an active shooter event. Everyone would be willing to help out in any way that could be done safely.
37. I honestly don't see that happening in our community. The fire and police departments have a very positive relationship, share a facility, work together on various initiatives, and are both well supported by the town. The police have an active SRO program with the support of the schools and community.
38. "They obviously would be concerned, and I'm sure upset with the reduction of service.
39. "
40. Outraged
41. It will all depend on the media's perspective.
42. The negative effects would be community wide. Both departments hold themselves to the highest-level regarding community involvement and responses.
43. The community expects prompt service from both the Police and Fire/EMS. If there is a delay due to mobilizing issues, there is an outcry and anger with these services.
44. I believe the local PD would be given the resources to prepare. Sandy Hook is two towns away and that tragedy is a strong reminder of the potential threat and the need for preparedness.
45. Our residents would not feel protected during such an emergency

Opened-Ended Question Responses

46. I believe the public would be disappointed if there was change in our public safety response in our community.
47. I believe the community would side with our challenge and would assist at local meetings, etc.
48. The community would complain about the lack of public safety resources
49. Citizen outrage, Press outrage and council investigation
50. They would respond with many questions as why this was allowed to happen.
51. They would be outraged and demand action
52. The community would respond with outrage and disappointment.
53. I don't think the community as a whole view the "defund police" movement as affecting an active shooter response. However, if there is a delay in responding to an incident obviously this would negatively affect the outcome. This delay does not mean that the fire department would put its members in jeopardy by entering a dangerous and unstable environment without police support. We would still respond and await the police. At the local level, it is my opinion that the police would arrive on scene prior to the fire department.
54. Community is supportive and would rally to try to provide the needed resources.
55. Extremely negative
56. There would be a lot of questions on what took so long and why no one was able to do anything.
57. Get what they voted for.
58. As most community's struggle with the dilemma of downsizing LE, I don't believe that they have any understanding as to what the consequences would be. In this case, they would question why the delay and be upset those lives were lost
59. They would not know until after an emergency. They assume we are ready and expect a response. At that point they would react and hopefully changes would occur.
60. First: our community is very Public Safety conscious and would not tolerate an elected official cutting public safety resources once they become aware of the intention. Second: as the host community for the regional High School, daily population 3000 staff and students, should we delay actions at an event there a public outcry for the resignation of those responsible for creating the conditions that caused delayed actions would be demanded. Third: Department heads would be pressured to resign or made the scapegoats by elected officials. Fourth: just a PR disaster with the loss of public trust for many years. Fifth: responder moral and mental health will suffer, the what if I, had I only, I shouldn't have held back mind questions will cause resignations or even worse...suicides.
61. "Casualties and morbidity will increase
62. "
63. The community would criticize the response immediately after the incident, much like they currently do. The public outcry would fade quickly after the next community crisis. The lawsuits would continue for years, much like is accruing now.
64. I believe the defunding the police sounds good to some in theory. Unfortunately, most communities struggle to have individuals willing to be part of law enforcement. While there is plenty of room for improvement and policing needs to change, doing the same thing and expecting a different outcome, is not reasonable. I believe the public would not stand for it.
65. We would do as much as we can while keeping our firefighters as safe as we can.
66. Rarity of such events would result in little public concern
67. I believe they would get angry, and it would only further exacerbate the current situation
68. There would be an after-action review if there was a delay in coordinated response. I would anticipate legal consequences against individuals for negligence.
69. The incident will likely result in a less than favorable outcome; therefore, the community will perceive a negative outlook on their emergency services and public safety officials.

Opened-Ended Question Responses

70. I think our community would respond like many. Unfortunately, their displeasure would be both misinformed and misdirected. For perspective understand that our agency is not a municipal or government entity. In my county the non-municipal fire departments are independent contractors who serve the county and protect the unincorporated areas. Our funding, though, remains directly in the hands of county government and despite exponential growth in our county, the funding for all emergency services is growing incrementally. No one local entity is prepared for something on a large scale like we have seen nationally. A historical lack of funding has created a situation where we are all unprepared. My agency relies on part-time and volunteer staffing despite serving 20,000 residents over 36 square miles, and a call volume over 1,400 run per year.
71. I strongly believe our community would support shoring up FD and/or LE resources to remain ready to handle an active shooter event in a manner that ensures we get medical treatment to injured victims at the earliest time possible.
72. "Although I believe they would be very critical, most communities talking about defunding the police a) don't clearly understand what that means and uses words like ""defunding"" to actually mean moving funds away from primary LE to mental health management and treatment; and b) have never experienced an active shooter incident involving a school or other mass-gathering location.
73. LE has been placed in the impossible situation of being the primary response agency to a condition created by the de-institutionalization of a community of previously institutionalized mentally ill individuals (in the 1990's). These individuals were turned back to their families who could never care for them, resulting in homelessness, leading to these same individuals losing access to medication management. Without medications, these individuals fall into ""criminal activity"" wherein they are forced into the criminal justice system where perversely, they actually get mental health care and med management; or they fall into illegal drug dependency that then forces them back into the criminal justice system. In just about all cases, the lack of in-patient long-term beds for chronically mentally ill patients means that only the most extremely violent or dangerous people are given beds. The majority of chronically mentally ill people who live on the streets lack access to consistent professional safety nets. All of this is to say that LE is put in the impossible position of dealing with these individuals and end up in a circumstance of having to use force to protect themselves or others. It is a never-ending cycle. Without understanding and managing the root causes of homelessness and mental health crises in our communities, the proximate issue of defunding the police will never actually solve the problem that it intends to solve. "
74. I believe there would be significant community outrage.
75. negatively
76. Our community is very supportive of our law enforcement and fire departments.
77. The community would not understand the reason for the delay and thus mass confusion as to why.
78. They would be upset but as small department delays are a harsh reality. The resources are limited, and manpower is always a problem.
79. It is obvious that delaying/limiting law enforcement will result in delayed patient care as they are necessary to allow EMS to safely initiate early patient care. The alternative would be to place EMS personnel in greater risk.
80. Depending on the impact of the event, unify for change more than likely.
81. This is speculation. We are responding to mass shootings nearly every day, our teams work together all the time - this question doesn't really apply to us. My concern and my community's concern are the violence in general, not our response.
82. Not well.
83. It is a lose, lose situation. My local law enforcement doesn't involve my department at all in the thought of active shooter
84. They would be disappointed

Opened-Ended Question Responses

85. Delays happen but we will not risk life and safety by delaying response. We are well coordinated in our response and have members of our department as active members of our SWAT team.
86. We will have negative response. Delays in these situations even if overwhelming for the agency the community still expects us to act.
87. We have a cooperative mutual aid system in place with our county and the City of San Antonio literally a few minutes away and part of the overall response platform
88. concerned
89. There would be public outcry and negativity towards Public Safety.
90. The community will expect a rapid, aggressive response and will voice concerns if we are unable to provide an appropriate response to an active shooter.
91. There would be a public outcry in our community with any slow response times.
92. not well!
93. They would be concerned but, in my opinion, understand that what we did was to prevent emergency responder casualties.
94. I think the public will be outraged at a lack of response. Society today expects emergency services to respond and provide immediate care. I also think that lawsuits would be filed in the event we had to stay outside and not act immediately.
95. It would have a negative impact on our organization's impression with the public.
96. It would not be well received in the community, which is why there would be no delay in our response.
97. We will respond as we have always done, in conjunction with law enforcement, as we do not have this issue.
98. It's totally going to be unorganized chaos and will have a negative impact on public safety in our county.
99. Not sure, shelter in place
100. Unfortunately, in the post "MeToo" / "I saw a video of how it went down, so I have enough information to be the judge" / "We have to let people live where they want and we aren't going to force the homeless off of private or public property" era, we see that that LE has a bad name. Our community is so close to Seattle and in the intra-pandemic protests that turned against government and against LE in the Capitol Hill CHAZ / CHOP protest zones, the community is someone poised against LE but still supportive of FIRE. However, if FIRE didn't help someone who had the community's empathy, the community would criticize LE and FIRE.
101. Not well. Both departments are on levies.
102. Our community would not support a delay of action into hot zones to support victim retrieval and treatment.
103. They would be upset, but in a volunteer department the public realizes that response can be very limited and any help as a department is welcomed.
104. There would definitely be frustration towards Fire Dept. leadership and Sheriff's dept. leadership.
105. Law enforcement and us to respond and protect our citizens
106. The community is supportive and law enforcement and fire service and understand the challenge of mobilizing resources. We are a 100% volunteer fire department with declining membership. The community will take necessary actions while emergency response and mobilization happen.
107. Systemic loss of trust.
108. "As effectively as possible given the specific circumstances of the specific incident given the limitations. The last several questions are ambiguous.
- 109."
110. Our community would demand changes to be implemented to correct first responder delays.
111. Hypothetical and frustrating question. Not happening here.
112. There will be a greater risk of lives lost without immediate care.

Opened-Ended Question Responses

113. Fire resources would stage a safe distance from the scene and wait until it is secured to allow safe entry of unarmed fire personnel.
114. In our city, residents react to crisis. Forecasting for potential threats does not seem to resonate with the population here. A delay in response would be met with shock and horror and likely some anger...despite the level of public education about the "what if."
115. I believe that the community would not support a reduction in response time or a reduction in fire/law effectiveness when responding to active shooter incidents.
116. If LEO cannot stop the threat, the threat will continue to hurt people. With more people hurt, there more patients to treat, and a lower survivability rate for victims.
117. Our community would react like every other with outrage and grief looking for targets to display anger towards
118. Citizens would expect and demand that changes be made in order to improve response times
119. This would cause political issue
120. In our city, residents react to crisis. Forecasting for potential threats does not seem to resonate with the population here. A delay in response would be met with shock and horror and likely some anger...despite the level of public education about the "what if."
121. The community would be outraged over such an event. They pay taxes to feel protected and when we cannot provide that protection, they have every right to be upset. This would also affect any future involvement by taxpayers on other funding requests, which could lead to diminishing fire service employees and equipment. Our industry is changing all the time and we need to keep up, not go backwards. The concept of defunding any LE or citizen protection has to stop, and we need to think about our actions as politicians and community leaders.
122. The community would lose faith in their public safety teams if they felt they were not given proper care. A delay in response would be devastating to patient care and the delay in treatment could cause someone their life.
123. In general, the community would be outraged by a delayed response to an active shooter or MCI. Despite some potential reformation to the current policing model, the community that is impacted would be vocal through multiple avenues.
124. Our community would be very concerned, because they know our capabilities today.
125. They would consider/reconsider actions to make it necessary for engagement, treatment, and extraction
126. They will be extremely concerned and looking to blame.
127. Not favorable, they would blame the PD!
128. Citizens would expect and demand that changes be made to improve response times
129. The community would be up in arms over such an event. They pay taxes to feel protected and when we cannot provide that protection, they have every right to be upset. This would also affect any future involvement by taxpayers on other funding requests, which could lead to diminishing fire service employees and equipment. Our industry is changing all the time and we need to keep up, not go backwards. The concept of defunding any LE or citizen protection has to stop, and we need to think about our actions as politicians and community leaders.
130. The community would lose faith in their public safety teams if they felt they were not given proper care. A delay in response would be devastating to patient care and the delay in treatment could cause someone their life.
131. In general, the community would be outraged by a delayed response to an active shooter or MCI. Despite some potential reformation to the current policing model, the community that is impacted would be vocal through multiple avenues.
132. Our community would be very concerned, because they know our capabilities today.

**APPENDIX F:
TABLE 11 REFERENCE**

Table 11 Reference
Research Question #1
How has the national fire service responded to NFPA 3000?
<p>Hypothesis #1 There is an association between fire departments that have adopted NFPA 3000 and the number of permanent residents and visitors they provide service to.</p>
<p>Dependent Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #2: Has your department adopted the National Fire Protection Association (NFPA) 3000 standard? Independent Variable: [Continuous / Ratio Scale] Question #28: What is the population (permanent residents) your department has primary responsibility to protect? Variable: [Continuous / Ratio Scale] Question #30: What is the peak (daily) number of visitors your department services daily? Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #A: What is the national region of your department? West, Midwest, Northeast, or South Variable: [Categorical / Nominal Scale] (Coded: 1-5) Question #27: The community your department serves is considered: 1) Metropolitan, 2) Urban, 3) Rural or, 4) Combination Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #2 There is an association between fire department type (volunteer or career) and the amount of time the department took to change its policies on an ASMCI.</p>
<p>Dependent Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #8: How quickly have your fire department policies on active shooter mass casualty incident response changed since the implementation of NFPA 3000 in 2018? Variable: [Continuous Scale] Question #A: What is your department type? 1)Career, 2) Mostly Career, 3) Mostly Volunteer, or 4) Volunteer Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #27: The community your department serves is considered: 1) Metropolitan, 2) Urban, 3) Rural or, 4) Combination Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South</p>
<p>Hypothesis #3 There is an association between fire departments that provide EMS transport services and the population of permanent residents and visitors they serve.</p>
<p>Dependent Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question 26: Does your department provide Emergency Medical Service Transport? Independent Variable: [Continuous / Ratio Scale] Question #28: What is the population (permanent residents) your department has primary responsibility to protect? Variable: [Continuous / Ratio Scale] Question #30: What is the peak (daily) number of visitors your department services daily?</p>
<p>Hypothesis #4 There is an association between fire departments that have experienced an ASMCI and their perception of how the fire service delivery to an ASMCI has changed after the implementation of NFPA 3000.</p>
<p>Dependent Variable: [Ordinal Scale] (Coded: 1-5)</p>

Table 11 Reference
<p>Question #9: As a fire official, what is your perception of how much the fire service improved its service delivery on active shooter mass causality incidents since the implementation of NFPA 3000? Independent Variable: [Categorical / Nominal Scale] (Coded: 0,1)</p> <p>Question #6: Has your community experienced an active shooter mass causality incident? Variable: [Categorical / Nominal Scale] (Coded: 1-4)</p> <p>Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Categorical / Nominal] (Coded 0,1)</p> <p>Question #1: If there was an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization? Variable: [Continuous / Ratio]</p> <p>Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #5 There is an association between fire departments familiarization with NFPA 3000 and whether their community experienced an ASMCI.</p> <p>Dependent Variable: [Categorical / Ordinal Scale] (Coded 1-4)</p> <p>Question #3: How familiar is your fire department with the NFPA 3000 standard? Independent Variable: [Categorical / Nominal Scale] (Coded: 0,1)</p> <p>Question #6: Has your community experienced an active shooter mass causality incident?</p>
Research Question 2
<p style="text-align: center;">What is the national fire service perception of the defund law enforcement movement regarding an ASMCI?</p>
<p>Hypothesis #6 There is an association that the defund law enforcement movement has impacted law enforcement budgets through legislative actions by fire department regions.</p> <p>Dependent Variable: [Categorical / Nominal Scale] (Coded: 0,1)</p> <p>Question #13: The term defund law enforcement is being defined in this study as proposed legislation to reduce law enforcement budgets or proposal to disband the police department. Has the defund law enforcement movement in your community propose legislation to reduce law enforcement's budget? Independent Variable: [Categorical / Nominal Scale] (Coded: 1-4)</p> <p>Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Categorical / Nominal Scale] (Coded: 1-4)</p> <p>Question #27: The community your department serves is considered: 1) Metropolitan, 2) Urban, 3) Rural or, 4) Combination Variable: [Continuous / Ratio]</p> <p>Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #7 There is an association between fire officials' perception that the defund law enforcement movement can negatively affect an ASMCI and fire officials' experience in the fire service.</p> <p>Dependent Variable: [Categorical / Ordinal Scale] (Coded: 1-5)</p> <p>Question #20: As a fire official, is it your perception that if the defund law enforcement movement impacts our community, the movement could negatively affect active shooter mass causality incident training and response? Independent Variable: [Continuous / Ratio]</p> <p>Question# 38: How long have you worked in the fire service?</p>

Table 11 Reference
<p>Variable: [Categorical / Nominal] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South</p> <p>Variable: [Categorical / Nominal Scale] (Coded: 1-5) Question# 37: What is the highest degree or level of school you have completed?</p> <p>Variable: [Categorical / Nominal Scale] (Coded: 1-3) Question #39: Which gender do you identify most with?</p> <p>Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #6: Has your community experienced an active shooter mass causality incident?</p>
Research Question #3
How will the fire service change its response practices to address changes in joint response conditions associated with the defund law enforcement movement concerning NFPA 3000?
<p>Hypothesis #8 There is an association between fire officials' perception that their department had measurable objectives to respond to an ASMCI before implementing NFPA 3000 and the time it took them to change their policies after implementing NFPA 3000 in 2018.</p>
<p>Dependent Variable: [Categorical / Ordinal] (Coded: 1-10) Question #10: As a fire official, on a scale of 1-10, what is your perception on whether there were (measurable) objectives in your department before NFPA 3000 on how fire departments should respond to an active shooter mass causality incident?</p> <p>Independent Variable: [Continuous / Ratio] Question #8: How quickly have your fire department policies on active shooter mass casualty incident response changed since the implementation of NFPA 3000 in 2018?</p> <p>Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South</p> <p>Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p> <p>Variable: [Categorical / Ordinal] (Coded 1-10) Question #11: As a fire official, please prioritize the importance of having law enforcement and fire departments train on how to respond to an active shooter mass causality incident.</p> <p>Variable: [Categorical / Nominal] (Coded 0,1) Question #1: If there was an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization?</p> <p>Variable: [Continuous / Ratio] Question #5: How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident?</p> <p>Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #9 There is an association between fire officials' priority on training for an ASMCI response and whether their department is responsible for incident stabilization at an ASMCI.</p>
<p>Dependent Variable: [Categorical / Ordinal] (Coded 1-10) Question #11: As a fire official, please prioritize the importance of having law enforcement and fire departments train on how to respond to an active shooter mass causality incident.</p> <p>Independent Variable: [Categorical / Nominal] (Coded 0,1) Question #1: If there was an active shooter mass casualty incident in your community, would your fire department respond to the emergency to provide incident stabilization?</p> <p>Variable: [Continuous / Ratio]</p>

Table 11 Reference
<p>Question #5: How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident? Variable: [Continuous / Ratio]</p> <p>Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #10 There is an association between fire officials' perception on joint training with law enforcement to respond to an ASMCI and the service area (in miles) their department provides services to.</p> <p>Dependent Variable: [Categorical / Ordinal] (Coded: 1-5) Question #20: As a fire official, is it your perception that if the defund law enforcement movement impacts our community, the movement could negatively affect active shooter mass causality incident training and response? Independent Variable: [Continuous / Ratio] Question #31: What is the service area (in miles) your department has primary responsibility to protect? Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #6: Has your community experienced an active shooter mass causality incident? Variable: [Categorical / Binary Scale] (Coded: 0,1) Question 26: Does your department provide Emergency Medical Service Transport? Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #11 There is an association between the fire officials' perception that their fire department will modify their response to an ASMCI if law enforcement cannot assemble a rapid entry team and whether their community experienced an ASMCI.</p> <p>Dependent Variable: [Categorical / Ordinal Scale] (Coded 1-5) Question #23: As a fire official, is it your perception that your fire department will modify its response to an active shooter mass causality incident if law enforcement cannot assemble a rapid entry team as defined by NFPA 3000? Independent Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #6: Has your community experienced an active shooter mass causality incident? Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #12 There is an association between the perception of fire officials that if law enforcement cannot converge quickly at an ASMCI, causing a delay in treating the wounded and whether their department provides Emergency Medical Services transport.</p> <p>Dependent Variable: [Categorical / Ordinal Scale] (Coded: 1-5) Question #21: If law enforcement cannot converge quickly at an active shooter mass casualty incident, as a fire official, is it your perception there can be a delay in treating the wounded? Independent Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question 26: Does your department provide Emergency Medical Service Transport? Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #26 a: What is the type of EMS services provided by the department: 1) ALS or, 2) BLS. Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #27: The community your department serves is considered: 1) Metropolitan, 2) Urban, 3) Rural or, 4) Combination Variable: [Continuous / Ratio]</p>

Table 11 Reference
<p>Question #31: What is the service area (in miles) your department has primary responsibility to protect? Variable: [Categorical / Nominal Scale] (Coded: 1-4)</p> <p>Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Continuous / Ratio]</p> <p>Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #13 There is an association between fire officials' perception of the lack of training with law enforcement which can impact the outcome of an ASMCI, and the population of permanent residents they serve in fire department region.</p>
<p>Dependent Variable: [Ordinal Scale] (Coded: 1-5) Question #22: Suppose law enforcement cannot train with your fire department on active shooter mass causality incidents; as a fire official, is it your perception it can impact the successful outcome of managing the emergency incident? Independent Variable: [Continuous / Ratio Scale] Question #28: Population (permanent residents) your department has primary responsibility to protect Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Continuous / Ratio] Question #5: How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident? Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #6: Has your community experienced an active shooter mass causality incident? Variable: [Categorical / Nominal Scale] (Coded: 0,1) Question #2: Has your department adopted the National Fire Protection Association (NFPA) 3000 standard? Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>
<p>Hypothesis #14 There is an association between fire officials' perception of the fire service changing its practices to address deficiencies associated with victim survivability at an ASMCI and the frequency of ASMCI training their department has with law enforcement.</p>
<p>Dependent Variable: [Ordinal Scale] (Coded: 1-5) Question #24: Is it your perception as a fire official that the fire service can change its practices to address unintended deficiencies associated with victim survivability at an active shooter mass causality incident if a response gap with law enforcement exists? Independent Variable: [Continuous / Ratio] Question #5: How often does your fire department train with law enforcement on procedures to respond to an active shooter mass casualty incident? Variable: [Categorical / Nominal Scale] (Coded: 1-4) Question #B: What is the national region of your department? 1) West, 2) Midwest, 3) Northeast, or 4) South Variable: [Continuous / Ratio] Question# 38: How long have you worked in the fire service?</p>

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