



NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

THESIS

**CHANGING THE PARADIGM: IMPLEMENTATION
OF COMBINED LAW ENFORCEMENT, FIRE, AND
EMERGENCY MEDICAL SERVICE (EMS) CROSS-
DISCIPLINARY RESPONSE TO HOSTILE EVENTS**

by

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December 2014

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SERVICE (EMS) CROSS-DISCIPLINARY RESPONSE TO HOSTILE EVENTS**

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ABSTRACT

Our nation relies on law enforcement, fire, and emergency medical services to protect citizens when confronted with emergent and hostile events. Mass shootings such as those that occurred at Columbine High School; Virginia Tech University; Mumbai, India; and Aurora Movie Theatre in Colorado require first responders to incorporate methods and tactics that integrate operations and challenge first responders to collaborate and operate in a unified manner.

This research examines how public safety agencies can effectively implement a first responder cross-disciplinary plan to better coordinate police, fire, and EMS responses. This study begins with a historical review of past incidents that demonstrate the need for cross-disciplinary teams. Next, new policies that support the use of cross-disciplinary teams are examined. Central to this research was an empirical study of the enablers and barriers to cross-disciplinary teams during a full-scale active shooter exercise. Illustrative findings among the participants in the exercise include a moderately high level of confidence in the concept and use of cross-disciplinary teams, the ability of various disciplines to trust each other's ability to work together, and the ability to communicate and share information. To establish and enhance the cross-disciplinary response, joint operational policies and procedures must be established.

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TABLE OF CONTENTS

I.	INTRODUCTION.....	1
A.	PROBLEM STATEMENT	1
B.	RESEARCH QUESTIONS.....	4
C.	SIGNIFICANCE OF RESEARCH	4
D.	ORGANIZATION OF THE STUDY.....	4
II.	BACKGROUND	7
A.	INTRODUCTION.....	7
B.	HISTORICAL EVENTS AND EXERCISES SUPPORTING THE NEED FOR CROSS-DISCIPLINARY TEAMS.....	8
1.	Columbine High School, Littleton, Colorado, 1999	8
2.	Virginia Tech University, Blacksburg, Virginia, 2007	11
3.	Mumbai, India, 2008.....	14
4.	Aurora Movie Theatre, Aurora, Colorado, 2012	16
5.	Tabletop Exercise, Fairfax County, Virginia, 2013	18
6.	Conclusion	21
C.	POLICY DEVELOPMENT.....	22
1.	Overview	22
2.	Identified Concerns.....	23
3.	Integrated Response Frameworks.....	25
4.	Fairfax County, Virginia	26
5.	United Kingdom Approach.....	29
D.	CONSIDERATIONS FOR IMPLEMENTATION OF A CROSS- DISCIPLINARY TACTICAL RESPONSE POLICY	32
1.	Overview	32
2.	Risk versus Benefit.....	33
3.	Unified Structure	35
4.	Program Support	36
5.	Policy Development.....	37
III.	LITERATURE RELATED TO CROSS-DISCIPLINARY TEAMS.....	43
A.	CROSS-DISCIPLINARY TEAMS	43
1.	Factors Contributing to Success of Cross-Disciplinary Teams	47
2.	Enhancing Team Effectiveness	48
3.	Barriers and Challenges for Cross-Disciplinary Teams.....	51
B.	CULTURE CHANGE	54
1.	Changing Culture in Public Safety.....	54
2.	Success in Merging Cultures.....	55
3.	Culture Change for Mergers and Acquisition.....	57
4.	Transformation into a Unified Cross-Disciplinary Culture.....	59
C.	SUMMARY	62
IV.	METHODOLOGY AND DESIGN	65
A.	INTRODUCTION.....	65

B.	FULL-SCALE EXERCISE DESIGN	65
C.	QUALITATIVE AND QUANTITATIVE DATA COLLECTION AND ANALYSIS.....	67
V.	FINDINGS	69
A.	FULL-SCALE PRE-EXERCISE ANALYSIS	69
B.	FULL-SCALE EXERCISE ANALYSIS	72
1.	Overall Quantitative Survey Results.....	73
2.	Group Comparisons of Quantitative Survey Results	77
C.	SUMMARY	81
VI.	SUMMARY, RECOMMENDATIONS AND CONCLUSION	83
A.	INTRODUCTION.....	83
B.	SUMMARY OF RESEARCH FINDINGS AND RECOMMENDATIONS.....	84
1.	Identify, Expand, and Integrate National Policies and Protocols to Support the Development of Unified Regional and Local Response Policies and Protocols.....	84
2.	Develop and Implement Unified Regional and Local Response Policies and Protocols	86
3.	Implement a Unified Hostile Event or Active Shooter Transition Team to Support the Development of Cross- Disciplinary Teams	87
4.	Implement Joint Operational Procedures to Support the Cross-Disciplinary Team Concept.....	89
5.	Develop and Implement Regularly Established Joint Training and Exercises	91
C.	SUGGESTIONS FOR FURTHER RESEARCH.....	92
D.	CONCLUSION	93
	APPENDIX A. “ACTIVE SHOOTER” TABLETOP EXERCISE QUESTIONS.....	97
	APPENDIX B. “ACTIVE SHOOTER” PRE FULL-SCALE EXERCISE QUESTIONS	99
	APPENDIX C. “ACTIVE SHOOTER” POST FULL-SCALE EXERCISE QUESTIONS	101
	LIST OF REFERENCES	105
	INITIAL DISTRIBUTION LIST	109

LIST OF FIGURES

Figure 1.	Team Effectiveness Model	49
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LIST OF TABLES

Table 1.	Post-Full-Scale Analysis Questions.....	74
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LIST OF ACRONYMS AND ABBREVIATIONS

AAR	after action report
ALS	Advanced Life Support
BLS	Basic Life Support
CAP	corrective action plan
CBRNE	chemical, biological, radiological, nuclear, explosive
CCP	Casualty Collection Point
COG	Council of Governments
DHS	Department of Homeland Security
EMS	emergency medical services
EOC	Emergency Operations Center
EOD	Explosive Ordnance Disposal
EOP	Emergency Operations Plan
ERT	Emergency Response Team
ETF	Extraction Task Force
FBI	Federal Bureau of Investigation
FEMA	Federal Emergency Management Association
HSEEP	Homeland Security Exercise and Evaluation Program
IAFC	International Association of Fire Chiefs
IAFF	International Association of Firefighters
IAP	incident action plan
ICP	Incident Command Post
ICS	Incident Command System
IED	improvised explosive device
JESIP	Joint Emergency Services Interoperability Programme
JIS	Joint Information System
LEEMS	Law Enforcement and Emergency Medical Services
MOU	memorandum of understanding
MTFA	Marauding Terrorist Firearms Attack
NCR	national capital region
NIMS	National Incident Management System
NRF	National Response Framework

NRP	National Response Plan
NFPA	National Fire Protection Association
NSG	National Security Guard
OIC	officer in charge
PHI	Protected Health Information
PII	personally identifiable information
PPE	Personal Protective Equipment
RTF	Rescue Task Force
SOP	standard operating procedure
SWAT	Special Weapons and Tactics
TCCC	Tactical Combat Casualty Care
TECC	Tactical Emergency Casualty Care
TEMS	Tactical Emergency Medical Services
TTX	tabletop exercise
UC	Unified Command
UASI	Urban Areas Security Initiative
USFA	United States Fire Administration
VBIED	Vehicle-borne Improvised Explosive
WMD	weapons of mass destruction

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I. INTRODUCTION

A. PROBLEM STATEMENT

Each day, local fire and emergency medical services (EMS) agencies work with their respective law enforcement agencies on myriad routine incidents like structure fires, auto accidents, and every-day police events. Less often, they encounter more complex incidents such as active shooter(s), acts of terrorism, hostage situations and other delicate hostile situations. It is during these complex events that collaboration among agencies becomes paramount to effective and safe incident mitigation.

Complex attacks on civilians such as those that occurred at Columbine High School; Virginia Tech University; Mumbai, India, and the Aurora Movie Theatre in Colorado require public safety first-responders to incorporate methods and tactics that integrate police, fire and EMS operations and challenge first responders to collaborate and operate in a unified manner. To safely and effectively mitigate emergent complex, paramilitary events, and encourage the collaboration of police, fire and EMS agencies, first responders should incorporate response frameworks to include strategic and operational policies that are compatible with each other, and align their respective cultures. Analysis of hostile incidents such as the Columbine High School shootings shows a need for proactive, standardized response plans to include concurrent police, fire and EMS tactical operations that necessitate joint incident command structures so that victims have a reasonable chance for survival.¹ Even so, new response tactics have not been widely studied nor implemented.²

In a 2012 thesis, Paul Atwater examined law enforcements' past practice and culture of waiting for the arrival of specialized teams to mitigate the event, while placing fire and EMS personnel in a "standby" or "staged" mode until the incident is declared "safe."³

1 United States Department of Homeland Security (DHS), *Wanton Violence at Columbine High School* (Emmitsburg, MD: United States Fire Administration, National Fire Data Center, 1999), 44

2 David Kohn. "What Really Happened at Columbine?" *CBS News*, April 29, 2009. <http://www.cbsnews.com/stories/2001/04/17/60II/main286144.shtml>.

3 Paul A. Atwater, "Force Protection for Fire Fighters: Warm Zone Operations at Paramilitary Style, Active Shooters Incidents in a Multi-Hazard Environment as a Fire Service Core Competency" (master's thesis, Naval Postgraduate School, 2012), 16–19.

Atwater concluded that this practice was ineffective. Instead, Atwater found that the optimal policy for safe and rapid access to victims requires police officers to escort firefighters and EMS into the warm zone of unsecured scenes.⁴ To achieve the fire and EMS life-saving mission, Atwater found that police, fire and EMS agencies must change their respective disciplines' culture and alter their operational methodologies and tactics. For the fire service, this means discontinuing the use of the "stand by" policy and for law enforcement, practicing inter-agency cooperation with the fire service and the use of cross-disciplinary teams as force protection and the extraction of victims.⁵ Atwater illustrates that much of the U.S. fire service has been slow to embrace change and update policies.

The current policy of fire and EMS personnel operating in a "standby" mode for hostile events is proving to be ineffective and may lead to the unnecessary loss of life by delaying timely and effective incident management and operational response.⁶ The basic premise is to initiate medical care as early as possible, often while law enforcement is still neutralizing the threat.⁷ The basic underlying goal of these cross-disciplinary teams must be to enhance incident operations by shortening the time required for victims to receive potential life-saving medical care, neutralize the potential threats in a rapid and efficient manner, and increase the safety for all personnel operating on the incident scene.⁸

To enhance this goal and as suggested by Atwater (2012), active shooter policies are being developed that are asking law enforcement personnel to employ a new policy of force protection that will require them to accompany and protect fire fighters in the areas with a potential threat to personal safety and health known as the warm zone.⁹ To deploy this new practice of force protection, fire and police departments need to establish joint standard operating procedures, guidelines, policies, and procedures that are designed to

4 Atwater, "Force Protection for Fire Fighters," 82–87.

5 Ibid.

6 Ibid.

7 Ibid.

8 Ibid.

9 Ibid.

mitigate these unusual highly volatile incidents and decrease response time and save lives.¹⁰ But creating these documents is not sufficient.

These cross-disciplinary teams must be supported by the development of an action guide or policy that includes guidelines for initial responder personnel; establishment of unified incident command; and identification of operational actions to integrate police, fire and EMS efforts under a common Incident Action Plan (IAP). Clearly, issuing a policy is not sufficient for effective integration. Transforming culture, persistently refining tactical guidelines, procuring and distributing tactical equipment, along with continuous combined training are key considerations necessary to implement new response methods.¹¹ In addition, programs, policies and cultural changes need support from multiple stakeholders, including senior and mid-level leadership, risk managers, city/county attorneys, human resources personnel, and representatives from labor organizations.¹² They must determine if the investment in a cross-disciplinary program is reasonable given the fiscal constraints, as well as the risk and benefits involved for first responders.¹³

This thesis examines the enablers and barriers to deploying cross-disciplinary teams for the purpose of safely and effectively mitigating emergent complex, hostile events. These enablers and barriers may include the support and buy-in from leadership and other levels of the organization, cultural changes, organizational motivation, return-on-investment to include available funding and resources, and the development of effective policies and procedures. Public safety agencies depend on one another for mitigating these complex, hostile events. Without proper coordination and collaboration before, during and after these events, the safety of our first responders will be diminished as well as the effective mitigation of the incident.

10 "IAFF Position Statement: Active Shooter Events," International Association of Fire Fighters, accessed December 29, 2013, http://www.iaff.org/Comm/PDFs/IAFF_Active_Shooter_Position_Statement.pdf.

11 Washington Metropolitan Council of Governments, "Law Enforcement Integration with NCR EMS: A Review of Tactical Medical Programs in the NCR" (unpublished manuscript).

12 Ibid.

13 Ibid.

B. RESEARCH QUESTIONS

This research tackles one primary question.

1. How can public safety agencies effectively implement a first responder cross-disciplinary action plan to better coordinate police, fire and EMS responses in combined hostile events?

Secondary questions also are addressed:

1. What are the enablers and barriers to effectively deploying cross-disciplinary teams?
2. What are the benefits of this approach? What are the risks?

C. SIGNIFICANCE OF RESEARCH

This study contributes to the public safety literature. While studies have analyzed past practices of specialized teams responding to complex hostile events and have shown the need for cross-disciplinary response teams, no studies were found that showed statistical analysis of an actual first responder exercise. Likewise, the extant literature does little to address “how” public safety agencies might implement cross-disciplinary response policies and associated considerations for development and implementation.

This study should also aid public safety agencies by showing how enablers and barriers can be used to develop new policy and procedures, improve training programs, and determine aspects of the culture that need to be changed.

D. ORGANIZATION OF THE STUDY

This study is presented in six chapters. Chapter I includes the problem statement, research questions, and significance of the study. Chapter II provides a background for the study which includes a description of four past key hostile events and a tabletop exercise, considerations for the implementation of a cross-disciplinary tactical response policy, and policy reviews for Fairfax County and the United Kingdom. Chapter III provides a literature review, including factors that contribute to the success of cross-disciplinary teams, factors that enhance team effectiveness, barriers and challenges to team effectiveness, and the impact of culture on the development of cross disciplinary teams. Chapter IV explains the research methods including data collection, data analysis,

and the exercise design. Chapter V presents the quantitative and qualitative results of a full-scale practical exercise. Chapter VI presents the summary, recommendations, and conclusions.

Complex hostile events to include active shooter type events require the combined efforts of many public safety agencies and levels of government working in a unified manner. Due to the unique nature of these incidents, the public safety agencies of police, fire and EMS must improve their desire and ability to coordinate their efforts and perform in a unified manner in the planning, training, response, and mitigation of these complex events. The goal of operating in a unified manner with common or shared incident objectives should be the primary goal of any incident however multiple goals are prevalent at these incidents. These include the safety and security of the public safety responders and the citizens, expeditious treatment of injuries, and legal prosecution of criminal acts. While each agency has higher priorities for each of these different aspects, they are all inter-related in the incident response. The desire of the agencies involved and the American public, are that events of this magnitude be mitigated in the shortest amount of time, with the least amount of casualties, with justice served to the terrorists performing these acts of harm.

To provide an effective response against these unique incidents, public safety agencies must work in a cross-disciplinary manner, developing non-traditional policies, training and response procedures to satisfy the agencies' goals and objectives. History has provided us a look into the future, and by analyzing, and learning from past incidents, public safety officials are provided an opportunity to learn from past successes and failures, and implement change in an effective manner. As a result of past complex hostile events, many agencies such as the United States Fire Administration and the International Association of Firefighters have begun to advocate for developing response guidelines for fire and EMS personnel to jointly work with police counterparts in a cross-disciplinary manner in the mitigation of these events.¹⁴¹⁵ The same is holding true for

¹⁴ United States Fire Administration, *Fire/Emergency Medical Services Department Operational Considerations*.

¹⁵ "IAFF Position Statement: Active Shooter Events."

police departments across the country as they change past tactics used in neutralizing the threat(s).

II. BACKGROUND

A. INTRODUCTION

This chapter focuses on the historical events that have led to a re-examination of how public safety agencies can effectively use and implement a first responder cross-disciplinary team concept to effectively coordinate police, fire and EMS responses in combined hostile events. The review will focus on the historical events surrounding the need and development of cross-disciplinary teams, the development of cross-disciplinary policies and protocols, and the considerations for implementation of a cross-disciplinary tactical response policy.

Researchers Blair and Martaindale analyzed active shooter events in the United States 2000 through 2010. Their research, which examined 84 active shooter events, provides fire, EMS and police administrators with empirical evidence and implications for training and equipment.¹⁶ The researchers also found that many of these events involve the disciplines of police, fire, and EMS responding together but failing to act in a cross-disciplinary manner. Frequently, fire and EMS operate in a “stand-by” mode and thus do not treat the victims in a timely manner.¹⁷ The current policy, prevalent in most jurisdictions, of EMS personnel not entering the scene until the incident scene or area is declared safe by law enforcement allows victims who have been shot or wounded to continue to bleed and hemorrhage to death. The research also concludes that the active shooter incident scene involves many variables and tasks to include: neutralizing of the shooter(s), securing Improvised Explosive Devices (IEDs), breaching secured areas, and medical interventions such as triage, stabilization, treatment and transportation of victims.

While historical events are no guaranteed indication of the future, analysis of past events can point to the successes and challenges encountered during these events. They can lead public safety officials and responders to implement new and improved policies,

¹⁶ J. Pete Blair and M. Hunter Martaindale, *United States Active Shooter Events from 2000 to 2010: Training and Equipment Implications* (San Marcos, TX: Texas State University, 2013).

¹⁷ Ibid., 6

tactics, and procedures that align the operational resources with the environment to which public safety first responders operate. The use of cross-disciplinary teams is one such improvement that can potentially help save lives.

B. HISTORICAL EVENTS AND EXERCISES SUPPORTING THE NEED FOR CROSS-DISCIPLINARY TEAMS

Complex tactical incidents require joint fire, EMS and law enforcement efforts. High-profile attacks such as Columbine High School, Virginia Tech University, Mumbai, India and the Century Movie Theatre in Aurora Colorado, clearly outline differences of engaging fire and EMS early in a law enforcement incident. Each of these events highlights the need to implement a cross-disciplinary response plan by updating current policies, procedures and response methodologies. These events were not chosen simply because of their high-profile nature, but each of these events demonstrates the imperative nature of engaging fire and EMS earlier in a law enforcement event to limit or prevent the unnecessary loss of life. Beginning with Columbine High School in 1999, the United States Fire Administration clearly identified the need for rapid rescue and medical intervention for tactical teams to reduce the time from incident to the initiation of life saving medical treatment if victims were to have any chance of survival.¹⁸ The past tactics utilized by fire and EMS waiting for the scene to be secured would clearly have to be modified.

1. Columbine High School, Littleton, Colorado, 1999

On April 20, 1999, in Littleton, Colorado, staff and students at Columbine High School became targets of one of the most violent school shootings in history. Two juvenile students, Eric Harris and Dylan Klebold, terrorized the school, ultimately killing 13 people and seriously injuring 24 others.¹⁹ After more than year of planning, Harris and Klebold, armed with explosive devices, knives, shotguns and automatic pistols, set

¹⁸ DHS, *Wanton Violence at Columbine High School*, 30.

¹⁹ *Ibid.*, 1.

out to kill hundreds of their fellow students and anyone who tried to stop them.²⁰ This unprecedented terrorist-style assault contained nearly 100 improvised incendiary and explosive devices, many of which were intended to harm first responders.²¹ According to the event timeline, the first shots occurred at 11:19 a.m., the last victim was shot at 11:35 a.m., and Harris and Klebold committed suicide at 12:08 p.m.²² While this was a relatively compressed timeline of violence, it was not until 3:44 p.m. that responding personnel were able to declare there were no additional survivors.²³

Responding fire and EMS personnel received conflicting information from police officers on-scene; some were directed into the scene proximity to rescue injured victims while others were directed to remain out of sight.²⁴ Heroic actions were in fact undertaken, with fire, EMS and police removing victims from outside the school while in harm's way and sometimes under fire from the assailants.²⁵ A letter written by Jefferson County Sheriff John Stone states that the "Columbine attack created a unique set of circumstances, the magnitude of which no one had ever dealt with before."²⁶ Faced with incomplete and conflicting information, Sheriff Stone said his officers did exactly what they were trained to do, by taking positions around the building and waiting for Special Weapons and Tactics Team (SWAT) to arrive.²⁷ Nearly two hours after the first shot was fired, a SWAT team finally entered the building to begin the task of neutralizing the shooters, who were since dead, and begin the task of identifying and removing victims.²⁸ For two and one-half hours, these SWAT teams systematically searched the building finding most persons dead or near dead. Fire and EMS personnel continued in a stand-by

20 Tracy L. Frazzano, "Local Jurisdictions and Active Shooters: Building Networks, Building Capacities" (master's degree, Naval Postgraduate School, 2012), 29–30.

21 DHS, *Wanton Violence at Columbine High School*, 1.

22 Frazzano, "Local Jurisdictions and Active Shooters," 30.

23 DHS, *Wanton Violence at Columbine High School*, 54.

24 Atwater, "Force Protection for Fire Fighters, 26.

25 DHS, *Wanton Violence at Columbine High School*, 14.

26 Kohn, "What Really Happened at Columbine," <http://www.cbsnews.com/stories/2001/04/17/60II/main286144.shtml>.

27 Ibid.

28 Ibid.

mode, delaying entry into the building until SWAT could declare the entire building safe.²⁹ It was clear from the report by the United States Fire Administrations (USFA) that firefighters and law enforcement were presented with challenges to the conventional strategies and tactics for fire and rescue agencies and clearly not prepared for the multi-hazard environment encountered at Columbine.³⁰

In his thesis, Atwater describes the delay caused by not utilizing cross-disciplinary teams:

Teacher Dave Sanders was in the second group of victims to be shot, at approximately 1126 hours. After Sanders escaped to a nearby classroom, a student called 911 operators and informed them of Sanders' condition and location. Just before noon, another student hung a makeshift sign out the window that said, "one bleeding to death." At 1208 hours, the assailants killed themselves. SWAT personnel entered the building in which Dave Sanders was located at 1310 hours. Although Dave Sanders had been bleeding for over three hours, he was still alive when SWAT arrived at his side an hour and a half later at 1442 hours. Forty-two minutes later, when paramedics finally reached him at 1544, Dave Sanders was dead.³¹

The delay in medical treatment for the victims contained in the area of threat at Columbine has forced public safety and the localities that employ them to re-evaluate the strategy of "contain-and-wait" for police and the "stand-by" policy for fire and EMS. This recommended shift in strategy was substantiated by Joel Justice who, in his 2013 thesis, identified the need to change police departments historical tactics of surround, contain, and wait for specialized units as the most important lesson that law enforcement has learned from the Columbine incident.³²

The United States Department of Homeland Security, U.S. Fire Administrations technical report *Wanton Violence at Columbine High School* provided an analysis of the fire and EMS operations and concluded that:

²⁹ Ibid.

³⁰ DHS, *Wanton Violence at Columbine High School*, 44.

³¹ Atwater, "Force Protection for Fire Fighters," 27.

³² Joel M. Justice, "Active Shooters: Is Law Enforcement Ready for a Mumbai Style Attack?" (master's thesis, Naval Postgraduate School, 2013), 27.

Hostile, multi-hazard situations – including acts of wanton violence – challenge the fire/EMS service to respond with nontraditional tactics and to operate under a unified incident command structure with law enforcement. Joint operations and unified command between law enforcement, fire and EMS are critical to successfully manage response to incidents ranging from natural disasters to acts of terror.³³

The analysis of the Columbine attack in Littleton, Colorado, has changed the way police, fire and EMS conduct operations. The USFA report recommends training fire and EMS responders in the actions of law enforcement, joint training initiatives, identifying and providing ballistic protection to fire and EMS personnel, and the promotion of policies, practices, and protocols to use common terminology and jargon among disciplines.³⁴ While the creation of cross-disciplinary teams were not immediately called for after this event, it was soon after that first responders and the public began to realize the need for fire and EMS to engage earlier into the incidents timeline.

2. Virginia Tech University, Blacksburg, Virginia, 2007

On April 16, 2007, Virginia (VA) Tech student Seung-Hui Cho entered West Ambler-Johnston Hall at approximately 7:15 a.m., shot two victims, and then fled the scene. These shootings prompted an emergency response from the Virginia Tech and Blacksburg police departments and subsequent investigation into the two fatal shootings.³⁵ At approximately 9:15 a.m., as the investigation progressed, Cho entered Norris Hall where he began a shooting spree, ultimately killing 32 students and professors and wounding an additional 25.³⁶ At 9:52 a.m., the last shot was heard, Cho killing himself with a gunshot to the head.

At 10:09 a.m., fire and EMS were advised that the scene was secured and personnel began a thorough survey of the incident scene, continuing the triage and treatment of the wounded begun by the tactical medics assigned to the

³³ DHS, *Wanton Violence at Columbine High School*, 2, 30.

³⁴ Ibid., 30–32.

³⁵ John P. Giduck and Walter D. Chi, *An Evaluation and Assessment of the Law Enforcement Tactical Response to the Virginia Tech University Shootings of Monday, 16 April 2007* (Golden, CO: Archangel Group, LTD., 2008), 12.

³⁶ Atwater, “Force Protection for Fire Fighters,” 32.

police department's entry team. The last injured person was removed from Norris Hall at 10:51 a.m.³⁷ This effort was enhanced because tactical medics accompanied the law enforcement emergency response team during initial assessment, and it was quickly determined the scene was secure, thus allowing remaining EMS personnel to enter and complete medical efforts started earlier.

Both the Blacksburg police department and the Virginia Tech campus police operated with a tactical medic assigned to their emergency response teams (ERTs) and both were requested early in the incident and immediately deployed on scene at West Ambler-Johnston Hall and Norris Hall.³⁸ While not a full cross-disciplinary team of fire and EMS, the ERT did maintain medical treatment capability, which proved invaluable. During this incident, the goal of the tactical medics were two-fold; identify the number of victims who were alive or dead, and to move ambulatory victims to a safe area where further triage and treatment could begin.³⁹ It was just 37 minutes after the first shot in Norris Hall, that tactical medics accompanied police officers into the building to begin the process of patient triage and treatment.⁴⁰ The triage of victims by tactical medics occurred just two minutes after their arrival at Norris Hall, where tactical medics continued moving the wounded to a safe area where further triage and treatment could be initiated. It was here that the tactical medics initiated advanced lifesaving care to include sealing penetrating chest wounds and controlling arterial bleeding.⁴¹

According to the after-action review by the Archangel Group, the delay on active shooter incidents between SWAT being called out and readied for deployment is 30 minutes to 2 hours, with an average time being 45 minutes to an hour.⁴² Both the Virginia Tech and Blacksburg ERTs were mobilized by 8:15 a.m. and were assembled, organized, tasked and positioned by 9:15 a.m., leading to the conclusion by Archangel's

³⁷ Ibid., 33.

³⁸ Giduck and Chi, *An Evaluation and Assessment of the Law Enforcement Tactical Response*, 15–16.

³⁹ Virginia Tech Review Panel, *Mass Shootings at Virginia Tech: Addendum to the Report of the Review Panel* (Arlington, VA: TriData Division, System Planning Corporation, 2009), 104.

⁴⁰ Atwater, *Force Protection for Fire Fighters*, 32.

⁴¹ Ibid., 33.

⁴² Giduck and Chi, *An Evaluation and Assessment of the Law Enforcement Tactical Response*, 108.

report that both departments' decision to mobilize their ERTs met the "highest standard and duty that could be applied to the law enforcement handling of the West Ambler-Johnston Hall shootings."⁴³ The report also suggested that all officers undergo Tactical Combat Casualty Care (TCCC) training, which is now being incorporated in the form of Tactical Emergency Casualty Care (TECC) training in many of the identified tactical response policies.

The report of the Virginia Tech Review Panel concluded with several key findings that have led to changes in the cross-disciplinary response and changes within the police, fire and EMS disciplines. The report concluded that there was little evidence of a unified command structure at the Virginia Tech incident, instead several command posts and separate command structures were established.⁴⁴ It concluded that a unified command structure could have led to less confusion, better use of resources, better direction of personnel, and a safe working environment.⁴⁵ One of the most profound and influential findings by the Virginia Tech Review Panel were that

Police cannot wait for SWAT teams to arrive and assemble, but must attack an active shooter at once using the first officers arriving on the scene, which was done. The officers entering the building proceeded to the second floor just as the shooting stopped. The sound of the shotgun blast and their arrival on the second floor probably caused Cho to realize that attack by the police was imminent and to take his own life. Police did a highly commendable job in starting to assist the wounded, and worked closely with the first EMTs on the scene to save lives.⁴⁶

The report also acknowledged the close relationship of the Virginia Tech Police Department and Blacksburg Police Department, the establishment of an effective mutual aid arrangement, and their frequent joint training, which saved critical minutes and lives.⁴⁷ This relationship and the integration of EMS through the use of tactical medical

⁴³ Ibid.

⁴⁴ Virginia Tech Review Panel, *Mass Shootings at Virginia Tech*, 119–120

⁴⁵ Ibid., 120.

⁴⁶ Ibid., 99.

⁴⁷ Ibid., 99.

personnel during the initial response was a clear indication that cross-disciplinary tactics and training do indeed lead to a faster treatment of victims and that lives can be saved.

3. Mumbai, India, 2008

On November 26, 2008, a terrorist attack occurred in the city of Mumbai which killed at least 172 people.⁴⁸ This unprecedented style of attack lasted for over 60 hours, allowing the Pakistan-based terrorist group Lashkar-e-Taiba (LeT) to inflict fear and chaos in a city with a history of terrorist attacks, such as the July 2006 bombing on a Mumbai commuter train that left 209 dead.⁴⁹ This November 2008 attack involved 10 attackers arriving by sea, dividing themselves into four separate teams, and initiating multiple attacks on targets including the central train station, the Cama & Albles Hospital, the Leopold Café, the Chabad center, the Trident-Oberoi Hotel, and the Taj Mahal Palace Hotel. The attacks combined armed assaults, carjackings, drive-by-shootings, prefabricated IEDs, targeted killings, barricade and hostage situations, and building takeovers at various soft target locations utilizing simple of assault weapons, hand grenades, simple IEDs and basic communications equipment and GPS locators.⁵⁰ Is this the right phrase “simple of”? The Rand Corporation report, *The Lessons of Mumbai*, provided that the multiple attacks at different locations prevented the authorities from developing an overall assessment of the situation and lack of command and control of the situation.⁵¹ Insurgency specialist Bruce Hoffman defines terrorism as violence or the threat of violence that is used and directed in pursuit of, or in service of, a political aim.⁵² It was clear from this attack and the testimony of the lone surviving terrorist that the attacker’s purpose was to inflict slaughter by killing as many people as possible, making the rapid insertion of a cross-disciplinary police, fire and EMS response even more imperative.⁵³

48 Angel Rabasa et al., *The Lessons of Mumbai* (Santa Monica, CA: RAND, 2009), 1.

49 Ibid., 1.

50 Ibid., 5.

51 Ibid.

52 Bruce Hoffman, *Inside Terrorism* (New York.: Columbia University Press, 2006), 432.

53 Rabasa et al., *The Lessons of Mumbai*, 6.

The Indian government's response highlighted several key weaknesses to include inadequate execution of response protocols in the form of training to set-up and establish appropriate command posts; delayed response by the specialized assets of the Indian military; inadequate counterterrorism training and equipment for the local police; limitations in training and equipment as well as the delayed response of the municipal fire and emergency services; flawed hostage-rescue plans; and poor strategic communication and information management to the citizens of Mumbai.⁵⁴

The response by the local police and the Anti-Terrorism Squad was relatively quick but ill-prepared, as was evidenced by the lack of training to set-up command posts, lack of ability to seal off attack sites, and inadequate firearms to engage the terrorists.⁵⁵ The municipal Fire and Emergency Services, which suffered from inadequate equipment and training and were slow to respond, failed to coordinate its actions with the local police or more advanced forces of Marine Commandos (MARCOS) and the National Security Guard (NSG).⁵⁶ It was some five hours after the first shot that assistance from the local army and MARCOS arrived, with the more advanced teams of the NSG not arriving for over eight hours after the first shot, which was when the terrorists were seriously engaged.⁵⁷

The local police department, municipal fire and emergency services, and the advanced military assets demonstrated a flawed counterterrorism response plan and capabilities by failing to coordinate their actions with communications. Footnote or your idea? The lack of coordinated response plans, and the training and equipment necessary to contain and stop the firearms assault all proved deadly to the citizens of India's commercial and entertainment center. It was clear from this incident that not only was a cross-disciplinary response not initiated between the various responding services, but a lack of tactical policies and procedures for dealing with events such as this caused an excessive delay in the delivery of medical treatment, no less transport.

⁵⁴ Ibid., 9–12.

⁵⁵ Ibid., 10.

⁵⁶ Ibid., 11.

⁵⁷ Ibid., 10.

4. Aurora Movie Theatre, Aurora, Colorado, 2012

On July 20, 2012, over 400 moviegoers gathered at Theatre 9 of the Century 16 Movie Theatre in Aurora, Colorado, for the midnight showing of the new Batman film, *The Dark Knight Rises*. Shortly after the movie began, their evening of entertainment quickly turned to tragedy. Dressed like a SWAT officer, James Holmes, a single gunman, opened fire on the guests as they sat in their seats, and then disbursed tear gas grenades into the theater. Holmes was apprehended by Aurora police shortly after he exited the theatre, but not before he killed 12 people and injured an additional 58.⁵⁸

The 911 calls from the theater began almost immediately, and Aurora police officers were praised for their quick and heroic response.⁵⁹ They arrived on the scene within 60 to 90 seconds, entering the impact area and theaters, utilizing lessons learned from Columbine and not subscribing to the past practices of contain and wait.⁶⁰ The dispatch for a single paramedic engine and battalion command officer came just two minutes later, arriving on the scene in 4 minutes 59 seconds.⁶¹ A staging area and incident command was established for responding fire and EMS units, but this was quickly overloaded with citizens, police, fire and EMS asking for help and assignments.⁶²

While the police response was fast, quickly apprehending the subject and initiating a search of the theater, the fire and EMS response into the theater area was delayed, hampered by an active paving operation underway, parking lots completely filled with cars, police vehicles responding and rapidly establishing a perimeter around the scene, 1,400 frantic moviegoers running from the theaters and into the parking lot, and bleeding victims surrounding emergency vehicles that approached the incident,

⁵⁸ Justice, "Active Shooters: Is Law Enforcement Ready for a Mumbai Style Attack?" 31.

⁵⁹ Ronnie Garrett, "Lessons Learned from Aurora: The Batman Movie Atrocity Will Change the Tactics You Use to Respond to Active Shootings and How You Provide Care for the Victims," *Police Magazine*, August 17, 2012, <http://www.policemag.com/channel/swat/articles/2012/08/lessons-learned-from-aurora.aspx>.

⁶⁰ Ibid.

⁶¹ City of Aurora, *Century Theatre Shooting: Aurora Fire Department Preliminary Analysis* (Aurora, CO: City of Aurora, 2013), 14.

⁶² Ibid., 21.

making driving further nearly impossible.⁶³ The responding fire and EMS units were inundated with injured persons seeking treatment, causing fire and EMS personnel to stop and treat victims before reaching the staging area or the physical scene of Theatre 9.⁶⁴ The circumstances of fire and EMS not gaining access to the scene, thus having an inadequate number of transport units and forcing victims to be transported by police units, highlights the need for -established policies for complex hostile events. These policies would require frequent review and training, adequate communication among disciplines, and cross-disciplinary entry teams. This would allow the police to provide force protection while fire and EMS provide patient triage, lifesaving casualty care, extraction from the area of threat, and transportation to a medical facility with appropriate medically trained personnel providing care. Training law enforcement in immediate casualty care to include basic triage, casualty collection and hemorrhage control have also been pointed out as a potential lesson learned in the Aurora movie theatre shooting.⁶⁵ These tactics, coupled with competent unified command and control, will allow coordination and collaboration among the responding disciplines of police, fire and EMS.

In the end, 70 people were transported to area hospitals, with 12 succumbing to their injuries. In the first 20 minutes of the incident, 18 patients were transported by police and 5 by EMS responders.⁶⁶ In the next 20 minutes, 4 were transported by police and 12 by EMS, equating to police transporting 22 patients and EMS units transporting 17 in the first 50 minutes of the incident.⁶⁷ While the police officers responding to Theatre 9 changed their tactics since Columbine to meet to needs of the incident, the circumstances of inadequate access proved to be detrimental to the responding fire and EMS units, causing delays in units reaching the incident scene and providing transport capabilities. With a lack of cross-disciplinary teams established, each responder operated

⁶³ Ibid., 16.

⁶⁴ Ibid., 20.

⁶⁵ Garrett, "Lessons Learned from Aurora," <http://www.policemag.com/channel/swat/articles/2012/08/lessons-learned-from-aurora.aspx>.

⁶⁶ City of Aurora, *Century Theatre Shooting*, 8–10.

⁶⁷ Ibid.

to the best of their ability but often without the coordination and integration needed to effectively merge the police, fire and EMS response.

5. Tabletop Exercise, Fairfax County, Virginia, 2013

In 2013, the Emergency Management Program Office for a secure federal agency hosted a one-day active shooter tabletop exercise at their facility site in Fairfax County, Virginia. This event was conducted approximately eight months prior to the implementation of the full-scale active shooter practical exercise that provided the data for this thesis research. The tabletop attendees represented the internal staff of the agency to include the administrative, security, facility response staff, and external agencies consisting of local first responders representing law enforcement and fire and rescue department staff that would actually respond to an active shooter threat at this facility. Participants were provided with the purpose of the tabletop exercise, which was to understand the agencies', and the local first responders' roles and responsibilities when responding to an active shooter event at the facility. The tabletop exercise was also used to test the validity of the *Fairfax County Unified Hostile Event Action Guide*, which included the implementation of a first responder cross-disciplinary response strategy. It also included the evaluation of the emergency response plans of the federal facility. Participating agencies discussed the facilities' tactical response protocols and determined how those protocols and response by facility staff would be coordinated with local police, fire and EMS personnel.

During the tabletop exercise, the exercise players participated in a question-and-answer session facilitated by the agency administrators. Information was collected by the federal entity through 15 questions (See Appendix A) that were administered by the Emergency Management Program Office for the agency administering the exercise. The 15 questions were organized and presented in the appropriate emergency management incident phase of: mitigation, preparedness, response and recovery. The questions were intended to generate discussion and feedback regarding the participants' intended actions during each phase of the simulated incident. All of the questions and answers were captured by the evaluators in the review (hotwash) immediately following the exercise

and later published in an After-Action Report (AAR) by the federal agency sponsoring the exercise.⁶⁸ These results included both enablers and barriers to meeting the tabletop objective, the discussion of relevant issues, and recommendations for improvement.

While the AAR established six specific objectives that were established by the agency administrators for the tabletop exercise, analysis of the AAR provided recognized two general themes that support the need for cross-disciplinary teams. These themes include:

- The need for the establishment of agency and public safety emergency response protocols for a mass casualty or active shooter incident that enable coordination of facility staff with local law enforcement, fire and EMS. These protocols should identify and support the integration of security, police, and fire and rescue into a combined cross-disciplinary tactical response.
- The response team methodology for processing casualty information and personal accountability requirements between the agency and public safety responders.

The establishment of agency and public safety emergency response protocols for a mass casualty or active shooter incident that enables coordination of facility staff with local law enforcement, fire and EMS is a major theme received from the completion of the tabletop exercise. The exercise identified that these protocols should identify and support the integration of security, police, and fire and rescue into a combined cross-disciplinary tactical response. As a result of this exercise, several issues related to the implementation of combined law enforcement, fire, and EMS cross-disciplinary response were identified. These include the:

- Lack of familiarity with each other's protocols and response procedures to include civilian agency staff and public safety responders. The exercise players discussed the lack of coordination of resources, and lack of a clear understanding of authority to support the multiple agency response. This included the identification of each other's staff and uniforms.
- Lack of established policies and procedures or memoranda of understanding that codify the joint response among the federal, state and local public safety responders and the civilian responders.

⁶⁸ U.S. government, *Active Shooter Tabletop Exercise (TTX) After Action Report (AAR)* (unpublished manuscript, 2013).

- Need for regularly established training for the responders and workforce to exercise the facility workforce evacuation and response policies and procedures.
- Identification of disparate procedures and lack of awareness for accessing and extracting victims in a complex hostile event where the area has not been rendered secure. While the participating agency and public safety first responders each may have their own operational procedures, this issue identified the need for joint information sharing, need for established operational policies and procedures, and training on the procedures established. The goal is to ensure that the operational procedures developed by the federal agency are in accordance with the protocols and response methodology of the local public safety responders and that the established protocols and methodology of the public safety responders align with the expectations and response of the various community and business organizations and their workforce.

The response team methodology for processing casualty information and personal accountability requirements between the agency and public safety responders is another theme extracted from the tabletop exercise. This is a critical issue not only for the federal agency but for police, fire and rescue, and the tracking of patients. The federal agency has a responsibility to track and maintain accountability of their workers, while fire and rescue has the same responsibility for all of the victims in the incident. In addition, law enforcement may have a need to perform future questioning of the victims that are transported or released. Having an accountability system that includes a federal facility representative assigned to the command post and area hospitals would improve joint information sharing and effective processing of victim information to include their individual status.⁶⁹ The agency must designate persons or sections responsible for the coordination of this information and victim status. This is in addition to established policies and procedures for the method of patient tracking in a fire and EMS response.

The tabletop exercise provided a forum and learning environment for public and private response personnel to discuss potential issues prior to the execution of the full-scale active shooter exercise. The tabletop exercise allowed the response entities for the participating agency, local law enforcement and fire and rescue to discuss their response

⁶⁹ Ibid.

capabilities, authorities, roles and responsibilities and allowed personnel and agencies to clarify their response procedures during active shooter events. The tabletop exercise also allowed agency staff and public safety responders the opportunity to discuss any barriers to the implementation of a cross-disciplinary response, which is a key aspect of the full-scale active shooter exercise. The issues, discussion, and recommendations of the tabletop exercise were later published in the AAR.

6. Conclusion

The impact of Columbine paved the way for new ways for law enforcement to engage, isolate, and neutralize the active shooter threat. Whether using a four-officer, diamond or Y formation, a two-person response, or the actions of a single police officer, the transition from isolate, contain and wait for SWAT, to the immediate entry of patrol officers, seemed to occur overnight.⁷⁰ This immediate entry approach is forcing a paradigm shift, allowing the formation of cross-disciplinary teams consisting of properly trained and equipped fire and EMS personnel into a warm zone to affect life saving measures.⁷¹ Based upon his research, Justice recommends:

Emergency management service personnel and paramedics need to be trained with police officers and create joint teams where first responding resources are prepared both for engaging and neutralizing threats as well as providing life-sustaining treatment to the injured.⁷²

The active shooter events reviewed have provided a comparison of past strategies and tactics, and have illustrated the need and effect of rapid intervention by police, fire and EMS resources in a cross-disciplinary manner. The four historical events provide a clear indication of the problems associated with not responding to hostile incidents in a cross-disciplinary manner. These include a delay in the initiation of life saving medical care, delayed transport times and the lack of a unified response plan that provides the basis for the joint establishment of cross-disciplinary policies and procedures. The action taken at Virginia Tech provide us a glimpse of cross-disciplinary personnel working

⁷⁰ Ed Sanow, "Latest Active Shooter Tactics," *Law & Order* 61, no. 10 (2013).

⁷¹ Ibid.

⁷² Justice, "Active Shooters: Is Law Enforcement Ready for a Mumbai Style Attack?" 70.

together to help save lives, so just think of what a full cross-disciplinary response to hostile or active shooter events could provide. This initiation of a proactive cross-disciplinary response strategy and abandonment of the past strategies of “contain and wait” by police and “stand-by “policy by fire and EMS will allow the appropriate lifesaving resources and interventions to neutralize the threat(s) while simultaneously saving lives in the shortest amount of time.

C. POLICY DEVELOPMENT

1. Overview

Prior to June 2011, the Fairfax County Police Department, and Fire and Rescue Department in Fairfax County, Virginia, operated just like the majority of other agencies across the county, acting independently on the scene of incidents requiring joint tactical operations. Based upon historical experience, fire and rescue personnel called to the scene of an unsecured law enforcement incident or an incident involving weapons “staged” in a safe area until police declared the scene secure. Although predominately an unwritten policy, this tactic was supported by a Standard Operating Procedure (SOP) which directed units to identify a staging area until task forces or strike teams could be formed during potential hostile operations.⁷³ Fire and EMS personnel continued to stage until law enforcement neutralized the threat or secured the scene and identified it was safe for fire and EMS personnel to begin medical care and treatment. During incidents, fire and EMS personnel rarely interacted with police in a cross-disciplinary manner and each agency made decisions based upon past practice and training. Many internal AARs from previous incidents and fire and rescue department training sessions such as the 1999 active shooter training in a high school in Fairfax County, VA, noted that police officers often overlooked staged fire and EMS resources, causing detrimental delays in fire and EMS reaching the scene and initiating patient care. As an aside, it should be noted that during high-profile or pre-planned incidents of a tactical nature, the Police Department

⁷³ Ronald L. Mastin, “Standard Operating Procedure 05.02.02, Hostile Environment Task Force Operations” (Fairfax, VA: Fairfax County Fire and Rescue Department and Fairfax County, September 2008).

engaged the use of police tactical paramedics primarily responsible for the safety of responding police officers.

Historically when responding to hostile incidents, police began operations to neutralize the threat or stabilize the scene. Formal command was rarely established; each officer carried out their duties according to training they had received, and establishment of a combined IAP was rare. This response methodology charged no one with the responsibility to declare the scene status, causing confusion for incoming personnel. It was these tactical decisions and past practices that caused delays in medical care and transport of the victims who needed advanced medical intervention to save their lives.

It is the goal of policy development for any hostile or active shooter event to provide basic standardization of strategic and tactical response initiatives, accountability for the completion of operational assignments, implementation of tactical operations involving police, fire and EMS in a faster timeframe, and the result that an effective and coordinated unified response policy will save lives through shorter response times.

2. Identified Concerns

Throughout history, numerous events have required police, fire, and EMS to work effectively on the scene of hostile or tactical events. Often, these events are handled in a routine manner with each agency performing their assigned duties in a professional and competent manner. To identify potential problems, successes or concerns, fire and police agencies utilize a “debrief” or “hotwash” session for responding personnel to come together post-incident and discuss the response in a more stable environment. Debrief or hotwash sessions and AARs revealed several concerns and issues regarding response tactics used during incidents, and included comments and possible solutions suggested by responding personnel to improve future responses.⁷⁴ Typically law enforcement officers responded directly to the scene, while fire and EMS personnel staged in a safe area. Scenes were secured fairly quickly by responding police officers with fire and EMS personnel being notified without delay that the scene was secure for them to respond. The

⁷⁴ Purvis L. Dawson, “Police and Fire Debrief” Fairfax County Police Department (unpublished manuscript, September 2009).

key identified problem/obstacles encountered during combined events centered on a lack of communication between agencies, resulting in confusion and each agency being unsure of the other's tactics.⁷⁵ Other issues identified included a lack of joint protocols for dealing with combined hostile incidents, lack of effective unified command, no established command post, lack of perceived awareness of scene security, confusion of terms such as "safe" and "secure," lack of confirmation on exact location, and failure to use the available combined tactical radio channel.⁷⁶ Possible solutions identified, included establishing unified command, timely updates and coordinated information from controlling dispatch centers, the use of coordinated radio channels, increased/enhanced communication, future training, defining key terms and sharing/awareness of each other's protocols.⁷⁷

Training is often conducted to identify strengths and weaknesses in a particular subject area so improvements can be made. One such training exercise, classified as an "active shooter" exercise, occurred in October 1999 at Falls Church High School in Falls Church, Virginia. According to internal operational guidance, the purpose of the multi-agency exercise was to "evaluate police and fire and rescue departments' response to an active shooter event when met with numerous casualties including law enforcement officers." As described in the *Mass Casualty/Active Shooter OPS Plan*, responding police and fire personnel had no previous knowledge of the exercise details, which included over 200 role players and victims, and involved full complements of response personnel along with units from police, fire and EMS. The exercise centered on an initial 911 call reporting a person slumped over the wheel of a vehicle in the school parking lot. Dispatched for an accident with injury, responding fire and rescue, and law enforcement personnel quickly discovered the person had been shot and were suddenly met with gunfire erupting from a lone active shooter emerging from the school. Besides gunfire, responding personnel encountered over 75 injured or deceased patients including on-

⁷⁵ Ibid.

⁷⁶ Ibid.

⁷⁷Ibid.

scene school resource police officers, panicked students and faculty, a fire erupting inside the school and total lack of scene security.

The exercise AAR and written statements by evaluators found many of the same issues and concerns identified in earlier incidents as well as those identified in Columbine in 1999. These included panic and fear demonstrated by initial fire and EMS personnel, absence of a formal incident command post or identified officer in charge, fire and EMS staging with little or no direction from police regarding scene status, denial of entry to fire by police resulting in an uncontrolled fire, delayed medical triage and care, lack of scene security by police with chaos resulting outside of the school, no initial unified command resulting in a lack of information sharing, no combined IAP or incident objectives, uncoordinated search patterns, lack of personnel accountability, lack of clearly defined work zones, no use of combined coordination radio channels, confusion of terms such as safe and secure and Hot, Warm and Cold zones, and no combined integration of police, fire or EMS in the tactical components of the incident.⁷⁸ It was these concerns that prompted officials to initiate a change in policy to correct the deficiencies noted.

3. Integrated Response Frameworks

Response frameworks are currently being developed and implemented across the country allow cross-disciplinary teams to coordinate, thus ensuring a unified command presence among responding agencies. Localities such as Arlington County, Virginia; City of Fairfax, Virginia; Montgomery County, Maryland and Fairfax County, Virginia, are presently implementing integrated fire, EMS and police response to paramilitary and conventional terrorist events.⁷⁹ Police, fire and EMS have worked collaboratively to redefine response strategies and tactics to effectively mitigate the ever changing threats first responders' encounter.

⁷⁸ Ibid.

⁷⁹ Reed Smith Jr., Blake Iselin, and Scott McKay, "Toward the Sound of Shooting," *Jems*, December 2009, 49.

One such regional framework is the Washington Metropolitan Council of Government's (COG) Law Enforcement and Emergency Medical Services (LEEMS) workgroup. The LEEMS workgroup and subsequent model framework's purpose "is to provide the response framework for combined law enforcement and fire and emergency medical services on the scene of a law enforcement incident. Having this framework is intended to facilitate the rapid and effective movement of victims through areas on the incident scene, while also promoting the highest chance of victim and responder survival."⁸⁰ The scope of the LEEMS workgroup is to provide a framework for joint public safety agency personnel responding to incidents that include, but are not limited to active shooter events, hostage/barricade, high-risk warrants, civil disturbances, jail/correctional facility riots.⁸¹ While response frameworks such as LEEMS can be implemented on a regional level, each individual locality must identify specific policies and procedures to effectively implement an effective and coordinated response. It is these integrated response policies and procedures that will provide the "rules of engagement" and provide unified and commonly understood tactical operations.

4. Fairfax County, Virginia

In Fairfax County, Virginia, the *Fairfax County Unified Hostile Incident Action Guide* was completed in June 2011 to coincide with the integrated response framework identified by LEEMS. This document outlines a response framework allowing police, fire and EMS personnel to effectively operate in a combined tactical nature and establish a unified command presence during the initial response period.⁸² This action guide provides guidelines for responding personnel to follow during initial response, establishes unified incident command, and identifies operational actions designed to integrate police and fire efforts toward establishing a common Incident Action Plan (IAP) for mitigating the incident collaboratively and safely.

⁸⁰ Washington Metropolitan Council of Governments, "Law Enforcement Integration with NCR EMS: A Review of Tactical Medical Programs in the NCR" (unpublished manuscript).

⁸¹ Ibid.

⁸² Cindy McAlister et al., *Unified Hostile Incident Action Guide* (Fairfax, VA: Fairfax County Fire and Rescue and Fairfax County Police Department, 2011).

The Fairfax County fire and police workgroup tasked with the establishment of this joint policy assessed how best to successfully initiate a culture shift to a team approach when responding jointly to hostile events. This would be accomplished by successfully developing and implementing joint policies, and practicing those tactics during joint tactical training exercises and information sharing sessions. Utilizing this two-pronged approach, the workgroup's main goal was to develop the *Unified Hostile Incident Action Guide* to provide both agencies with a unified operational response framework. The guide's intent was to ensure coordination between agencies, effective scene control, patient treatment, and evidence preservation while maintaining the safety of emergency personnel. Secondly, the establishment of a cross-disciplinary Rescue Team program was provided which integrated fire and police crews to enter warm zones to affect the rescue of injured persons. A training video to complement the action guide was developed and released after the release of the guide.

By reviewing former fire and police joint tactical operations exercises, training sessions, and events, the review indicated problems with joint responses continually repeated themselves, and recommended changes fell through the cracks or were ignored.⁸³ Immediate areas of concern included: lack of unified command between police and fire; problems created by fire's policy for staging and waiting until the scene is "secure"; lack of coordination when joint interaction is required; and lack of common terminology across agencies.

Phase two of the implementation of the *Fairfax County Unified Hostile Incident Action Guide* will be to implement the establishment of Rescue Task Forces (RTF), Extraction Task Forces (ETF) and the medical principles associated with TECC. RTF as defined in Fairfax County is:

A combined team consisting of two assigned Fire Department personnel in body armor, paired with a minimum of two assigned Police Department officers. Fire Department personnel are tasked with initial treatment and triage of wounded. The Police Department officers are assigned as the force protection for this team, and may not separate from the Fire

⁸³ Dawson, "Police and Fire Debrief" (unpublished manuscript, September 2009).

Department personnel. Multiple task forces may be assigned as needed (number and location of patients). RTFs will operate in a WARM area.⁸⁴

ETFs are defined as:

A large team of FD personnel tasked with moving patients from an impact area to an extraction point with a minimum of two assigned PD officers. This team may operate within the Warm Zone. The PD officers are assigned as the force protection for this team, and may not separate from it.⁸⁵

To provide validation to the guide's development and identify any needed changes, a number of joint police and fire hands-on scenario-based training sessions have been conducted with additional ones planned.

Preceding the development of the *Fairfax County Unified Hostile Incident Action Guide* was the RTF program in the Arlington County Fire and Rescue Department and the City of Fairfax Fire Department where teams composed of law enforcement officers and firefighters/paramedics engage in cross-disciplinary response to combat threats during the initial operational period. Utilizing the guidelines of TECC and associated medical equipment and ballistic protection, Arlington County's and the City of Fairfax's RTF model has provided a set of teams that move forward into the unsecured scene along secured corridors to provide stabilizing care and evacuation of the injured under the protection of law enforcement.⁸⁶ While similar in nature, established programs do have variances in personnel assignments, certifications or capabilities of responding agencies and personnel, and specific tactics used to accomplish the overall goal of faster treatment and transport times of the victims. As an example, in past training involving 44 victims, Arlington County has been able to demonstrate a faster victim contact and evacuation time of 30 minutes in a RTF response versus 2.5 hours in a traditional non-RTF response.⁸⁷

⁸⁴ Fairfax County Fire and Rescue Department and Fairfax County Police Department, *Joint Event Action Guide* (unpublished manuscript, 2014).

⁸⁵ Ibid. 2.

⁸⁶ Smith, Iselin and McKay, "Toward the Sound of Shooting," 52.

⁸⁷ Ibid., 54.

5. United Kingdom Approach

While the United States fire, EMS and police services rely on individual regions or localities to implement specific policy, the United Kingdom (UK) operates much differently as part of a national response framework. The UK is no stranger to acts of violence and terrorism, which include many of the same strategic and operational problems as those facing the U.S. The coroner's inquest that followed the 2005 London bombings indicated that there was a lack of inter-agency training that led to initial chaos, confusion and carnage.⁸⁸ The 2010 shootings in Cumbria, England, highlighted the different risk thresholds employed by the three "Blue Light" services of police, fire and ambulance service.⁸⁹ Following these incidents and many others, the UK implemented national policies to provide a unified framework and provide for joint emergency services interoperability among the three Blue Light services.⁹⁰ In the United States, events known as "Hostile Events" or "Active Shooter" events are classified as a "Marauding Terrorist Firearms Attack" (MTFA) in the UK.⁹¹

In 2009, the National Policing Improvement Agency issued the *Guidance on Multi-Agency Interoperability*, which provided a unified framework that enhanced practices for communications and coordination across the command and control structures. This guidance set forth how and when the principles of interoperability should be employed and at what level they should be used within the organizations.⁹² Another document, the *Emergency Response and Recovery* guidance, compliments emergency preparedness and sets out how the duties under the *Civil Contingencies Act of 2004* and its supporting regulations should be implemented. This document focuses on guiding principles, practical considerations, and operational procedures for the emergency

⁸⁸ JESIP Engagement Manager and Senior Users, *JESIP-Programme Definition Document and HM Government Response* (United Kingdom: Joint Emergency Services Interoperability Programme, 2013), 4.

⁸⁹ Ibid., 4.

⁹⁰ Ibid., 4–7.

⁹¹ Ibid., 7.

⁹² National Policing Improvement Agency (NPIA), *Guidance on Multi-Agency Interoperability* (United Kingdom: NPIA, 2009), Foreword.

response and recovery phases.⁹³ Most recently, in February 2013, the *Joint Emergency Services Interoperability Programme* (JESIP) was established to address many of the UK events which led to the *Project Definition Document*. The aim of JESIP was to ensure that the “Blue Light” services are trained and exercised to work together as effectively as possible at all levels of command in response to major or complex incidents (including fast moving terrorist scenarios) so that as many lives as possible can be saved.”⁹⁴ These UK documents set out national guidance for responding to a marauding terrorist firearms attack and set out at a strategic level, the common vision of the challenges, the roles and responsibilities and priority tasks for the emergency services. It provides overarching strategic objectives and generic priority tasks have been developed for responding to a MTFA that assist with the planning and implementation of the functional roles and responsibilities of the Blue Light services. These documents provides guidance on basic joint operating principles; the identification, mobilization and scene assessment; casualty management; and fire hazards management.

Joint Operating Principles provide the basis for requiring command representatives from each of the emergency services to provide a timely, rapid and streamlined decision-making process, appropriate level of command support at the scene, identification and deployment of trained personnel for key command and support functions, and flexibility to apply these principles to the variations of regional and local operational guidelines. These principles acknowledge the difficulty in supporting a MTFA and basic premise that emergency service personnel may have to operate in locations that have not been declared completely safe. These principles are intended to reflect the progression of the joint emergency response from the onset to the conclusion of the incident.

The UK policy allows armed officers to escort fire and ambulance personnel into the warm zone; however this practice cannot be guaranteed and must be determined during the joint risk assessment process. The deployment of specialized fire and rescue

⁹³ HM Government, *Emergency Response and Recovery—Non-Statutory Guidance to Complement Emergency Preparedness*. (London: HM Government, 2005), 4.

⁹⁴ JESIP, *JESIP—Programme Definition Document*, 5.

and ambulance service personnel into the warm zones is not dependent on the presence/availability of armed officers to provide an escort or cover. Contingency plans must be developed to provide for a response without armed police officers and the use of non-specialized emergency service personnel should be deployed as soon as the threat has been neutralized. Casualty Management provides the operational guidance for the management of casualties by specialized emergency service personnel equipped with appropriate PPE and specialized training for deployment into the warm zone. These incidents provide the unique nature of having a potential active threat present while patient care and removal is taking place.

The recommendations for response to an active shooter or MTFA in the UK differ from the U.S. in that the policies and procedures are being set forth on a national level to all three Blue Light services.⁹⁵ While not prescriptive, the two guiding documents described above provide an overarching framework for a standardized approach across the UK and not left to independent services to formulate these overarching goals. These strategic and operational plans act as guidance to resilience planners and emergency responders in the development and implementation of local response plans that are consistent with the national approach and interpretation of risk.⁹⁶ While the fundamental principle of guidance is based upon maximizing the safety of the emergency responders, these national documents do not replace existing major incident procedures or local emergency response plans, but are meant to provide guidance on the particular challenges that these types of events pose. As police, fire and EMS agencies throughout the United States respond to these hostile events, it will be national guidance that allows the agencies within the U.S. to remain consistent in policy development and training and allow organizations to receive national funding to implement these new procedures.

⁹⁵ Ibid., 6–7.

⁹⁶ Ibid., 4

D. CONSIDERATIONS FOR IMPLEMENTATION OF A CROSS-DISCIPLINARY TACTICAL RESPONSE POLICY

1. Overview

Complex hostile incidents require public safety agencies to employ non-traditional policies, training and response procedures. This means that police, fire and EMS agencies must develop methodologies for integrating a unified, cooperative response model due to the unique nature of such incidents. Historically, police, fire and EMS personnel have performed their roles independently on incident scenes, and have also competed against one another for budget dollars and recognition for incident mitigation.⁹⁷ To be effective in the new world of terrorism, especially against homegrown domestic terrorism, a cultural shift toward a more unified response must occur. The development of a unified and cross-disciplinary response requires many considerations to include the benefit of assuming increased risk, the establishment and compliance with unified structure for response, the determination of program support by the agency and/or locality, and the development of joint policies and integrated response frameworks.

The Metropolitan Washington COG identified a service gap between law enforcement and Fire/EMS in the management of victims of mass casualty incidents during law enforcement response.⁹⁸ While these events may seem infrequent, the USFA identified, since the Columbine High School shootings in 1999, more than 250 people have been killed in the United States during what has been classified as active shooter and mass casualty incidents.⁹⁹ The service gap identified by COG occurs because the current operational norm is to prohibit fire and EMS access to incident scenes and victims until law enforcement can control, clear, and verify there is no threat to fire and EMS responders. To close response gaps, a cross-disciplinary tactical response policy must be

⁹⁷ Tracy L. Frazzano and Matthew G. Snyder, “A Paradigm Shift for First Responders: Preparing the Emergency Response Community for Hybrid Targeted Violence,” *The Police Chief*, May 2013, 36.

⁹⁸ Washington Metropolitan Council of Governments, “Law Enforcement Integration with NCR EMS: A Review of Tactical Medical Programs in the NCR” (unpublished manuscript).

⁹⁹ United States Fire Administration, *Fire/Emergency Medical Services Department Operational Considerations*, 3.

implemented to provide law enforcement, fire and EMS agencies with a response framework which includes commonly understood tactics, communication capabilities and terminology. Achieving the goal of planning, preparing an appropriate response will provide victims with the best chance of survival and save the maximum number of lives.¹⁰⁰

2. Risk versus Benefit

To keep pace with the shifting paradigm of hostile event response and mitigate risk to the first responders, changes to the response framework have included the development of action guides and policies for establishing cross-disciplinary teams, providing responding personnel guidelines to follow during initial response, direction for establishing unified incident command and identifying operational actions designed to integrate police and fire efforts for establishing a common IAP.¹⁰¹ According to a report by the Metropolitan Washington COG, determining risk vs. benefit of an integrated program is the first step in determining the level of interest from senior police, fire and EMS management, followed by the development of an action guide or response policy that implements cross-disciplinary teams.¹⁰² The question for jurisdictions may be: what level of risk are they willing to assume for their personnel? COG makes it clear that providing a policy is not the final piece to establishing effective integration. The council also claimed that successful implementation includes determining the level of police and fire integration required, identifying personnel involvement, training requirements, associated start-up and ongoing costs, sustainability, and any potential collective bargaining costs.¹⁰³

United States Fire Administrator Ernest Mitchell, Jr., and his administration, under the authority of the Federal Emergency Management Agency (FEMA), released the

¹⁰⁰ Ibid.

¹⁰¹ Fairfax County Fire and Rescue Department and Fairfax County Police Department, *Joint Event Action Guide*,. 2–5.

¹⁰² Washington Metropolitan Council of Governments, “Law Enforcement Integration with NCR EMS: A Review of Tactical Medical Programs in the NCR” (unpublished manuscript).

¹⁰³ Ibid.

Fire/Emergency Medical Services Department Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents in September 2013. These guidelines recommend exposing fire and EMS personnel to higher risk levels on active shooter and other hostile events than they previously encountered by waiting in staging. It recommends first responders equipped with body armor and escorted by armed police officers be sent into “warm zones” to focus on stopping victims’ bleeding.¹⁰⁴

While these new federal guidelines have been embraced by state and local officials, and the International Association of Firefighters (IAFF), they have raised questions that terrorists may target first responders as has already happened in places such as Iraq.¹⁰⁵ Beginning early in a fire and EMS training program, scene safety is ingrained in the culture of fire and EMS personnel. Authors Smith and Delaney in “A New Response” cite that some disagree with exposing fire and EMS to more risk to assist injured victims and that allowing fire and EMS personnel to operate in the warm zone is unsafe arguing that, “operating in an unsecured environment is too much risk for the responders to assume” and “scene safety” is paramount above all other considerations.¹⁰⁶ Smith and Delaney recognize that in an active shooter incident, the greatest threat to first responders is the shooter. The fact that the shooter is rapidly incapacitated in almost all incidents prior to police, fire and EMS response, makes the true risk of operating in warm zones or areas of indirect threat relatively low, thus diluting the critic’s argument.¹⁰⁷ Furthermore, Fire and EMS professionals accept risk each day as an inherent part of their job when responding to any type of emergency; a paradigm shift must occur to accept the same, if not lesser level of risk on active shooter incidents. In a more than 33-year study of active shooter incidents, only four incidents were documented where first responders were killed or injured.¹⁰⁸ In all four cases, first responders were actively engaging the

104 Michael S. Schmidt, “In Mass Attacks, New Advice Lets Medics Rush in,” *New York Times*, December 7, 2013.

105 Ibid.

106 E. Reed Smith Jr. and John B. Delaney. “A New Response-Supporting Paradigm Change in EMS’ Operational Medical Response to Active Shooter Events,” *Jems*, December 2013, 50.

107 Ibid.

108 Ibid.

threat and pursuing the shooter(s), not treating victims in warm zones as recommended in the USFA guide.

Critics that cite “scene safety” as paramount in any operation, often refer to a delayed ambush on first responders with second or multiple attacker(s) waiting to specifically target the fire and EMS responders after the initial police teams have moved into position.¹⁰⁹ This risk remains extremely low as there are only two documented cases in the United States where there was more than one shooter: the attack on Westside Middle School in Jonesboro, Arkansas, and the Columbine incident. Neither of these involved an attack on first responders.¹¹⁰ The psychology of these gunmen will point to the fact that lying in wait to kill first responders while actively being hunted by police goes against their goal of killing or injuring as many people as possible, therefore it’s highly unlikely active shooter events will unfold with secondary attacks on first responders.¹¹¹ While no incident is without risk, history has provided lessons to engage the future, demonstrating that with the implementation of established unified response guidelines, a cross-disciplinary response, proper ballistic equipment and training, any increase in risk can be properly mitigated.

3. Unified Structure

The U.S. government has provided public safety responders with a national unified operating structure for incident management to include the *National Response Framework* (NRF), which focuses fire and law enforcement efforts on compliance with the *National Incident Management System* (NIMS) and *Incident Command Systems* (ICS), and establishes the Unified Command (UC) Structure.¹¹² NIMS “provides a systematic, proactive approach to guide departments and agencies at all levels of government, on governmental organizations, and the private sector to work seamlessly to prevent, protect against, respond to, recover from, and mitigate the effects of incidents,

¹⁰⁹ Ibid.

¹¹⁰ Ibid.

¹¹¹ Ibid.

¹¹² U.S. Department of Homeland Security (DHS), *National Response Framework* (Washington, DC: DHS, 2008), 48.

regardless of cause, size, location, or complexity, in order to reduce the loss of life and property and harm to the environment.”¹¹³ ICS is a standardized, on-scene, all-hazards incident management approach that was developed in the wildland firefighting arena where firefighters were facing an adversary that does not change tactics nor invent new weapons like those encountered by military and law enforcement.¹¹⁴ ICS and UC are components of the command-and-management portion of NIMS; however, NIMS and ICS are less successful in law enforcement events.¹¹⁵

While effective on most standardized incidents, and especially effective on fire incidents, it has been suggested that NRF, to include the components of NIMS and ICS, does not establish itself well as a tool for managing chaos during highly intense, highly complex and low familiarity events because it does not provide clear instruction regarding integration of fire, EMS and police, thus failing to eliminate initial confusion and redundant activities.¹¹⁶ Utilizing past historical incidents such as shootings at Columbine High School, Virginia Tech, Mumbai, India, and the Aurora Movie Theatre, police, fire and EMS professionals have identified the need for unified response policies, inter-agency cooperation among disciplines, and the use of cross-disciplinary response procedures.

4. Program Support

Another consideration for the implementation of a cross-disciplinary response policy is the determination of program support. The Metropolitan Washington COG identifies that support must be achieved from all stakeholders to include senior and mid-level leadership, risk managers, city/county attorneys, human resources personnel,

¹¹³ U.S. Department of Homeland Security, *National Incident Management System* (Washington, DC: DHS, 2008), 1.

¹¹⁴ Theodore J. Moody, “Filling the Gap between NIMS/ICS and the Law Enforcement Initial Response in the Age of the Urban Jihad” (master’s thesis, Naval Postgraduate School, 2010), 7

¹¹⁵ Ibid.

¹¹⁶ Ibid., 12.

medical directors and associated medical facilities, and representatives from unions with or without collective bargaining powers.¹¹⁷

COG concludes that senior management must decide:

- Is the program warranted and will it receive the necessary support and buy-in?
- Is the program reasonable given the fiscal constraints and state of the economy?
- What are the risks and benefits to those personnel involved in the program?
- Are the goals and mission of the program attainable and most importantly sustainable?
- Can a change of culture be established?
- How will implemented procedures and program be validated?
- What is the risk to public safety personnel and the community of not providing the service?¹¹⁸

Ultimately, the most important question to be answered may be what is the risk to the community of not providing an integrated program to include a cross-disciplinary response?

5. Policy Development

Consideration must be provided to maintaining interoperability within the broader region to ensure awareness and compatibility during incidents requiring mutual aid response. The overall future goal of any integrated response system should be to plan, prepare and respond in a manner that will save the maximum number of lives possible through the implementation of a regional response plan to include establishing common tactics, communications, capabilities and terminology, and SOPs.¹¹⁹ The success of

¹¹⁷ Washington Metropolitan Council of Governments, “Law Enforcement Integration with NCR EMS: A Review of Tactical Medical Programs in the NCR” (unpublished manuscript).

¹¹⁸ Ibid., 14–17

¹¹⁹ United States Fire Administration, Fire/Emergency Medical Services Department, *Operational Considerations*, 3.

active shooter and other hostile incidents requiring joint police, fire and EMS interaction is the implementation of effective command and control procedures that are built upon coordination, communication and information sharing that is provided in a unified and integrated response policy.

In April 2013, the Department of Homeland Security (DHS) and the Federal Bureau of Investigation (FBI), in cooperation with the International Association of Fire Chiefs (IAFC) and the International Chiefs of Police, convened a meeting to address “Responding to Mass Shootings—Strengthening Fire/Law Enforcement/EMS Partnerships.”¹²⁰ Together with the IAFF and the Fraternal Order of Police, this group of associations and federal entities developed recommendations and position statements to address the need for organizations to work together when confronting an active shooter situation. In response to this meeting, the IAFF issued two position statements, Active Shooter Events and Rescue Task Force Training, providing a template for discussing appropriate actions and safety considerations during SOP development.

The IAFF Position Statement on Active Shooter Events recommends that SOP’s should include at a minimum:

- Use of NIMS in particular the Incident Command System. In accordance with NIMS and ICS, fire and police should establish a single command post and establish unified command.
- Use of nationally accepted standards and operational protocols including the number and type of response personnel, training level, PPE, operational environment, and scope of practice.
- Use of RTF concept for on-scene response.
- Provide appropriate protective gear to personnel exposed to risks.
- Police and fire departments should train together, to include initial and ongoing training.

120 “IAFF Position Statement: Active Shooter Events.”

- Use of common communications terminology.¹²¹

The IAFF Position Statement on Rescue Task Force (RTF) training provides that initial and ongoing training for all EMS providers should include TECC concepts and practical skill applications.¹²² The IAFF's position directs that indirect threat care should be rendered once the casualty is no longer under fire in areas such as the warm zone.¹²³

The USFA's *Fire/Emergency Medical Services Department Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents* suggests operating principles designed to achieve desired success in active shooter and mass casualty incidents by implementing prepared leadership, planning, communications, training and competent execution of tactical operations.¹²⁴ These general operational principles include:

- ICS: Implementation and utilization of ICS as the command and control system which provides an organizational structure for incident management and assists in planning, building and adapting that structure to the incident. ICS is not only applicable across disciplines of fire, police and EMS, but is used by all levels of government and by many nongovernmental organizations and the private sector.
- UC: Although active shooter events involve the disciplines of police, fire and EMS, the primary responsibility for mitigation is with the law enforcement agencies. UC provides for integration of the command and control efforts among all three agencies as well as nongovernmental organizations and the private sector.
- Plan for Treatment of Casualties: Development of a plan for the treatment of casualties to include when and where they will be treated, and how they will be evacuated from the impact area. Completion of critical actions must be assigned to responding agencies and members of cross-disciplinary teams to reduce duplication of efforts and assign accountability for task completion. As part of casualty treatment plan, responders must incorporate medical guidelines that allow for medical

121 "IAFF Position Statement: Rescue Task Force Training, " International Association of Fire Fighters, accessed December 29, 2013, http://www.iaff.org/Comm/PDFs/IAFF_RTFF_Training_Position_Statement.pdf.

122 Ibid.

123 Ibid.

124 United States Fire Administration, *Fire/Emergency Medical Services Department Operational Considerations*, 7.

operations in high-risk conditions, prioritizes, and focuses medical efforts on victim survivability.

- News Media/Public Information Officer: A Public Information Officer (PIO) and Joint Information System (JIS) should be established to provide for the consolidation of all agency and incident information. Numerous responding public and private agencies will desire accurate and timely information. The PIO must develop a plan for release of media announcements and support of families and co-workers of any casualties.
- EOP: The development of an Emergency Operations Plan (EOP) provides the framework for command and control of active shooter and other hostile events requiring cross-disciplinary team response and integration of multiple agencies.¹²⁵

This written EOP which includes the multi-agency, multi-disciplinary nature of the incident should also include the following considerations:

1. Command, control and communications procedures to include common terminology.
2. Establishment of a single Incident Command Post (ICP) and use of UC.
3. Fire, police and EMS' overarching strategy and tactics
4. Requirement for discipline and integrated training regarding the plan.
5. Direction of a coordinated public messaging process.
6. Suggested aviation considerations and the potential advanced location of staging areas, rally points, Casualty Collection Point's (CCP) and the ICP.
7. Consideration of potential target hazards and the establishment of support areas, such as family assistance areas.
8. Procedures for obtaining additional support and resources from external resources.
9. Review, endorsement and support of the community.
10. A plan to review, exercise and update the EOP on a regular basis. Exercises associated with the EOP should follow the U. S. Department of

125 Ibid., 7–12

Homeland Security's Homeland Security Exercise and Evaluation Program (HSEEP).¹²⁶

The environment for first responders is changing, requiring first responders to match resources to the environment. The development and implementation of a cross-disciplinary response policy to active shooter and other hostile events is a new paradigm and change in culture for police, fire and EMS personnel. It will be the aforementioned considerations and the procedures set forth in these policies that will provide casualties with the best chance of survival through immediate lifesaving care by first responders.

¹²⁶ Ibid., 10–15

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III. LITERATURE RELATED TO CROSS-DISCIPLINARY TEAMS

Cross-disciplinary teams of emergency responders have not been commonplace in the public safety agencies of police, fire and EMS in the United States. What has been common practice is individual agencies arriving on the scene and managing their area of expertise, with personnel rarely operating together in a combined tactical manner. This chapter addresses relevant literature to development and use of cross-disciplinary teams to include the factors that contribute to the success of these teams as well as the enablers and barriers to team effectiveness. Accompanying literature was also reviewed on the effects of identifying and merging the varying disciplines of police, fire and EMS as well as the methods to successfully integrate them.

A. CROSS-DISCIPLINARY TEAMS

Specialized teams within public safety agencies have become commonplace with the development and response of Hazardous Materials and Technical Rescue Response teams, Water Rescue teams, SWAT teams, Search and Recovery teams, and Explosive Ordinance Disposal (EOD) teams. While these are only limited examples, many of these specialized teams use personnel from a single agency or discipline to staff and respond to an event. As defined by Salas, Rosen, Burke and Goodwin, a team is defined as a set of two or more individuals that adaptively and dynamically interacts through specialized roles as they work toward shared and valued goals.¹²⁷ Teams allow us to integrate the diverse expertise of its members and participating agencies to accomplish complex, uncertain work that is difficult to plan, structure, and sub-divide in advance.¹²⁸ While teams can exist to fulfill some purpose such as product development, providing a service,

127 Eduardo Salas et al., "The Wisdom of Collectives in Organizations: An Update of the Teamwork Competencies," in *Team Effectiveness in Complex Organizations—Cross-Disciplinary Perspectives and Approaches*, eds. Eduardo Salas, Gerald F. Goodwin and C. Shawn Burke (New York: Taylor & Francis Group, 2009), 40

128 Amy C. Edmondson and Kathryn S. Roloff, "Overcoming Barriers to Collaboration: Psychology Safety and Learning in Diverse Teams," in *Team Effectiveness in Complex Organizations—Cross-Disciplinary Perspectives and Approaches*, eds. Eduardo Salas, Gerald F. Goodwin and C. Shawn Burke (New York: Taylor & Francis Group, 2009), 185.

or making an important decision, research provided by McShane and Glinow suggests that team members are held together by their interdependence and need for collaboration to achieve common goals.¹²⁹

The use of teams in an active shooter environment requires the coordinated effort of multiple disciplines and functions for successful mitigation of the event. The Columbine High School shootings provide us evidence that no single agency or discipline can handle an event of that nature and magnitude. What sets Columbine apart from other combined responses of police, fire, and EMS, is that this terrorist style attack combines the need for rapid entry and medical treatment by fire and EMS personnel with the ongoing law enforcement “active shooter” and EOD response. In Columbine, first responders had to handle nearly 100 improvised incendiary and explosive devices, many of which were intended to harm first responders.¹³⁰ Events of this magnitude require a rapid, coordinated and combined response to be able to eliminate the threat (shooter) while simultaneously accessing, providing rapid assessment and treatment to the victims, and removing them to areas of safety and advanced medical care. It has become apparent that no single individual or job function can maintain the sufficient knowledge, skills, training and responsibility needed to operate within this complex environment. What is needed is a team with a high level of expertise that combines the various levels of specialized skill into one cohesive group working toward a common goal, which has become known as cross-disciplinary or cross-functional teams.¹³¹ For the purpose of this research, the term cross-disciplinary team will be used synonymously with the term cross-functional team.

This chapter provides a review of the literature that is relevant to the development of cross-disciplinary teams. It begins with identifying the contributing factors that provide for the success of cross-disciplinary teams and how the various components of these structured teams can enhance the operational effectiveness during hostile or active

129 Steven L. McShane and Mary Ann Young Glinow, *Organizational Behavior Essentials* (New York: McGraw-Hill, 2007), 363.

130 U.S. Department of Homeland Security, *Wanton Violence at Columbine High School*. (Emmitsburg, MD: United States Fire Administration, April 1999), 1

131 Edmondson and Roloff, “Overcoming Barriers to Collaboration,” 196.

shooter events. With the implementation of cross-disciplinary teams, barriers and challenges have been identified that must be taken into consideration to achieve the desired results that are expected with a unified team. These challenges include the impact of individual organizational cultures when attempting to implement a unified cross-disciplinary team process. This chapter will review the importance of culture identification and the need to transform each individual public safety culture into a unified cross-disciplinary culture to provide for operational team effectiveness.

Cross-disciplinary teams are usually associated with corporate product development, transforming organizations, increasing speed to market and innovative design, but they can be vitally important to the success of combined hostile events due to the complex nature of the tasks to be accomplished and need for response personnel with specialized training and capabilities.¹³² These tasks can include neutralization of the shooter(s), EOD and WMD response, investigation of the crime scene, fire suppression, triage and treatment of victims, extraction of victims from impact area, and transportation to a medical facility. Literature concludes that the essence and desire of effective cross-disciplinary teamwork is to create a response through a collective effort that exceeds the quality of any single specialized team effort.¹³³ The diversity of expertise on a cross-disciplinary team creates the potential for teams to complete work outside of the scope of any one individual's capability.¹³⁴

Salas et al. found that effective teams have members with the knowledge, skills, attitudes, and other characteristics (KSAOs) to accomplish both individual task performance and necessary teams.¹³⁵ Team members must possess not only their

132 Josh Daspit et al., "Cross-Functional Team Effectiveness—an Examination of Internal Team Environment, Shared Leadership, and Cohesion Influences," *Team Performance Management* 19 (2013): 35.

133 Kim L. Smart and Carol Barnum, "Communication in Cross-Functional Teams: An Introduction to this Special Issue," *Technical Communication* 47, no. 1 (February 2000): 19.

134 Salas et al., *The Wisdom of Collectives in Organizations: An Update of the Teamwork Competencies*, 40–41.

135 Ibid., 41.

individual-level expertise relevant to the technical position they serve on the team, but also expertise in the social dynamics of teamwork.¹³⁶

Cross-disciplinary teams bring a variety of benefits such as the collaborative effort of combining qualified, high-level information and training brought by each team member. They also bring benefits such as:

- Enhanced communication and decision making through rich sharing of information.
- Increased productivity with higher levels of involvement, commitment, motivation, and subsequent accountability among workers.
- Improved processes, building on diverse backgrounds and experiences.
- Distributed workloads (responding to situations where problems and tasks become too large for one individual or agency).¹³⁷

Dr. Ben Carson, former director of Pediatric Neurosurgery at John's Hopkins Hospital in Baltimore, Maryland, saw a growth in cross-disciplinary teams in the healthcare industry to help resolve complex social, economic, and environmental problems.¹³⁸ Because of the explosion in complex medical knowledge, no one person can know it all and cross-disciplinary teams take advantage of cutting-edge knowledge and technology.¹³⁹ Carson cites people skills as the main skill necessary to be able to merge the multiple personalities and egos and make each team member get the appropriate recognition and feel inclusive in the process of achieving the team's goals. Defining the team goals and identifying the best way to accomplish the tasks at hand are vitally important to the success of the team. According to Carson, the most common mistake when team building is putting the wrong people on the team especially in terms of team member compatibility. The identification and blending of cultures of the specific team member's agency is an important factor for consideration and will be examined in the next section.

¹³⁶ Ibid., 41.

¹³⁷ Smart and Barnum, "Communication in Cross-Functional Teams," 19.

¹³⁸ Kristin Clarke, "Team Building Under Pressure," *Associations Now* 5, no. 7 (2009): 19.

¹³⁹ Ibid.

1. Factors Contributing to Success of Cross-Disciplinary Teams

Research has investigated the relationship between success and specific characteristics associated with cross-disciplinary teams. McDonough utilized questionnaires mailed to 776 users of cross-disciplinary teams in product development that included a range of industries, including consumer goods, services, and business; 112 responses were analyzed. The goal was to determine which factors are more frequently mentioned as leading to project/process success.¹⁴⁰ McDonough found that cross-disciplinary teams are widely used with 97% of the responses having used them, and 33% used them 100% of the time. When analyzing the reason why firms implemented a cross-disciplinary team approach, speed was most frequently provided as the performance reason.¹⁴¹

McDonough identified three major findings to include *stage-setting elements*, *enablers*, and *team behaviors*.¹⁴² *Stage-Setting Elements* reflect initial management actions that direct the development of team processes. These include setting project goals, empowering team members, establishing a team climate and the assigning of human resources to the team. These elements create clarity of direction for the team, provides team members with the decision-making authority, create a climate enveloping the team's efforts, and selecting members who will enhance the likelihood of success.¹⁴³ McDonough proposes that stage-setting elements operate on project outcomes indirectly by affecting the behavior of the team, which in turn influences project (process) performance. *Enablers* are individuals, team leaders, managers and champions that can facilitate the team's efforts and impact the stage-setting elements. Champions are defined as people who take a strong interest in seeing a particular process advance or product developed. They can represent various hierarchical levels within the organization but are

140 Edward F. McDonough, "Investigation of Factors Contributing to the Success of Cross-Functional Teams," *Journal of Product Innovation Management* 17, no. 3 (2000), 232.

141 McDonough, "Investigation of Factors Contributing to the Success of Cross-Functional Teams," 230.

142 *Ibid.*, 223.

143 *Ibid.*, 223–224.

in a position to play an enabling role towards the success of the team.¹⁴⁴ Enabler's influence project (process) performance principally by influencing team behaviors rather than by having a direct impact on project outcomes. Enablers influence team behaviors by moderating the effects of the different stage-setting elements. The *team behaviors* of cooperation, commitment, ownership, and mutual respect can have an effect on the successful outcome of cross-disciplinary teams.¹⁴⁵ McDonough recognizes that managers are responsible for both establishing stage-setting elements engaging in behaviors that can significantly influence the behaviors exhibited by the team.¹⁴⁶

In McDonough's research on cross-disciplinary team success, three important elements were frequently mentioned: 1) the establishment of clear and unchanging goals, 2) team leadership, and 3) team cooperation.¹⁴⁷ These three reasons align with the different categories (stage-setting elements, enablers, and team behaviors), suggesting that achieving team success may involve intricate relationships among organizational factors (goals), support from outside the team (such as leadership), as well as within team dynamics.¹⁴⁸

2. Enhancing Team Effectiveness

Salas et al., define team effectiveness as an evaluation of the outcomes of team performance processes relative to some set of criteria.¹⁴⁹ These criteria can include how the team affects the organization, individual team members, and the team's capabilities for the future.¹⁵⁰ The effectiveness relates to how well the results of the team performance met some set of relatively objective (e.g., metrics of productivity) or subjective (e.g., supervisor or observer ratings) standards which should be aligned with

144 Ibid., 225.

145 Ibid., 226–227.

146 Ibid., 233.

147 Ibid., 231.

148 Ibid., 231–232.

149 Salas et al., "The Wisdom of Collectives in Organizations," 41.

150 McShane and Glinow, *Organizational Behavior Essentials*, 363.

the goals of the team and the participating organizations.¹⁵¹ It is important to understand the elements of an effective team if we want to implement them successfully and reduce the chance of team failure.

McShane and Glinow reviewed the literature on team effectiveness and provide an integrative model. This model (see Figure 1) shows three categories of factors that impact team effectiveness, organizational and team environment, team design, and team process.¹⁵² There are six organizational and team environment factors that can affect the team's design, processes and outcomes. These include reward systems, communication systems, physical space, organizational environment and organizational structure.¹⁵³

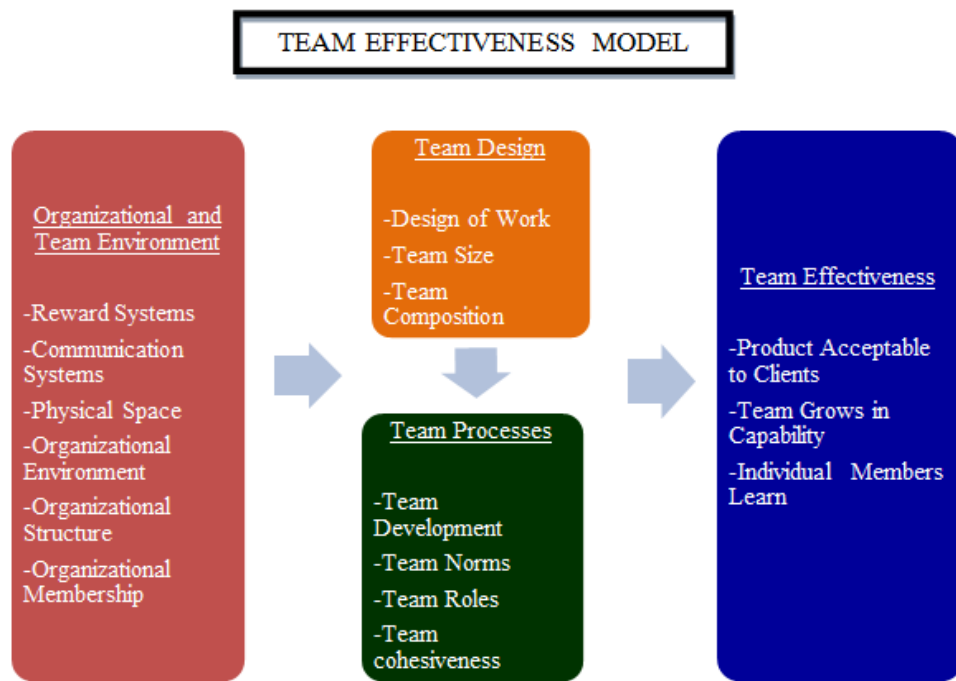


Figure 1. Team Effectiveness Model¹⁵⁴

¹⁵¹ Salas et al., "The Wisdom of Collectives in Organizations," 41.

¹⁵² McShane and Glinow, *Organizational Behavior Essentials*, 135–136.

¹⁵³ Ibid.

¹⁵⁴ Ibid., 135–136.

When looking at designing an effective team, the three main elements of task characteristics, team size and team composition should be considered.¹⁵⁵ Teamwork can sometimes be well structured, sometimes it can be complex, and sometimes there is task uncertainty, however the need for teamwork increases with task interdependence.¹⁵⁶ The point is that the team needs to be designed (choice of participants, their skill sets, their responsibilities and authorities...) based on those task characteristics. Task interdependence is defined by McShane and Glinow as the degree to which a task requires employees to share common inputs or outcomes, or to interact in the process of executing their work. The higher level of task interdependence, the greater the need for the team rather than individuals working alone. A key decision is the size of the team. Teams should be large enough to provide the necessary competencies and perspectives to perform the work, they found, yet small enough to maintain efficient coordination and meaningful involvement of each member. The authors also concluded that while technical skills and knowledge are important to a homogenous team, team members must fit into the team environment. The third set of team effectiveness elements known as team processes include team development, norms, roles and cohesiveness.¹⁵⁷ Teams must pass through several stages during development before they emerge as an effective unit and they develop norms which are the informal rules and expectations that regulate the behavior of its members.¹⁵⁸ As team members develop strong ties of social identity to the group, the greater motivation that they will have to perform well and avoid any negative cogitation. Team members have roles that are behaviors necessary to perform, to coordinate the team's tasks and achieve the goals of the team and the organization.¹⁵⁹ Team cohesiveness is defined as the degree of attraction people feel toward the team and their motivation to remain members. Cohesion tends to increase when teams are of smaller size yet large enough to capture the diverse skills and perspectives required to obtain the teams goals when they interact regularly, when entry to the team is somewhat

155 Ibid., 137.

156 Ibid., 150.

157 Ibid., 138.

158 Ibid., 139–140.

159 Ibid., 141.

restricted and provides an elite status, with team success, and when members face external competition or a challenging objective is valued.

3. Barriers and Challenges for Cross-Disciplinary Teams

The literature on cross-disciplinary teams points out a positive impact on organizational performance and a “cure” for companies, producing more creative thinking and innovation.¹⁶⁰ However, teams also face specific challenges and barriers to success. These barriers and challenges include diversity, multiple reporting relationships, lack of trust, non-supportive leadership, and interpersonal conflict.¹⁶¹

Diversity differences can also include member personality, culture, language or jargon, as well as organizational responsibilities, reward systems and physical barriers.¹⁶² These potential barriers support the need for team members to work collaboratively and the importance of internal team characteristics and cohesiveness in order to realize the full potential of the team’s diversity. The specialized expertise of the team members and the variation in knowledge and perspectives has the potential to create communication barriers and conflict among members.¹⁶³

Cross-disciplinary team members can experience pressure, conflict and communication problems by maintaining multiple reporting relationships.¹⁶⁴ The issue is that it may be difficult for team members to coordinate when they have different reporting chains for the functions they represent as well a reporting requirement within the team structure.

Team trust is a critical element of cross-disciplinary teams that has a positive impact on team processes and results in increased performance.¹⁶⁵ A literature review conducted by Webber found that the high abilities, diverse skills and knowledge can lead

160 Sheila Simsarian Webber, “Leadership and Trust Facilitating Cross-Functional Team Success,” *Journal of Professional Development* 21, no. 3 (2002): 201.

161 Ibid., 202–205.

162 Ibid., 202–203.

163 Daspit et al., “Cross-Functional Team Effectiveness,” 35.

164 Webber, “Leadership and Trust Facilitating Cross-Functional Team Success,” 204.

165 Ibid., 207.

to trusting relationships and successful performance.¹⁶⁶ However, “value differences stemming from functional diversity, time allocation heterogeneity and differences in reporting requirements result in lower trust within the team,” which can also occur when an individual or group is perceived as not sharing key cultural values.¹⁶⁷ Organizations must develop a team climate for enhancing trust among the team members to provide an effective team and improve team performance. Salas et al. provides that a lack of team trust can lead to wasting time and resources checking on other’s performance, degree of team member’s contributions, outcome quality and retention of members.¹⁶⁸

Leadership can influence a climate for team trust prior to, and at the beginning of the formation of cross-disciplinary teams. Effective actions taken prior to team formation can include gaining top management support, selecting high ability team members, selecting team members who are all on the same organizational level, and possibly those who have worked together in the past and have worked with the various leaders in the past.¹⁶⁹ During team formation, leadership can: negotiate expectations with discipline team leaders, build positive relationships with other team leaders, promote a shared commitment for the process, and develop and articulate a clear mission for the team.¹⁷⁰

Cross-disciplinary teams create the opportunity for team members to act as a spokesperson for their individual discipline. This can result in reduced flexibility and the potential for conflict if the team’s learning goal is replaced with a political agenda and egos associated with their discipline identity.¹⁷¹ Team effectiveness can be challenged by conflict among team members due to tension caused by real or perceived differences.¹⁷² In contrast, effective teams establish a positive, trusting group climate based upon interpersonal liking, and shared norms and values. De Dreu and Van Vianen

166 Ibid., 204.

167 Ibid.

168 Salas et al., “The Wisdom of Collectives in Organizations,” 47.

169 Webber, “Leadership and Trust Facilitating Cross-Functional Team Success,” 210.

170 Ibid.

171 Edmondson and Roloff, “Overcoming Barriers to Collaboration,” 196.

172 Carsten K. W. De Dreu and Annelies E. M. Van Vianen, “Managing Relationship Conflict and the Effectiveness of Organizational Teams,” *Journal of Organizational Behavior* 22, no. 3 (May, 2001): 309.

contend that when teams manage conflicts through collaboration and not contending or avoiding, team effectiveness is enhanced.¹⁷³ The importance of cooperative goals and collaboration cannot be over emphasized especially when speaking about task conflict. The research concludes that collaborating in task conflict situations increases individual and team effectiveness, as exemplified by greater satisfaction and feelings of self-efficacy among conflict parties, more mutually beneficial solutions, reduced likelihood of future conflict, and better goal achievement.¹⁷⁴ Daniel Druckman and Kathleen Zechmeister indicated that conflict involving relationships cannot be resolved by joint compromise or concessions, but instead by understanding of the situation by one or both parties which can include avoiding or forestalling the issues causing the conflict.¹⁷⁵ Avoiding the interpersonal issue may allow the conflict to subside as time passes and new experiences and assignments develop, which suggests that team functioning and team effectiveness will increase. When significant cultural differences are found within the group or team, individuals will often identify with their cultural sub-group rather than with the entire group.¹⁷⁶ The importance of integrating the various disciplines' cultures must be addressed to maintain the balance of cohesiveness of the team. Individual agencies, members, and leaders must maintain the understanding that team diversity may inhibit collaboration and take steps to mitigate these challenges.

The barriers and challenges of diversity, multiple reporting relationships, lack of trust, non-supportive leadership, and interpersonal conflict, are items that if not identified and managed effectively, have the ability cause conflict and negatively impact team performance. Prior single agency operations may have not provided the opportunity for these barriers and challenges to surface, but once recognized, each agency must work with their own agency and that of others to provide the necessary steps to address them and provide a unified cross-disciplinary team approach.

¹⁷³ Ibid., 312.

¹⁷⁴ Ibid.

¹⁷⁵ Daniel Druckman and Kathleen Zechmeister, "Conflict of Interest and Value Dissensus Propositions in the Sociology of Conflict," *Human Relations* 26, no. 4 (1973): 449–466, quoted in De Dreu and Van Vianen, "Managing Relationship Conflict," 313.

¹⁷⁶ Edmondson and Roloff, "Overcoming Barriers to Collaboration," 196.

B. CULTURE CHANGE

1. Changing Culture in Public Safety

While much literature on culture change deals directly with successful or unsuccessful mergers of organizations, the implementation of a multi-agency cross-disciplinary team can be compared to the merger of police, fire and EMS disciplines each with separate cultures and the expectation to transform into one public safety culture through a combined approach.¹⁷⁷ The intention is to combine the successful attributes of law enforcement, fire and EMS into a combined synergistic operating platform for the benefit of saving lives through decreased response times of the medical providers and transport times for the victims. This combined operating platform is forcing each agency to operate within a changed environment, altering their individual agencies response methodologies by the utilization of a cross-disciplinary team approach and changing their respective cultures. This team approach is contrary to police work which is more individualistic in nature and in comparison to fire culture which is more group-oriented.¹⁷⁸ The implementation of a cross-disciplinary team approach to handle these types of events can be a dramatic change in an organizations culture, comparing it to the downsizing, restructuring, reorganization or merger of various organizations and public safety entities.¹⁷⁹ While many of these decisions are based upon financial or strategic considerations, many organizations that attempt these changes often fail to meet the desired expectations of the intended transformation because they fail to realize and address the incompatibility of the various cultures.¹⁸⁰ While the motive for any intended organizational change can be practical, psychological, or opportunist, the ultimate goal or any re-organization is to achieve synergy based upon the affected change.¹⁸¹

177 Jeanne B. Stinchcomb and Francisco Ordaz. "The Integration of Two 'Brotherhoods' into One Organizational Culture: A Psycho-Social Perspective on Merging Police and Fire Services," *Public Organization Review* 7, no. 2 (June 2007): 147.

178 Ibid., 153.

179 Ibid., 144, 147.

180 Susan Cartwright and Cary L. Cooper, "The Role of Culture Compatibility in Successful Organizational Marriage," *Academy of Management Executive* 7, no. 2 (May 1993): 57.

181 Ibid.

The culture of an organization is the social identity that establishes the values, norms and behavioral expectations of the group, often described as the unwritten “rules of the game” or the “personality of the organization.”¹⁸² It is characterized by the symbols, values, ideologies and assumptions which operate in an unconscious way to guide and fashion the organization and its individual employees.¹⁸³ It defines what is acceptable and unacceptable in the organization and its work environment, and often is not readily apparent through outward appearance but imbedded deep into the organization and its employees. Inside an organization, sub units such as functional departments, sections and teams may possess their own unique cultures.¹⁸⁴ Examples of teams and functional units can include SWAT, Hazardous Materials Response Teams, Urban Search and Rescue Task Forces, gang units and many others. The dimensions of organization culture operate deeply beneath the surface where they often go unnoticed, are taken for granted, and are often considered more powerful than the formal rules and regulations established by the organization in terms of guiding employee behaviors.¹⁸⁵ In police, fire and EMS agencies, many of these cultural norms define our respective work ethics and have history dated back to the development of the services.

2. Success in Merging Cultures

Susan Cartwright and Gary Cooper looked at the role of culture in successful organizational change, acknowledging that many cultures, particularly the strong ones are not meant to change. When an organization remains steady, that is not a problem, but when change is implemented and two cultures are forced to integrate, the result can be problematic.¹⁸⁶ Cartwright and Cooper, who performed an analysis of 200 European

¹⁸² Stinchcomb and Ordaz, “The Integration of Two ‘Brotherhoods’ into One Organizational Culture,” 145.

¹⁸³ Cartwright and Cooper, “The Role of Culture Compatibility in Successful Organizational Marriage,” 60.

¹⁸⁴ Kim S. Cameron and Robert E. Quinn, *Diagnosing and Changing Organizational Culture* (San Francisco, CA: Jossey-Bass, 2006), 17.

¹⁸⁵ Stinchcomb and Ordaz. “The Integration of Two ‘Brotherhoods’ into One Organizational Culture,” 146.

¹⁸⁶ Cartwright and Cooper, “The Role of Culture Compatibility in Successful Organizational Marriage,” 60.

chief executives, found that cultural incompatibility is widely acknowledged as the reason for poor merger performance, which can lead to low morale, poor work quality, and declining performance.¹⁸⁷

In Cartwright and Cooper's study of a range of business sectors in the United Kingdom over a three-year period, the relationship between combining organizations' culture types and the post-merger or acquisition performance were analyzed. Utilizing over 170 formal interviews and over 700 questionnaires, the research was implemented to assess the types of culture that integrate well and whether some are more adaptable to change than others. Levels of organizational commitment, job satisfaction, employee stress, and mental well-being were analyzed at various points throughout the merger or acquisition.

The research found that the existing pre-combination cultures of the partnering organizations played a major and fundamental role in determining merger and acquisition outcomes and any variation in performance was linked to the cultural dynamics of combining the organizations.¹⁸⁸ These cultural dynamics included the complex interaction between the existing type of organizational culture of the partners, and the terms and interpretation of the type of contract or merger that the parties believed they had entered into.¹⁸⁹ It was found that these variations in performance were potentially predictable and thus preventable.

Roger Harrison, who first outlined his typology in a 1972 article in the *Harvard Business Review*, describes four types of organizational culture: power, role, task/achievement and person/support, each with individual characteristics.¹⁹⁰ While Harrison concluded that there is no one "best" culture for success, the different culture types create different psychological environments for their employees and play an important part in the expected performance of the agencies involved in any merger or re-design.¹⁹¹ The

¹⁸⁷ Ibid., 59.

¹⁸⁸ Ibid., 60–61.

¹⁸⁹ Ibid., 61.

¹⁹⁰ Ibid.

¹⁹¹ Ibid.

individual characteristics of the four types of organizational culture must not only be acknowledged, but managed during the cross-disciplinary team implementation process.

3. Culture Change for Mergers and Acquisition

To assist with the transformation to a cross-disciplinary model, we must look at the practice of organizational mergers and acquisitions which are similar in the way cultures are affected. Merger or acquisition success is the ability to integrate or displace a culture and the combination of the various types of organizational culture. Cartwright and Cooper describe the outcome of the merger or “role” types of cultures which closely match public safety as potentially good with a “smooth assimilation likely as effectively rewriting or presenting a new rule book.” Mergers and acquisitions must fall into one of three categories; Extension Merger, Collaborative Merger, and Redesign Merger.¹⁹²

- Extension: When the acquiring organization does not intend to change, other than perhaps minimally, business is conducted in a “hands-off” manner.
- Collaborative: When the success is dependent upon the integration of operations or exchange of technology or other expertise. In genuine collaborative mergers, where partner equality is recognized, differences in organizational culture are seen as potentially adding value to the partnership.
- Redesign: When the acquiring organization intends to introduce wide-scale changes. The acquired, usually smaller, merger partner totally adopts the practices, procedures, and culture of the dominant merger partner.

While difficulty in coordinating and integrating processes or organizational activities are often the result of culture clashes among different subunits, the success of the cross-disciplinary team concept can often be attributed to the integration of the various cultures, where the merger must be accepted by the members of the combining organizations.¹⁹³ Cartwright and Cooper use the Acculturation Model to describe the process of contact, conflict, and adaption when two or more cultures come together. Acculturation reflects the process through which divergent cultures can become

¹⁹² Ibid., 63.

¹⁹³ Cameron and Quinn, *Diagnosing and Changing Organizational Culture*, 17–18.

integrated.¹⁹⁴ Acculturation occurs through four different modes depending on the member's views of their satisfaction and value with their existing culture and their evaluation of the attractiveness of the other culture(s). The modes include Assimilation, Deculturation, Integration, and Separation.¹⁹⁵ This model can be applied to the implementation of cross-disciplinary teams to accommodate the different cultural dynamics and outcomes of the merger. *Assimilation* occurs when members of the acquired organization willingly relinquish their existing culture, and adopt and become absorbed into the culture of the acquirer or dominant merger partner, they assimilate.¹⁹⁶ If this relinquishment of their existing culture is resisted by the members, separation can occur. *Deculturation* is when members of the acquired organization are dissatisfied with their existing culture, but unconvinced as to the attractiveness of the other culture, deculturation occurs.¹⁹⁷ This can cause confusion and alienation among the members. *Integration* represents the interaction and adaptation between two cultures, which result in the evolvment of a new culture which represents the best of each culture.¹⁹⁸ Requiring a change and balance between the two cultural groups, this situation represents considerable potential for culture collisions and fragmentation.¹⁹⁹ *Separation* occurs when members of the acquired organization resist any attempt to assimilate or adapt to the culture of the acquirer which is likely to result in culture collisions and a lack of cohesiveness.²⁰⁰ The model proposes four possible modes of acculturation which can influence the degree of success of merger and acquisition outcomes. The model describes the initial cultural relationship between the organizations which therefore has different implications on success.

194 Stinchcomb and Ordaz, "The Integration of Two 'Brotherhoods' into One Organizational Culture," 148.

195 Cartwright and Cooper, "The Role of Culture Compatibility in Successful Organizational Marriage," 66.

196 Ibid.

197 Ibid.

198 Ibid.

199 Ibid.

200 Ibid.

4. Transformation into a Unified Cross-Disciplinary Culture

While mergers and acquisitions are commonplace in today's business world, they remain relatively unheard of in the public safety environment. In the analysis of a case study involving the merger between a large county sheriff's office and the same county's fire and rescue department in the southeastern United States, Stinchcomb and Ordaz concluded that government agencies in general are well-noted for ascribing reform to a need for change without ever clearly defining the need itself or specifying whose need is being served. This merger combined the two agencies under the unified command operations of the sheriff's office. To assist in the establishment of cross-disciplinary teams and the desire of agencies to merge operational methodologies and procedures, the case study concluded that a qualitative analysis should be conducted to review each agency's administrative and procedural documents as well as interviews with the agency members that are being tasked with implementing the new unified policy and methodology.²⁰¹ These interviews serve to identify the potential enablers and barriers to cross-disciplinary team implementation which includes the merging of two or more individual cultures. Stinchcomb and Ordaz describe three major theoretical components that are relevant to this case study that when identified and managed, can assist in the transformation into a successful unified cross-disciplinary team culture. They include "the formation of work-related identity, the interactions between psychological needs and the organizational culture, and the reciprocal expectation between employees and their employers."²⁰²

- *Work-related identity* is developed through the employee's associations with their co-workers, the nature of the work, their hierarchical status, the intrinsic and extrinsic rewards they receive, and the organizational culture to which they have adapted.²⁰³ To assist in a smooth implementation process, personnel charged with implementing these new response procedures and methodologies should meet with employees of each agency, through established meetings and orientation sessions set up especially to describe this new way of doing business. A mechanism for

²⁰¹ Stinchcomb and Ordaz, "The Integration of Two 'Brotherhoods' into One Organizational Culture," 149.

²⁰² Ibid., 150.

²⁰³ Ibid., 151.

two-way communication should be established to solicit feedback and allow the voicing of employee concerns. Questions and answers should be posted for each of the agencies employees to view. As a result of continuous communication, employees will have the opportunity to learn about each other's agency and address any questions or concerns they may have, and gradually phase in the cultures of other agencies.²⁰⁴ In the case of cross-disciplinary teams, persons tasked with implementation of a merged policy or procedure should begin by researching, interviewing and studying the various agency response personnel to gather the identity of each other's agency.

- The *interactions between psychological needs and the organizational culture* can be described as the person-environment fit (cultural alignment) and describes why employees seek and remain committed to organizations that are a good match for them.²⁰⁵ With any type of organizational change, employees can become uneasy or not sure that the previous alignment with the organization will be maintained in the new organization. In the case of cross-disciplinary teams, employees can worry about their prior individual status within their organization and how that will transform to the new team concept. One of the organizational differences include police officers who are used to working in more individualistic roles, being asked to mesh with the fire culture which can be more group oriented.²⁰⁶ Other differences between public safety agencies can include managerial approaches, types of organizations such as paramilitary and structured approaches, types of work environment, and general attitudes and demeanors of the employees. One of the strategies for integrating disparate cultures can include the education of employees on each of the other agencies culture to avoid them utilizing personal experience and bias as their guide. One of the formal processes can be accomplished during the training and implementation process of describing the differences in culture that each agency possesses and what they should expect during the implementation of cross-disciplinary teams. The informal process can be accomplished through training guidelines, question and answer sessions and informal communication. Regardless of the method(s) utilized, cultural differences cannot be ignored and must be addressed to provide the implementation of cross-disciplinary teams with the best chance of success.
- *Employer-employee reciprocity or "reciprocation"* can be described as the two-way interaction between the employees and their employer and

204 Ibid., 152.

205 Ibid.

206 Ibid., 153.

the expectations that each of them have of the other.²⁰⁷ Employees expect the fulfillment of their needs such as compensation, benefits, equipment and safety; while the employer desires the employees to provide sound and equitable work for the compensation they are provided.²⁰⁸ When implementing cross-disciplinary teams, these expectations need to be preserved during the integration process to avoid adding additional psychological stress to the mergers of the various cultures. To avoid any potential pitfalls and limit any resentment to the team concept, employers can provide incentives in the form of pay incentives for formal team participation, increased training, enhanced tactical equipment, and various status symbols such as team recognition and identification.

Cameron and Quinn remind us that the dependence of organizational improvement on culture change is due to the fact that when the values, orientations, definitions, and goals stay constant, even when procedures and strategies are altered, organizations quickly return to the status quo.²⁰⁹ In their survey of 1,742 U.S. and European companies, 69% of the companies in Europe and 75% of those in the U.S. had engaged in at least one reengineering project. The results showed that 85% of the firms polled reported little or no gain from their effort. The authors of the study concluded that reengineering alone was not enough to produce a desirable change within their organization.²¹⁰ Although the tools and techniques may be present for process improvements to occur, the reengineering had to be integrated with an overall approach to changing an organization's culture to achieve organizational benefits.²¹¹ If organizations or individual sections do not change the fundamental goals, values, and expectations of individuals, change remains superficial and short duration.²¹² Failure to successfully integrate cultural differences and implement effective cross-disciplinary teams can often produce cynicism, frustration, loss of trust, and deterioration in morale

207 Ibid., 155.

208 Ibid.

209 Cameron and Quinn, *Diagnosing and Changing Organizational Culture*, 11.

210 Ibid., 10.

211 Ibid., 11.

212 Ibid.

among the public safety members and may jeopardize the implementation of the cross-disciplinary team concept.²¹³

Being aware of cultural differences and modifying organizational culture is key to the successful implementation of major improvement strategies which can include the implementation of cross-disciplinary teams during complex hostile events.²¹⁴ Integrating the interpersonal dynamics of police, fire and EMS cultures is critical in the culmination of a culturally compliant cross-disciplinary team concept. The interpersonal interactions between the agencies members may be the biggest change, requiring the most amount of effort to successfully integrate.

C. SUMMARY

The benefits of cross-disciplinary teams in an active shooter situation were presented in Chapter II but understanding the reasons teams are successful require careful analysis and execution. The key elements of establishing clear and unchanging goals, team leadership, and team cooperation all play an important role in achieving team effectiveness which is measured against the ultimate performance of the team. Cross-disciplinary teams create the opportunity for multi-discipline coordination that can enhance effective operations in the hostile event environment. Research has determined the various aspects of cross-disciplinary teams and their unique characteristics that lead towards success include the initial management actions, the people that make up the teams and the team and personal behaviors that are displayed. The organizational and team environment to include the organizational structure and the selection of team membership, team design to include the team size and composition, and the team processes to include the development of the team, their associated roles, and the cohesiveness of the team all influence the effectiveness of the cross-disciplinary team. The successful implementation of cross-disciplinary teams can often be classified as a collaborative merger where the success of the team depends on the ability to integrate the cultures of police, fire and EMS while taking into account the successes and best

²¹³ Ibid., 11–12.

²¹⁴ Ibid., 12.

practices of each of the participating agencies working toward a common mission.²¹⁵ While diversity can be a positive trait for a team, the diversity found within cross-disciplinary teams can also be a barrier to success if not taken into account. One of the most important and overlooked traits of team diversity is that of differing cultures.

Research informs us that the social identity or culture of each organization is a powerful force that drives each agency, and the combination of these various agencies into one cross-disciplinary team requires a successful merging of these cultures. The successful merging of cultures requires acknowledgement and management of the various characteristics of each type of culture to allow the cross-disciplinary team members to integrate smoothly and effectively work together. The use of a qualitative analysis can assist in developing a unified team culture and aide in the development of new policies and methodologies for handling these hostile events in a cross-disciplinary manner. Any failure in the merging of the various public safety cultures can have a negative effect on the outcome of not only effective teams but a negative outcome for the incident. An adequate investment in time on the front-end of cross-disciplinary team development may pay dividends in the successful outcome of hostile events and the saving of lives and property.

²¹⁵ Cartwright and Cooper, "The Role of Culture Compatibility in Successful Organizational Marriage," 64.

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IV. METHODOLOGY AND DESIGN

A. INTRODUCTION

This thesis examines the enablers and barriers for deploying cross-disciplinary teams with the purpose of safely and effectively mitigating emergent complex, hostile events. Action Research is a participatory process that involves all those who have a stake in the issue engaging in systematic inquiry to be investigated.²¹⁶ Action Research provides a means to systematically investigate and inquire how public safety agencies can accomplish the desired goal of implementing a first responder cross-disciplinary action plan and evaluate its effectiveness through a practical exercise. The data include archival reporting from an active shooter full-scale practical exercise (called Exercise Secure) that was conducted by a federal entity to test the validity of the *Fairfax County Unified Hostile Event Action Guide* as well as emergency response plans of the federal facility. This chapter describes the design of the full-scale exercise, data collection, and the method used to analyze the data.

B. FULL-SCALE EXERCISE DESIGN

The emergency management program office for the federal agency designed and hosted a one-day active shooter full-scale practical exercise at their secure government facility which will remain unnamed and known as the “facility.” The facility is a United States government facility on the east coast. It maintains high security features and the employment of private armed security on a 24-hour basis. The facility is a campus-style facility with numerous buildings of various sizes and height and open areas surrounding many of the buildings. Areas below grade are also common throughout the facility.

Participants in this exercise included the internal staff of the facility (administration and security), agency medical response personnel, and the local responders representing the County police department and fire and rescue department. The units and personnel assigned to the full-scale exercise were actual units that would

²¹⁶ Ernest T. Stringer, *Action Research*, 3rd ed. (Thousand Oaks, CA: SAGE, 2007), 6

respond to the facility if this had been an actual incident. The responses included over 25 fire and rescue units with over 80 police, fire and rescue, and security responders participating, which is reflective an initial response algorithm for this type of event.

One of the major goals of this exercise was to implement the cross-disciplinary team concept (Rescue Task Force and Extraction Task Force). This involved police, and fire and EMS working together in a team to perform patient assessment, treat life threatening injuries, extract the victims from the area of threat, transport to a CCP and/or treatment area, and provide security for the team. Responding personnel were advised that the exercise was intended to test the validity of the *Fairfax County Unified Hostile Event Action Guide* as well as the emergency response plans of the facility.

The full-scale exercise required the exercise players to participate in a simulated response facilitated by the agency and facility staff. The scenario involved one active shooter moving among four separate locations in the facility complex which was initially reported to the security personnel at the facility. All law enforcement and fire and rescue personnel were advised and checked to have all weapons secured outside of this exercise and law enforcement/facility personnel were provided with simulated/inert training weapons as required. Responding personnel were confronted with a total of 43 victims, all with various types of injuries; 21 victims at scene 1, 12 victims at scene 2, and 10 victims at scene 3. The response was multi-faceted with an initial response to the shooting from the facility/agency security staff, followed by local police and fire and rescue personnel. The County's Department of Public Safety Communications was also a participant with all calls for assistance initially routing through the dispatch center in order to replicate an actual event. Police and fire and rescue resources were staged at a nearby location and were dispatched to the scene in a realistic response time frame. The incident unfolded in a traditional response manner with all participants acting according to the policies and procedures that they have been provided and trained upon. The exercise concluded when all 43 victims were accounted for and either extracted from the areas of threat and transported to a treatment area or simulated medical facility, or left in place if deceased.

C. QUALITATIVE AND QUANTITATIVE DATA COLLECTION AND ANALYSIS

The Action Research approach of this study follows the *Look, Think, and Act*²¹⁷ method documented by Stringer. *Look* involves gathering relevant information and data through a literature review of information related to past historical incidents and the concept of cross-disciplinary team. This review also focuses on the existing *Fairfax County Unified Hostile Event Action Guide* policy as well as other existing public safety policies on the use of cross-disciplinary teams. *Think* involves exploring and analyzing the information and data collected in order to interpret and explain the either enablers and/or barriers to implementation of a cross-disciplinary response. Lastly, *Act* is the output of this thesis and includes the information and data that has been gathered, explored and analyzed as well as resulting recommendations for the successful implementation of cross-disciplinary teams in hostile contexts.

This thesis uses archival data that was collected during the full-scale exercise. None of the data included personally identifiable information (PII) or protected health information (PHI). The only data used for this study included the participants' assessments of the effectiveness of the exercise, as described above. This exercise and data collection were conducted for the benefit of the federal agency and the public safety first responders.

This study analyzes two sets of data from this exercise:

- Five pre-exercise questions were provided to six participants representing the participating disciplines of police, fire and EMS, and security. These questions were distributed eight months prior to the actual full-scale-exercise and completed in a paper and pen format. The questions gauged the level of knowledge of the guidelines for response prior to the actual exercise (see Appendix B).
- A post-exercise analysis was completed by the sixty-eight exercise participants and seven observers and administrators with specific questions regarding the use of cross-disciplinary teams during the exercise. The data included observations from the exercise observers and administrators, and participant feedback to questions administered by the federal agency. Seventeen quantitative questions and three qualitative

217 Stringer, *Action Research*, 8–9.

questions were provided to the respondents and completed in a paper and pen format (see Appendix C).

Using data from the five pre-exercise responses, themes were developed that identified enablers and barriers for the use of the cross-disciplinary team concept and the actual upcoming exercise. The pre-exercise questions provided the exercise administrators with several perceived issues or concerns prior to the execution of the full-scale exercise. The qualitative responses aided in the identification of significant objectives for the full-scale exercise and areas of concern to which the evaluators could pay closer attention too during the actual exercise. The pre-exercise themes also aided in the development of the full-scale exercise questionnaire. These themes included the problems or issues expected from the team concept of fire and police working together; whether cross-functional teams will accomplish the mission of police, fire and EMS in an active shooter environment; the potential barriers of success of the cross-functional team concept; the type of training, equipment, and resources needed for success; and the opinion if Fairfax County is prepared to handle an active shooter incident.

The 17 quantitative and qualitative post-exercise questions were administered to each of the participants (see Appendix C). These questions and associated responses were tabulated on a 1 to 6 (1=low, 6=high) scale with an option for “not applicable” if the question was not applicable to the evaluator or participant’s activity or mission or not observed. Analysis included calculating the overall group mean, (N=75) and standard deviation for each quantitative question. T-Test contrasts were analyzed to compare the mean ratings for: the disciplines (police, fire, security and other), evaluator versus participant, and members versus non-members of cross-disciplinary teams. Three additional qualitative questions were asked to capture the evaluator or participant’s perceived effectiveness of the cross-disciplinary team concept during the full-scale exercise. The three qualitative questions that were provided focused on the advantages and disadvantages of cross-disciplinary teams as well as potential barriers that may have existed within the teams. Thematic analysis was utilized to identify the issues and findings from the three qualitative questions.

V. FINDINGS

The research compiled as a result of Action Research and the associated full-scale practical exercise provided the opportunity to address the research questions as presented in this thesis. While a review of past historical incidents can provide key lessons learned and a potential look into the future, there is no guarantee that lessons learned will be adopted and applied to future incidents. The use of a full-scale scenario based practical exercise can be considered the most relevant analysis and training for public safety responders and administrators to test a new or improved method of incident mitigation. This chapter provides the research findings in the form of qualitative and quantitative data and analysis of the exercise which was conducted to determine how can public safety agencies effectively implement a first responder cross-disciplinary action plan to better coordinate police, fire and EMS responses in combined hostile events. The research identifies both enablers or barriers to the deployment of these teams and what are the benefits and risks of a cross-disciplinary approach from the eyes of persons that actually respond and mitigate these types of events.

A. FULL-SCALE PRE-EXERCISE ANALYSIS

Six participants responded to five pre-exercise questions that were distributed prior to the full-scale exercise with a purpose of providing the exercise administrators with several perceived enablers and barriers or concerns to the implementation of cross-disciplinary teams. The responses aided in the identification of significant objectives for the full-scale exercise and areas of concern to which the evaluators could pay closer attention during the actual exercise. Using data from the five pre-exercise responses, themes were developed that identified enablers and barriers for the use of the cross-disciplinary team concept and the actual upcoming exercise. The responses were placed in an Excel spreadsheet with each respondent having correlating responses to the five pre-exercise questions. Analysis of the raw qualitative data involved sorting and integrating to create patterns and themes from the responses provided. These themes are

presented for each of the five pre-exercise questions. The pre-exercise themes aided in the development of the full-scale exercise questionnaire.

1. What problems or issues do you expect from this ‘team concept’ of police and fire working together?

Responses centered on coordination of armed responders, the communication and implementation of unified command, and the ambiguity regarding responsibility and authority for actions. Four of the six responses provided reference to potential problems associated with communication among the responders from police and fire and rescue, especially with regard to the establishment of joint unified command. Without adequate communication among the disciplines and the establishment of unified command, potential problems can arise regarding the coordination of armed responders, unknown areas of responsibility among the responders, and the establishment of unified command that provides clear direction and representation of all disciplines. Responses indicated a need for a coordinated response that is based upon pre-established policies, procedures and action plans. It was also noted by one respondent that the cross-disciplinary team concept may not be effective and may create unnecessary risk to the responders and agency staff.

2. Do you think that the cross-functional team or “Rescue Task Force” concept as it is sometimes called is needed to accomplish the mission of police, fire and building security’s missions in an active shooter environment? If not needed, why not?

Four out of six respondents indicated “yes” to this question with two respondents indicating “no” or a neutral response. Responses indicated a concern for a lack of practical exercises and training regarding the use of cross-disciplinary teams which would lead to communication disparity among the responding agencies and disciplines. While the cross-disciplinary response that includes police and armed security officers working together would increase the number of armed responders in an active shooter environment, the response between police and agency security needs to be coordinated. One response indicated that police (law enforcement) need to secure the active shooter scene prior to rescue efforts being deployed by fire and rescue personnel.

3. What are potential barriers to the success of this cross-functional team concept?

As with the implementation of any new procedure, it is important to identify potential barriers early to try and remediate them prior to implementation. In this case, identifying potential barriers prior to the actual exercise would aid in the establishment of objectives for the full-scale exercise. Two of the six respondents indicated no potential barriers to the cross-disciplinary team concept, while two others identified communication as a barrier to include the identification of “who is in charge” of the team and how they would communicate among themselves, as well as the lack of command presence were noted. Other potential barriers included a lack of combined training and familiarity with the other members of the cross-disciplinary team which could lead to distrust and problems agreeing to a unified plan of action. The lack of clear roles and authority of the specific cross-disciplinary team members was identified as a barrier which could potentially lead to members of the team having varying agenda’s and not following direction or established policies. The roles of the members must include the identification of the agency staff, security officers and public safety responders to avoid any miss-interpretation of the varying roles and responsibilities.

4. What type of training, equipment or resources would you need to make the cross-functional team concept a success?

Providing the cross-disciplinary team members with the proper training, equipment and resources is paramount for an effective response. Two of the six respondents indicated the need for ICS and unified command training and the commitment to utilize these on actual emergency incidents. Other respondents indicated the need for additional training and familiarity with the agencies buildings and response procedures, adequate protective gear, the need for joint communications, an effective memorandum of understanding clearly outlining the roles and responsibilities between the agency and public safety responders, and the need for compatible policies and procedures between responders.

5. Do you think we in Fairfax County are prepared today to handle an “active shooter” incident such as Columbine or Mumbai, India? Please elaborate if you can.

Two of the six respondents indicated “no,” one as “unsure,” and the remaining three respondents as either as “ready as we can be” or “it depends” with one providing his concerns. Some responses felt that these types of incidents can never be handled because the “fire power” of the persons doing harm will exceed local law enforcement while others provided no definitive response. Some of the major concerns centered on problems with communication capability and span of control due to the influx of responders to the scene which will create accountability problems for command. The need for collaboration between the agency staff and public safety responders was listed, which relates back to the identification and awareness of the various roles and responsibilities of the various agencies responding to the incident.

B. FULL-SCALE EXERCISE ANALYSIS

One of the goals of the full-scale exercise was to implement and evaluate the cross-disciplinary teams (“Rescue Task Force’s” and Extraction Task Force’s) in an active shooter environment. The post-exercise analysis involved questions related to the use of the cross-disciplinary team concept compared to procedures utilized in the past regarding fire and EMS staging until the incident is declared “safe” by police. These post-exercise questions included the themes developed from the five pre-exercise questions. The themes and findings utilized in the post-exercise questions development included the problems or issues as well as the barriers to the implementation of cross-disciplinary teams in an active shooter environment. The questions included what training, equipment, or resources are needed to make the cross-disciplinary teams a success and whether cross-disciplinary teams are needed to accomplish the mission of police, fire and EMS to mitigate these types of complex hostile events. Examples include questions related to the ability of cross-disciplinary teams to realize a reduction in time to mitigate the incident, ability of the agencies to trust and communicate with one another, and the ability of the teams to overcome conflict and effectively collaborate on the emergency incident scene. Analysis included the perceived utilization of teamwork,

agency preparedness, and perceived barriers to the use of cross-disciplinary teams to accomplish the mission of treating and removing casualties on the scene in a rapid and safe manner.

Seventeen quantitative questions were tabulated on a 1 to 6 (1=low, 6=high) scale with an option for “not applicable” if the question was not applicable to the evaluator or participant’s activity or mission or not observed. This analysis included the overall group mean (n=75 respondents) and standard deviation for each question. A t-test comparison of sub-group means was also done. These comparisons included the disciplines (police, fire, security and other), evaluator versus participant, and member of cross-disciplinary team and those not a member of the team. These contrasts were chosen to evaluate whether groups perceive the effectiveness differently. Three additional qualitative post exercise questions were asked to capture the evaluator or participant’s perceived effectiveness of the cross-disciplinary team concept during the full-scale exercise.

1. Overall Quantitative Survey Results

The seventeen questions and the calculated means and standard deviations from the seventy-five respondents are listed in Table 1.

Table 1. Post-Full-Scale Analysis Questions

	POST-FULL-SCALE ANALYSIS QUESTIONS TOTAL GROUP ANALYSIS (1 = low 6 = high)	Total Group (N=75) Means (Std Dev)
QU	Top leadership in your organization is supportive of this new cross-disciplinary team concept/procedure.	5.2 (.9)
QP	Police, fire/EMS and security trusted each other's ability to perform during this exercise.	4.8 (1.1)
QS	Police, fire/EMS and security were willing to communicate and share information with each other during this exercise.	4.8 (1.0)
QI	Cross-disciplinary team members were provided with appropriate police force protection (security) while operating in the warm zone.	4.5 (1.2)
QN	Cross-disciplinary team members were empowered to make decisions regarding the establishment of tactical goals for the team.	4.5 (1.1)
QR	Cross-disciplinary team members were aware of their individual roles and responsibilities on this exercise.	4.4 (1.3)
QG	The use of terminology was commonly understood by all responders (police, security, and fire/EMS) during this exercise.	4.3 (1.3)
QH	Cross-disciplinary teams (Rescue Task Force) enhanced the ability for fire/EMS to be able to triage and treat the casualties in the warm zone.	4.2 (1.4)
QK	The identification of the casualty collection point and point(s) of entry was clearly communicated to the cross-disciplinary team members.	4.2 (1.4)
QO	This cross-disciplinary concept has led to a reduction in time to triage, treat and transport casualties from the warm zone during this exercise.	4.1 (1.4)
QC	Accountability for the cross-disciplinary team members was maintained at the incident/unified command post.	4.0 (1.2)
QF	Personnel responding to this exercise understood each other's agencies response procedures for mitigating an "Active Shooter" incident.	3.9 (1.3)
QJ	Appropriate work zones (Hot, Warm and Cold) were established and communicated to the cross-disciplinary team members.	3.9 (1.5)
QT	The individual cultures of police and fire/EMS provided a barrier to team effectiveness and collaboration during this exercise.	3.9 (1.52)
QE	Participants in this exercise received adequate training on this new cross-disciplinary team method before today's exercise.	3.6 (1.2)
QQ	Cross-disciplinary team effectiveness was challenged by conflict among team members due to real or perceived differences in the establishment of goals and priorities for the team.	3.6 (1.5)
QD	Effective unified command procedures aided in reducing the "staging time" for fire/EMS personnel.	3.4 (1.3)

Analysis provided an overall moderately high level of confidence in the concept and use of cross-disciplinary teams and the various disciplines to work together. All but one question (QD) have a mean above the mid-point (3.5) on the 6-point rating scale. Question U (mean=5.2) reflected the highest mean by the respondents acknowledging the high degree support by top leadership in this new cross-disciplinary team concept. While this is not reflective of the actual confidence in the use of cross-disciplinary teams and collaboration between disciplines, it does reflect the needed support from top leadership that will enable the cross-disciplinary team concept to potentially succeed. Four other highest rated questions were found to be note-worthy. A high degree of confidence was identified in the ability of the various disciplines to trust each other's ability to perform their duties during an active shooter event (QP mean=4.8). The respondents who provided ratings of 5 or 6 equaled 72%, indicating a very high degree of confidence in the question. The qualitative theme from 13% of the respondents that provided an explanation to question P indicated no barriers to police, fire/EMS and security trusting each other's ability and no reluctance or hesitancy on the part of the cross-disciplinary team members to get the job accomplished. Also rated high was the various disciplines' willingness to communicate and share information (QS mean=4.8) as well as the feeling of empowerment of cross-disciplinary team members to make decisions regarding the tactical goals for the team (QN mean=4.5). Of the respondents to question N, 35% provided a N/A indicating that they did not participate directly in a cross-disciplinary team or did not observe the decision making process for the team. The high mean values provided to each of these questions indicate the ability and willingness for the participants to actively participate as a member of a cross-disciplinary team. Team members also felt that they were provided with appropriate force protection which is paramount for the team to remain effective, safe, and operational within the warm zone (QI mean=4.5). Overall, the support of top leadership to maintain and enhance this concept along with the respondents' confidence and willingness to participate in the cross-disciplinary team concept provides an encouraging indication for this method of hostile event mitigation.

Analysis indicated the lowest level of confidence in the ability of unified command to reduce the “staging time” for fire and EMS personnel with low ratings assigned to members receiving adequate training prior to this exercise (QD mean=3.4). The combined low ratings equaled 33%, with respondents indicating a rating of 1 or 2. The primary theme of the qualitative comments by 9% of the respondents explaining the ratings indicates a perceived delay from unified command in the deployment of the Rescue Task Force which did not lead to a reduction in the “staging time” for fire and EMS personnel. Respondents also felt that they received less than adequate training on this new cross-disciplinary team method prior to the exercise (QE mean=3.6; and 16% giving a rating of 1 or 2 to this question). It can be concluded that due to this exercise utilizing a new concept in the use of cross-disciplinary teams and the limited practice of these concepts, respondents understandably rated the actual effectiveness and perceived benefit somewhat low. It can be expected that as confidence is enhanced through training and the willingness of the various disciplines to work together is supported, the perceived and actual benefit of the use of cross-disciplinary teams can be realized.

Two questions provided evidence of the respondent’s optimistic outlook for the ability of cross-disciplinary teams to have a positive outcome in the treatment of casualties. Question H (mean=4.2) provided a moderately high degree of confidence in the ability of cross-disciplinary teams (Rescue Task Force’s) to enhance the ability for Fire and EMS to triage and treat casualties in the warm zone. This high degree of confidence was evidenced by 64% of the respondents indicating a high rating of 5 or 6, while 76% indicated a positive rating with ratings of 4, 5 or 6. Question O (mean=4.1) provides a moderately high degree of confidence in the ability of the cross-disciplinary team concept to lead to a reduction in time to triage, treat, and transport casualties from the warm zone during the exercise. In response to question O, 35% indicated a high degree of confidence with ratings of 5 or 6, while 56% indicated a positive rating with ratings of 4, 5 or 6. While 56% of the respondents indicate a high rating, 34% provided ratings of 3 or less, questioning the potential of the cross-disciplinary approach. Some of the challenges to the development of SOP’s, communications, unified command procedures, and training will improve as the concept is developed and exercised, which

could enhance the overall potential benefit of the cross-disciplinary team method. These responses by the participants provide a positive analysis for the impact that a cross-disciplinary team can in fact work and make a positive difference in the medical care of the injured. These two questions signify that the participants felt that a cross-disciplinary team approach enhanced the tactical ability of fire and EMS to provide patient care, and lead to a reduction in the time to triage, treat, and transport casualties out of an area of threat.

2. Group Comparisons of Quantitative Survey Results

To provide further analysis, the mean ratings were compared for each of the four disciplines (police, fire, security and other) in each of the questions. Statistical comparisons (ANOVA) of the four various groups were evaluated to determine if the various groups rated the questions differently. Utilizing a significance level of $p < .05$, only one question was found to have a significant difference in how different groups rated the questions. The analysis generally showed that there was no statistically significant difference across the subgroup mean ratings and perceptions. However, subgroup sample sizes are small, so further investigations of differences may be warranted. The only question showing significant differences between groups was question S which showed that the security respondents had a significantly higher rating (mean=5.7) on effective communication and information sharing between police, fire/EMS and security, than did the police (mean=4.6) and the “other” group (mean=4.3). The difference between security and fire (mean=4.8) was not found to be statistically significant. It can be noted that this exercise was one of the first times that facility security staff participated in a cross-disciplinary team and hands-on training with the local law enforcement, possibly leading to a higher degree of perceived satisfaction and information shared.

In the statistical comparison of evaluators versus participants in the exercise, the level of significance was insignificant. The analysis indicated no difference between evaluators and participants in how they rated the assessments.

In looking at the statistical comparison of whether staff were assigned to cross-disciplinary teams or not, a majority of the questions showed no statistical difference. Two questions were exceptions and provided the strongest significant difference between team members and non-team members. For question Q, there is a significant difference between those on a team (mean =3.2), and those not on a team (mean=4.0). This is interpreted that those members assigned to a cross-disciplinary team had a higher level of agreement than those not on the team. This agreement was with regard to the feeling that team effectiveness was challenged by conflict among members due to real or perceived differences in the establishment of goals and priorities for the team. Even though the team members showed a higher level of agreement (just over the midpoint of 3.5 on the 1–6 scale), those members had greater exposure and were more sensitive to whatever challenges there were, due to conflicting goals and priorities within the team than those who were not on a team. The second significant t-test was also in comparison of team members with non-team members on question G. Here, the mean for team members was 3.9 and non-team members was 4.6 and this difference was statistically significant ($p < .05$). Similar to question Q discussed above, this question finds that team members had weaker agreement than non-team members about whether terminology was commonly understood by all responders during the exercise. It is possible that this is because there were actually more challenges in terminology in the cross-disciplinary teams than those not on cross-disciplinary teams. Those not on teams were more likely to be interacting within their disciplinary units with less interaction with other disciplines. While the mean rating for team members (3.9) is above the midpoint of the rating scale showing mild agreement, it suggests that this would be important to address in training cross-disciplinary teams so they are familiar with different disciplines' terminologies.

Themes from the three qualitative post-exercise questions are provided here. The purpose of the questions was to focus on the advantages and disadvantages of cross-disciplinary teams as well as potential barriers that may have existed in the formation of the teams. It was paramount to determine the perception of the respondents in this exercise regarding the establishment and use of cross-disciplinary teams in mitigating hostile events. These responses were also placed in an excel spreadsheet with each

respondent having correlating responses to the three post-exercise questions. Analysis of the questions provided raw qualitative data which was sorted and integrated to create patterns and themes among the responses provided. These themes are broken down into each of the three post-exercise questions and include generalized enablers and barriers that were identified by the seventy-five respondents as a result of the exercise.

6. What are the advantages and disadvantages of using the cross-disciplinary team approach for responding to and mitigating a hostile (active shooter) event in comparison to the former concept of fire/EMS staging until the incident is declared “safe” by police?

Of the 35 respondents that provided a qualitative answer to the advantages of cross-disciplinary teams, 26 indicated that the advantage of utilizing the cross-disciplinary team approach over the former concept of fire and EMS “staging” until the scene is secured, was a quicker response to accessing the victims, subsequently providing faster treatment and transport of the victims out of the warm zone. Many of these responses also indicated greater efficiency and better organization of the incident scene, with a goal of a smooth and quick operation all leading towards the goal of saving more lives. Enhanced communication among the disciplines and cross-disciplinary team members were also noted as a common theme with this enhanced communication of sharing information among disciplines providing a safer environment for all of the public safety providers operating on the scene.

The majority of the disadvantages acknowledged the increased risk to rescuers, especially fire and EMS personnel that have not routinely undertaken the risk of operating in the warm zone on a law enforcement event before. Five out of 29 responses indicated increased risk as a disadvantage. Other responses varied widely with four respondents acknowledging the required amount of training required for this concept to be successful and many respondents desiring more training in this area. Other responses indicated an acknowledgement and disadvantage of the different cultural aspects between the various disciplines of law enforcement, and fire and EMS, causing a barrier to effective teamwork. Differing goals, objectives and related functions between the disciplines of law enforcement and fire and EMS personnel was listed by several of the respondents as a barrier to the cross-disciplinary team concept. Differing goals and

objectives as well as fire and EMS personnel not trained in law enforcement tactics could be detrimental to the operation if the team is not provided with a common goal and accepted objectives. The various disciplines possessing different communication techniques and terminology that is not commonly understood by everyone were cited as a disadvantage by multiple respondents.

7. Did the police, building security, and fire/EMS utilize teamwork to mitigate the incident or did they operate independently? Please explain.

Twenty-eight out of 30 personnel that answered the question in a yes or no format indicated that teamwork was utilized in lieu of operating independently. Many of the respondents indicated a delay in the fire and EMS personnel integrating with law enforcement causing a delay in the development and insertion of the RTFs and ETFs. This delay relayed to a delay in victim treatment, extraction from the warm zone, and transport time to a medical facility. It was noted in several responses that teamwork enhanced the overall communications between team members and disciplines as well as team members knowing their roles and working together.

8. What barriers existed to the cross-disciplinary teams of law enforcement and fire/EMS to the mission of treating and removing casualties on the scene in a rapid manner?

With seventy-five respondents participating in the survey and 31 providing responses to this question, 20 respondents indicated that barriers existed to cross-disciplinary teams treating and removing casualties on the scene in a rapid manner. Of the responses, many duplicated the responses from question 3 indicating a delay in the fire and EMS personnel integrating with law enforcement causing a delay in the development and insertion of the RTFs and ETFs, subsequently causing a delay in victim treatment, extraction, and transport. A delay in establishing unified command, or ineffective unified command was noted by several respondents which may have added to the delay noted above. While several respondents cited unfamiliar goals and varying objectives among disciplines, this was certainly a minority with less than 5% indicating any issues with clarifying roles and responsibilities. Several other tactical needs or barriers were expressed such as the need for additional personnel to assist with victim

removal, confusion on radio terminology and communications, unfamiliarity with building layout, duplication in patient assessment and the need for using a patient marking system. The majority of the respondents (n=55) felt there were no or limited barriers to implementing the cross-disciplinary team concept which is a positive sign especially given as a post-exercise response

C. SUMMARY

The full-scale practical exercise provided a mechanism and learning environment for internal and external response personnel to exercise their response procedures and demonstrate their ability to respond in a cross-disciplinary manner to an active shooter type event. The response entities for the agency, local law enforcement and fire and rescue were able to demonstrate their response capabilities, authorities, roles and responsibilities and allowed responding personnel and agencies to clarify their response procedures.

Three general themes can be concluded from the full-scale exercise, and they center on policy and protocol development, strategic and tactical operations, and the need for increased multi-discipline training. Responses indicated a need for a coordinated response that is based upon pre-established policies, procedures and action plans to ensure a coordinated effort where each discipline is aware of their individual roles and responsibilities. With regard to strategic and tactical operations, analysis provided an overall high level of confidence in the concept and use of cross-disciplinary teams, the various disciplines ability to work together, and a high degree of support from top leadership. This support for concept is complimented by no indication of barriers to the various disciplines ability to trust each other's ability to perform their duties and get the job accomplished in a cross-disciplinary format. Exercise analysis indicated the lowest level of confidence in the ability of unified command to reduce the "staging time" for fire and EMS personnel however, post full-scale questions revealed a high degree of confidence in the ability of cross-disciplinary teams to enhance the ability for Fire and EMS to triage and treat casualties in the warm zone and lead to a reduction in time to triage, treat, and transport.

Post-exercise analysis indicated that there was no statistically significant differences across the subgroup mean ratings and perceptions of police, security, fire and EMS. One exception which centered on effective communication and information sharing between police, fire/EMS and security was noted but possibly attributed to the infrequent use of security in multi-agency and multi-discipline training. In the statistical comparison of evaluators versus participants in the exercise, there were no statistically significant differences in the survey ratings of these two groups. In looking at the statistical comparison of whether staff were assigned to cross-disciplinary teams or not, a majority of the questions posed no statistical difference. Two exceptions were noted with regard to the feeling that team effectiveness was challenged by conflict among members due to real or perceived differences in the establishment of goals and priorities for the team and the finding that team members had weaker agreement than non-team members about whether terminology was commonly understood by all responders during the exercise.

Analysis of the qualitative and qualitative data that was extracted from full-scale exercise provided the federal agency and the evaluators with a statistical look at the effectiveness of cross-disciplinary teams in an active shooter event, but also provided qualitative data and views from the participants that substantiated the statistical data and provided a snapshot of the enablers and barriers to the effective cross-disciplinary team approach. What can be concluded is a willingness and desire on behalf of the participants to utilize the cross-disciplinary team concept and teamwork during hostile or active shooter events. A small minority indicated barriers to cross-disciplinary teams treating and removing casualties in a rapid manner. While barriers were expressed such as cultural barriers and increased risk to fire and EMS personnel, it was the response of the public safety responders, that this concept is a functional and desired method of incident response, with many of the barriers solvable through training and the development of policies and procedures.

VI. SUMMARY, RECOMMENDATIONS AND CONCLUSION

A. INTRODUCTION

Complex hostile events such as those analyzed in this thesis have the potential to quickly overwhelm and challenge public safety agencies tasked with protecting their citizens. As evidenced by a review of past historical hostile events, incidents can occur in any locality regardless of their size, location, and capability. These incidents require the local jurisdiction to, not only prepare for, but assemble a coordinated and effective public safety response to mitigate the threat and reduce casualties. Public safety officials and community leaders must ensure confidence among their citizens for a safe and healthy community. The citizens of our communities cannot simply hope for their public safety responders to be prepared; they expect it.

Current fire and Emergency Medical Services (EMS) policy directs personnel to “standby” until law enforcement declare a hostile scene “safe.” This policy often leads to unnecessary loss of life because of the delayed fire and EMS response and subsequent victim treatment. Some policymakers are suggesting a deployment of cross-disciplinary law enforcement, fire, and EMS teams that would allow responders to act more rapidly and in a coordinated manner.

This study’s primary research question was: “How can public safety agencies effectively implement a first responder cross-disciplinary action plan to better coordinate police, fire, and EMS responses in combined hostile events?” To answer this question, the author of this study reviewed past hostile and active shooter events, examined emerging cross-disciplinary response team policies, reviewed the relevant academic literature, and analyzed data from a full-scale hostile event exercise designed to incorporate a cross-disciplinary response. This chapter provides a summary of this study’s key findings as well as action recommendations and suggestions for future research.

B. SUMMARY OF RESEARCH FINDINGS AND RECOMMENDATIONS

Based on the research that was conducted for this thesis, five recommendations are offered. The key findings from this study are used to provide a rationale for each of the recommendations.

1. Identify, Expand, and Integrate National Policies and Protocols to Support the Development of Unified Regional and Local Response Policies and Protocols

Almost every finding contained within this thesis supported the need to develop and implement unified regional and local response policies and protocols which support the implementation of cross-disciplinary teams during a combined hostile or active shooter event. Findings derived from the literature show that these regional and local response policies should be developed from national model strategies as a way to create innovative best practices.²¹⁸ These national strategies and policies, some of which are under development, will not only support regional and local policies, but will lead to the institutionalization of joint tactical operational procedures. These procedures will ensure coordination, collaboration and consistency among the various disciplines of police, fire, and EMS throughout the nation and support the cross-disciplinary team process.

Rationale: The research of current active policies in the Commonwealth of Virginia such as those in Arlington County, Fairfax County and the City of Fairfax, shows that jurisdictions have been developing their own regional and local policies and protocols for complex hostile or active shooter events. This non-standardized approach occurs due to the lack of a national policy or agreement by discipline labor organizations. This approach of differing response strategies and tactics causes confusion and disorder on the incident scene, especially when mutual aid or state and federal resources are called in to assist.

An examination of emerging response policies found that, the Department of Homeland Security and the Federal Bureau of Investigation, in cooperation with the International Association of Fire Chiefs (IAFC), International Chiefs of Police,

²¹⁸ Frazzano and Snyder, "A Paradigm Shift for First Responders," 36–38.

International Association of Firefighters (IAFF), and other groups have recommended the adoption of national best practices and operational considerations that provide local police, fire, and EMS agencies and associated localities with ways to better integrate, coordinate, and improve responses to mass casualty shootings.²¹⁹ These recommendations include the integration of planning and training efforts, development of policies, and increasing communication and interoperability that support the common and joint response to a mass casualty shooting.²²⁰ The results of this meeting led to the release, in September 2013, of the U.S. Fire Administration's *Fire/Emergency Medical Services Department Operational Considerations and Guide for Active Shooter and Mass Casualty Incidents* that can be used to support the planning and preparation for active shooter and mass casualty incidents.²²¹ The IAFF also released position papers supporting the development of SOPs and the development of sufficient public safety resources to deal with these events, support of the Rescue Task Force Concept, and a position statement on Tactical EMS to include TECC. In the UK, the government sets out national guidance for responding to a marauding terrorist firearms attack and sets out at a strategic level, the common vision of the challenges, the roles and responsibilities, and priority tasks for the emergency services which is set forth in the document, "Responding to a Marauding Terrorist Firearms Attack; The Role of the Emergency Services."²²² This document provides guidance on basic joint operating principles including the identification, mobilization and scene assessment, casualty management, and fire hazards management.

National policies and protocols such as those adopted in the UK provide an overarching strategy, framework and standardized approach for all emergency services to adhere to. As identified in the post full-scale exercise analysis, a relatively low number of respondents identified that their personnel understood other agencies' response

²¹⁹ Ibid., 37.

²²⁰ Ibid.

²²¹ United States Fire Administration, *Fire/Emergency Medical Services Department Operational Considerations*, 2.

²²² Emergency Services Marauding Terrorist Firearms Attack CONOPS Coordination Working Group, "Responding to a Marauding Terrorist Firearms Attack; The Role of the Emergency Services" (unpublished manuscript, 2010).

procedures for mitigating an active shooter incident (3.9 on a 6-point scale). This response identified unfamiliarity with existing agency protocols and response procedures, which the adoption of national policies and protocols could help eliminate. A national policy will strengthen and support the various localities and eliminate confusion by providing an overarching strategy, standardized and consistent tactical procedures, training and resources, and potential monetary support through the various Homeland Security Grant programs.

2. Develop and Implement Unified Regional and Local Response Policies and Protocols

Recommendations from historical incidents such as Columbine, and Mumbai, India, and exercises such as the tabletop and full-scale exercises conducted in Fairfax County, Virginia include the joint development and sharing of operational policies or standard operating procedures (SOPs) that coordinate the efforts of the participating agencies and localities, and identify and codify their roles and responsibilities. Regional templates should be developed that provide a joint response framework for police, fire and EMS, identify common terminology, response and mitigation techniques that support a shared philosophy, and a template that has the support from the area agencies and political leaders. Localities should include a structure for communicating these policies and SOPs, a methodology for ensuring compliance, and a method to ensure that they are updated, maintained, and exercised.

Rationale: During past historical incidents such as Columbine High School and Mumbai India, and the table-top and full-scale exercises conducted, civilian agency staff and public safety responders of police, fire, and EMS identified a lack of familiarity with each other's operational protocols and response procedures and identified a need to improve coordination between the various local security agencies.²²³²²⁴ This was also confirmed in this thesis research where survey findings showed respondents reporting unfamiliarity with each agency's protocol's during active shooter events. Historical

²²³ Rabasa et al., *The Lessons of Mumbai*, 22.

²²⁴ DHS, *Wanton Violence at Columbine High School*, 31.

events included in this thesis identify numerous examples of a lack of coordination between agencies on the emergency incident scene, and local incidents such as police and fire debriefs conducted after incidents, also indicated a lack of understanding of each agencies protocols and policies during the incident.²²⁵ This occurred at a time when agencies were not encouraged to operate as a cross-disciplinary team.

During the tabletop exercise conducted prior to the full-scale exercise, a lack of familiarity with protocols and procedures was identified in all phases of the incident to include the mitigation, preparedness, response, and recovery phases. This lack of familiarity can raise problems including the initial call for assistance, the authority for an effective joint response, expectations of the operational response and tactics to be utilized, familiarity with the building(s) and staff, overall responsibility of each of the participants' discipline for tactical operations and notifications, and accountability for the victims/workers. The tabletop after-action report and responses to the exercise questions revealed the lack of hostile event or active shooter plans, policies, and procedures and limited or no templates on how the various agencies will respond and deploy in a coordinated and unified manner on the emergency incident scene.

3. Implement a Unified Hostile Event or Active Shooter Transition Team to Support the Development of Cross-Disciplinary Teams

The findings in this thesis indicates the need for a unified hostile event or active shooter transition team that not only supports the implementation of cross-disciplinary teams, but works through the identified enablers and barriers of implementing cross-disciplinary teams, many of which are systemic and cultural in nature. The enablers and benefits include enhanced communication, increased productivity especially in the area of speed, improved processes that build on diverse backgrounds and experiences, and distributed workloads. Barriers and challenges include diversity, multiple reporting relationships, lack of trust, non-supportive leadership, interpersonal conflict and the lack of shared or overarching (national, regional or local) policies and procedures that facilitate cross-disciplinary teams.

²²⁵ Dawson, "Police and Fire Debrief" (unpublished manuscript, September 2009).

Rationale: Research and the full-scale exercise shows that cross-disciplinary teams bring a number of benefits to the multi-agency and multi-jurisdictional response; however, the cohesion and effectiveness of these teams is not without a risk of failure.²²⁶ Smart and Barnum and training exercises such as the table-top and full-scale exercises analyzed here have shown us that cross-disciplinary teams bring a variety of benefits such as the collaborative effort of combining highly qualified information and people together and the ability to leverage resources and improve work products and systems.²²⁷ These collaborative efforts require an investment in the development of open and explicit communication within cross-disciplinary teams if we are to expect success.²²⁸ The Team Effectiveness Model as introduced by McShane and Glinow provides the necessary elements of an effective team and the necessary standards the participating agencies of police, fire, and EMS can use to evaluate their efforts.²²⁹ What makes this model salient to this research is the understanding of factors that impact team effectiveness and how they must align with the goals of the team and participating organizations to ensure successful implementation. The implementation of cross-disciplinary teams is requiring the agencies of police, fire, and EMS to alter their response protocols and change their respective cultures to allow cross-disciplinary teams the opportunity to succeed. Localities implementing cross-disciplinary teams as part of their response procedures must invest the appropriate level of effort into the development of these teams that will take into account the team dynamics as well as the cultures of each of the individual agencies and associated personnel. The analysis of the participant responses following the full-scale exercise conducted in Fairfax County, Virginia, provided an overall moderately high level of confidence and support of the cross-disciplinary team concept, a moderately high level of support from their top leadership, and trust among the disciplines of police, fire and EMS. This high level of confidence and trust can be attributed to the investment

226 Smart and Barnum, "Communication in Cross-Functional Team," 19–20.

227 Ibid., 19.

228 Ibid., 20.

229 McShane and Glinow, *Organizational Behavior Essentials*, 135–136

that Fairfax County has made into the development of an active shooter cross-disciplinary policy and training associated with cross-disciplinary teams which is still on-going.

Literature provided by Stinchcomb and Ordaz recommends the formation of a hostile event or active shooter transition team that will provide coordination of the process that will aid in the development of cross-disciplinary teams.²³⁰ The transition team should include a representation of management, operations, and support personnel from each of the disciplines of police, fire, and EMS. Their purpose would be to align the individual cultural and procedural identities of their agency or area of expertise with the new mission of the cross-disciplinary team. This team should place particular emphasis on preservation of the distinctiveness of their agencies' organizational culture, their role in altering relationships, and their psychological impact on employees.²³¹ As suggested by Stinchcomb and Ordaz, this transition team should be tasked with performing a qualitative analysis that reviews each agency's administrative and procedural documents and conducting interviews with agency members, its leadership, and labor organizations that are being tasked with implementing the new unified policy and methodology. This qualitative analysis and subsequent interviews should identify the potential enablers and barriers to the success of cross-disciplinary teams and provide the foundation for the development of a joint multi-agency or multi-discipline policy or SOP and the steps necessary to ensure successful team development and cultural integration. The transition team should make two-way communication a high priority by conducting employee and agency outreach to all of the stakeholders with the intent to gather input and share information and feedback regarding the establishment of a joint cross-disciplinary team program.

4. Implement Joint Operational Procedures to Support the Cross-Disciplinary Team Concept

It was identified through the action research done for this thesis, that while a policy or protocol change can be implemented, it is the operational tactics that must

²³⁰ Stinchcomb and Ordaz, "The Integration of Two 'Brotherhoods' into One Organizational Culture," 152.

²³¹ Ibid., 150.

change to make these cross-disciplinary teams effective. Operational deficiencies identified through a review of past historical incidents and exercises, a review of literature, and action research in the form a full-scale practical exercise, included a lack of awareness of other agencies' and localities actions and procedures, confusion on the responsibility of each agency, and the lack of familiarity and identification of the facilities and personnel.

Rationale: Recommendations provided by literature developed by the Washington Metropolitan COG, the IAFF, and the United States Fire Administration, and analysis provided by the tabletop and full-scale exercises, include the establishment of a joint cross-disciplinary public safety active shooter or hostile event policy or SOP. This SOP would provide the agencies of police, fire, and EMS with an established policy describing the operational methods and tactics to be used in this type of event. The policy or SOP should provide for the use of the National Incident Management System (NIMS) and the Incident Command System (ICS), response protocols to address the number and type of response, training levels, personal protective equipment (PPE), operational environment and scope of practice, joint training requirements between agencies, use of Rescue Task Force concept, and common terminology.²³² This policy or SOP should provide for effective coordination and collaboration between the public safety responders, local jurisdictional leaders, and agency staff they will be integrating. The policy or SOP should address issues include accessing, triaging, treating and extracting victims, common terminology, tracking of patients, and information sharing. In addition, the locality and agencies should adopt national best practices that begin to provide standardization of national accepted response models and tactics. These include the adoption of the Rescue Task Force and Extraction Task Force concepts as well as the concept of Tactical Emergency Casualty Care (TECC) to triage and treat the victims. These response models and tactics should also include the procurement and use of enhanced PPE such as ballistic protection and the medical equipment and supplies associated with TECC.

²³² "IAFF Position Statement: Active Shooter Events."

5. Develop and Implement Regularly Established Joint Training and Exercises

It was identified through post-exercise questioning and the analysis of the full-scale exercise, that while national and local policies and protocols can be established and operational tactics transformed, it is only through regularly established joint training and exercises that regional and local policies and tactics be refined and developed into routine procedures that are commonly understood.

Rationale: The analysis in this thesis identified the need for regularly established training for public safety responders and workforce to exercise the evacuation and response policies and procedures. As demonstrated by the full-scale practical exercise and indicated in the post-exercise survey, a low level of confidence (rating of 1 or 2 on a 6-point scale) was provided by 16% of the respondents regarding the adequacy of training provided on the cross-disciplinary team method prior to this exercise. While the establishment of a policy or SOP can be considered one of the first steps towards implementing a cross-disciplinary response, individual and joint agency training will provide increased familiarity and enhanced competency with the administrative and operational policies established and a re-occurring method to identify administrative and operational deficiencies.

Recommendations include the development and implementation of joint operational training that is based upon the established cross-disciplinary policy or SOP and focuses on the establishment of unified command to include police, fire, and EMS. Training can include a mixture of classroom, tabletop exercises, and operational training that can range from a specific discipline exercise to a full-scale multi-agency, multi-jurisdictional exercise. While training can be agency specific, it is highly recommended that training include multiple agencies that would respond to a hostile or active shooter event and include localities and agencies that would respond through mutual aid or a federal response. Full-scale exercises should follow the Homeland Security Exercise and Evaluation Program (HSEEP) which provides a set of guiding principles for exercise programs as well as a common approach to exercise program management, design and development, conduct, evaluation, and improvement planning. The development of a

Corrective Action Plan (CAP) that documents the lessons learned, achievement of exercise objectives, as well as the feedback from the exercise participants and evaluators is warranted to sustain future improvements.

C. SUGGESTIONS FOR FURTHER RESEARCH

To date, limited research has been conducted on the implementation and use of cross-disciplinary teams comprised of public safety responders to include police, fire, and EMS. Most of the research regarding cross-disciplinary teams has been in the areas of education and corporate product development. What is needed is ongoing research that addresses the effectiveness of public safety cross-disciplinary teams. An example might be a trend analysis of cross-disciplinary team metrics including measures such as the overall time to triage, treat and transport victims, and the number of lives saved in a combined hostile or active shooter incident. Research into future incidents and public safety exercises could provide evidence regarding the effectiveness of the cross-disciplinary team concept and examine whether or not it is accomplishing the desires as set forth by the policies being developed.

While the basis of this thesis centered on the development of cross-disciplinary teams in a combined hostile or active shooter environment, further research is needed to identify if the social identity of established cross-disciplinary teams will lead to greater motivation, a greater sense of team cohesiveness, and enhanced performance on the scene of combined hostile or active shooter type events. Stinchcomb and Ordaz claim that social identity includes the values, norms, and behavioral expectations of the group or the “personality of the organization.”²³³ If the social identity factors do not enhance the effectiveness of the teams, research will hopefully tell us what social identity factors are leading to barriers regarding the effective performance of cross-disciplinary teams.

Additional action research in the form of full-scale multi-disciplinary and multi-jurisdictional exercises would prove to be beneficial. The goal of future research should be to further investigate the implementation of cross-disciplinary teams with the idea that

²³³ Stinchcomb and Ordaz, “The Integration of Two ‘Brotherhoods’ into One Organizational Culture,” 145.

more data is needed to fully understand the impact of cross-disciplinary teams and the challenges in implementing them. One of those challenges might be different groups' perspectives. This research included small sample sizes of different disciplinary groups and thus limited the ability to detect potential meaningful group differences; however studies with larger number of participants might surface important differences that need to be addressed for effective implementation. Even though the shootings at Columbine High School occurred in 1999, we are finally beginning to see greater attention and effort provided to altering our national, state, regional, and local public safety policies to adjust to this method of terrorism. National and regional response frameworks and policies such as those developed by the Washington Metropolitan COG and the Law Enforcement and Emergency Medical Services workgroup, the IAFF, and the United States Fire Administration, and policies developed by local jurisdictions are evidence of greater attention and policies that are being developed and continually redefined. While research associated with this thesis determined a moderate improvement in the ability of cross-disciplinary teams to begin to initiate patient care and transportation of victims, we must determine if newly established policies, procedures, and tactical response methodologies, as well as the potential implementation of recommendations presented in this thesis, is effective to change the paradigm regarding the combined law enforcement, fire, and EMS cross-disciplinary response to hostile events. We must determine how to enable the full potential of cross-disciplinary teams to achieve their desired benefit.

D. CONCLUSION

The history of hostile or active shooter events in the United States has caused the first responders or law enforcement, fire, and emergency medical services to look at our response methodologies and standards of care to evaluate if we are matching the right resources with the environment that we are being presented with on these types of events. No longer can our first arriving emergency service personnel wait for specialized response teams to arrive while innocent victims continue to die. Our past practices and cultures must be adapted for new response methodologies aimed at saving the most amount of lives in a coordinated and effective manner. First arriving public safety responders must shift their paradigm and enter the areas of threat in a coordinated and

unified manner if the victims are to have improved chances of survival. For fire and EMS personnel, this means entering the area of indirect threat (warm zone) in a cross-disciplinary team (Rescue Task Force) manner to identify, treat, and extract injured persons needing immediate lifesaving care.

The research and analysis concluded in this thesis confirmed public safety responders have an overall moderately high level of confidence in the concept and use of cross-disciplinary teams, the ability of various disciplines to trust each other's ability to work together, and the ability to communicate and share information. It was identified that some barriers existed in the ability to fully implement this concept without concern. The analysis provided overall support for the cross-disciplinary concept, but some issues need to be addressed such as the responder's confidence in unified command to reduce the "staging time" for fire and EMS personnel and the confidence in the ability of cross-disciplinary teams to enhance patient care and lead to a reduction time to triage, treat, and transport the victims. The amount of training responders received on this cross-disciplinary concept was also rated lower. Future research will optimistically indicate that as joint operational policies and tactical procedures are solidified and practiced, operational barriers and issues such as those presented here will be resolved. What was concluded is the strong desire for joint operational policies and procedures that will establish and enhance the cross-disciplinary response regardless of our host agency and past cultural discipline. What was enlightening from this research was there was basically limited or no statistically significant difference in the perceptions of police, fire, EMS, and security towards the cross-disciplinary team concept.

Procedures such as those utilized during past historical incidents aided in the identification of a need to change the individual agencies' past practice of working independently rather than in a unified cross-disciplinary manner. Past practice and cultural barriers cannot impede the efforts of public safety responders to act in a coordinated and effective manner to overcome the new threats of terrorism that our communities and this country are facing. The success of cross-disciplinary teams is dependent on the integration of successful police tactics of stopping the threat in the shortest amount of time, integrating fire, EMS, and police tactics of accessing, providing

lifesaving emergency care, and removal of the victims from the area of threat. The success of this endeavor depends on the ability to integrate the cultures of police, fire, and EMS and create a new unified “public safety” culture that takes into account the successes and best practices of each of the participating agencies working toward a common mission.²³⁴

²³⁴ Cartwright and Cooper. “The Role of Culture Compatibility in Successful Organizational Marriage,” 64.

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APPENDIX A. “ACTIVE SHOOTER” TABLETOP EXERCISE QUESTIONS

- Q1. What has Security Operations Division done to mitigate the Active Shooter Threat?
What is the purpose of each of the various participating agencies?
- Q2. Are there plans or procedures to address the Active Shooter threat?
- Q3. What types of activities are routinely conducted to promote our ability to respond to an Active Shooter Event?
- Q4. What actions will Security Operations Division elements take at this time?
- Response to scene and throughout compound
 - ICP location
 - Internal/External notifications
 - Workforce notification
 - Interaction with law enforcement?
 - Aid to casualties
- Q5. What will other facility elements do at this time in the initial response phase?
- Q6. How does Security Operations Division and law enforcement interact and manage multiple scenes?
- Q7. How/when does the facility staff and fire and rescue access casualties?
- Q8. Who gives what information to the workforce? Who else has been notified?
- Q9. What will other agency elements do at this time in the response phase?
- Q10. How is the crime scene(s) handled by law enforcement?
- Investigation
 - Evidence Collection
- Q11. How is patient accountability information being captured and shared between fire and rescue and agency personnel?

- Q12. What types of information is provided to the agency workforce, external agencies, and media?
- Q13. Describe how the crisis response teams would activate and what support will the team provide?
- Q14. Describe how the Strategic Human Capital response team would activate and what actions the team would take?
- Q15. Describe the impacts as a result of the mass casualty incident and damages to the facility?

APPENDIX B. “ACTIVE SHOOTER” PRE FULL-SCALE EXERCISE QUESTIONS

In preparation for the upcoming “Active Shooter” full scale exercise, we would like to get some baseline questions answered prior to the actual exercise. Please respond based upon your knowledge and experience within your respective discipline.

One of the goals of this exercise will be to involve the aspect of cross-functional teams or Rescue Task Force’s as they are sometimes called. This will involve police officers and firefighters/paramedics working together in a team to perform basic patient assessment, treat life threatening injuries, extraction of the victims and provide for security of the team.

- 1) What problems or issues do you expect from this ‘team concept’ of police and fire working together?
- 2) Do you think that the cross-functional team or “Rescue Task Force” concept as it is sometimes called is needed to accomplish the mission of Police, Fire and Building Security’s missions in an Active Shooter environment? If not needed, why not?
- 3) What are potential barriers to the success of this cross-functional team concept?
- 4) What type of training, equipment or resources would you need to make the cross-functional team concept a success?
- 5) Do you think we in Fairfax County are prepared today to handle an “active shooter” incident such as Columbine or Mumbai, India? Please elaborate if you can.

Participant’s Discipline_____

(Ex. Police, Firefighter, Firefighter/Paramedic, Security, Administration etc.)

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APPENDIX C. “ACTIVE SHOOTER” POST FULL-SCALE EXERCISE QUESTIONS

A goal of this exercise is to assess the effectiveness of cross-disciplinary teams (e.g. Rescue Task Forces and Extraction Task Forces). These teams involve police officers, security officers, and fire/EMS personnel working together to perform patient assessment, treat life-threatening injuries, extract victims and provide security for the team.

Instructions:

- Please answer the following questions as they relate to your experience in a cross-disciplinary team.
- Please answer the questions in relation to procedures used in the past of Fire/EMS staging until the incident is declared “safe” by police.
- Please circle N/A if the area was not observed or not applicable.
- Please provide detailed explanations where applicable.

a. The unified command post (police, fire/EMS, and security) was effective in making joint operational decisions.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
b. Information sharing among exercise participants at the unified command post was effective in maintaining situational awareness and aided in the decision making process.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
c. Accountability for the cross-disciplinary team members was maintained at the incident/unified command post.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
d. Effective unified command procedures aided in reducing the “staging time” for fire/	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A

EMS personnel.	
e. Participants in this exercise received adequate training on this new cross-disciplinary team method before today's exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
f. Personnel responding to this exercise understood each other's agencies response procedures for mitigating an "Active Shooter" incident.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
g. The use of terminology was commonly understood by all responders (police, security, and fire/EMS) during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
h. Cross-disciplinary teams (Rescue Task Force) enhanced the ability for fire/EMS to be able to triage and treat the casualties in the warm zone.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
i. Cross-disciplinary team members were provided with appropriate police force protection (security) while operating in the warm zone.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
j. Appropriate work zones (Hot, Warm and Cold) were established and communicated to the cross-disciplinary team members.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
k. The identification of the casualty collection point and point(s) of entry was clearly communicated to the cross-disciplinary team members.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
l. Police, fire/EMS, and security personnel were clearly identifiable during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
m. Cross-disciplinary team members were provided with proper personal protective	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A

equipment (ballistic gear) and other equipment needed to triage, treat and extract casualties.	Items Needed:
n. Cross-disciplinary team members were empowered to make decisions regarding the establishment of tactical goals for the team.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
o. This cross-disciplinary concept has led to a reduction in time to triage, treat and transport casualties from the warm zone during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
p. Police, fire/EMS and security trusted each other's ability to perform during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
q. Cross-disciplinary team effectiveness was challenged by conflict among team members due to real or perceived differences in the establishment of goals and priorities for the team.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
r. Cross-disciplinary team members were aware of their individual roles and responsibilities on this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
s. Police, fire/EMS and security were willing to communicate and share information with each other during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A
t. The individual cultures of police and fire/EMS provided a barrier to team effectiveness and collaboration during this exercise.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>
u. Top leadership in your organization is supportive of this new cross-disciplinary team concept/procedure.	Strongly Disagree 1 2 3 4 5 6 Strongly Agree N/A <u>Explain:</u>

1. What are the advantages and disadvantages of using the cross-disciplinary team approach for responding to and mitigating a hostile (active shooter) event in comparison to the former concept of fire/EMS staging until the incident is declared “safe” by police?

Advantages of cross-disciplinary team:

Disadvantages of cross-disciplinary team:

2. Did the police, building security, and fire/EMS utilize teamwork to mitigate the incident or did they operate independently? Please explain.
3. What barriers existed to the cross-disciplinary teams of law enforcement and fire/EMS to the mission of treating and removing casualties on the scene in a rapid manner?

1. Were you an evaluator or a participant on this exercise?

Circle One: Evaluator Participant

2. If exercise evaluator, what area/function did you evaluate?_____

3. Evaluator/Participant’s normal discipline Circle One

Police Firefighter Firefighter/Paramedic Security

Administration Other_____

4. Did you participate as a member of the Cross-Disciplinary Team (police, fire/EMS)?

Circle One: Yes No

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