NAVAL POSTGRADUATE SCHOOL

MONTEREY, CALIFORNIA

MBA PROFESSIONAL PROJECT

PREPARING THE USAF CONTRACTING CAREER FIELD FOR THE NEXT HUMANITARIAN ASSISTANCE DISASTER RESPONSE WITHIN THE CONTINENTAL UNITED STATES

December 2020

By: **Geoffrey S. Bender**
Chase Lehocky

Advisor: **Deborah E. Gibbons**
Co-Advisor: **E. Cory Yoder**

Approved for public release. Distribution is unlimited.

THIS PAGE INTENTIONALLY LEFT BLANK

REPORT DOCUMENTATION PAGE	Form Approved OMB No. 0704-0188

Public reporting burden for this collection of information is estimated to average 1 hour per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Washington headquarters Services, Directorate for Information Operations and Reports, 1215 Jefferson Davis Highway, Suite 1204, Arlington, VA 22202-4302, and to the Office of Management and Budget, Paperwork Reduction Project (0704-0188) Washington, DC 20503.

1. AGENCY USE ONLY *(Leave blank)*	2. REPORT DATE December 2020	3. REPORT TYPE AND DATES COVERED MBA Professional Project

4. TITLE AND SUBTITLE
PREPARING THE USAF CONTRACTING CAREER FIELD FOR THE NEXT HUMANITARIAN ASSISTANCE DISASTER RESPONSE WITHIN THE CONTINENTAL UNITED STATES

5. FUNDING NUMBERS

6. AUTHOR(S) Geoffrey S. Bender and Chase Lehocky

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)
Naval Postgraduate School
Monterey, CA 93943-5000

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING / MONITORING AGENCY NAME(S) AND ADDRESS(ES)
N/A

10. SPONSORING / MONITORING AGENCY REPORT NUMBER

11. SUPPLEMENTARY NOTES The views expressed in this thesis are those of the author and do not reflect the official policy or position of the Department of Defense or the U.S. Government.

12a. DISTRIBUTION / AVAILABILITY STATEMENT
Approved for public release. Distribution is unlimited.

12b. DISTRIBUTION CODE
A

13. ABSTRACT (maximum 200 words)

This project's focus is on the alignment of a U.S. Air Force (USAF) exercise design process with FEMA's challenges regarding humanitarian assistance and disaster response (HADR) events. The authors applied Joint Publication 4-10 and Yoder's Three Tier Model approach to inform a disaster model that delineates roles and responsibilities for stakeholders. The authors also reviewed 104 after-action reports to identify trends within FEMA's 15 emergency support functions and added three more categories to capture trends: finance, manpower, and training. This research resulted in six recommendations to the USAF contracting exercise designers: 1) ensure that exercise frameworks are aligned to the lead agency; 2) consolidate the many advance contracts throughout the federal agencies into one location such as Acquisition Gateway or GSA Advantage, or on a SharePoint site; 3) continue adopting category management practices within the disaster environment in order to effectively implement advance contracts; 4) further refine the career field education training plan with tiered development under a synthesized HADR framework; 5) consolidate the federal external stakeholders into a simplified location to improve the ability to research trends within the USAF contracting career field; and 6) ask other federal agencies for their approaches while de-conflicting procurement strategies.

14. SUBJECT TERMS
contingency contracting training, training, Air Force contingency contracting training, humanitarian assistance, disaster recovery, exercise development, JP 4-10, FEMA, National Response Framework, CJCSM 3500.03, Yoder's Three-Tier Model

15. NUMBER OF PAGES
187

16. PRICE CODE

17. SECURITY CLASSIFICATION OF REPORT	18. SECURITY CLASSIFICATION OF THIS PAGE	19. SECURITY CLASSIFICATION OF ABSTRACT	20. LIMITATION OF ABSTRACT
Unclassified	Unclassified	Unclassified	UU

NSN 7540-01-280-5500

Standard Form 298 (Rev. 2-89)
Prescribed by ANSI Std. 239-18

THIS PAGE INTENTIONALLY LEFT BLANK

Approved for public release. Distribution is unlimited.

PREPARING THE USAF CONTRACTING CAREER FIELD FOR THE NEXT HUMANITARIAN ASSISTANCE DISASTER RESPONSE WITHIN THE CONTINENTAL UNITED STATES

Geoffrey S. Bender, Captain, United States Air Force
Chase Lehocky, Captain, United States Air Force

Submitted in partial fulfillment of the
requirements for the degree of

MASTER OF BUSINESS ADMINISTRATION

from the

NAVAL POSTGRADUATE SCHOOL
December 2020

Approved by: Deborah E. Gibbons

Advisor

E. Cory Yoder
Co-Advisor

Rene G. Rendon
Academic Associate, Graduate School of Defense Management

THIS PAGE INTENTIONALLY LEFT BLANK

PREPARING THE USAF CONTRACTING CAREER FIELD FOR THE NEXT HUMANITARIAN ASSISTANCE DISASTER RESPONSE WITHIN THE CONTINENTAL UNITED STATES

ABSTRACT

This project's focus is on the alignment of a U.S. Air Force (USAF) exercise design process with FEMA's challenges regarding humanitarian assistance and disaster response (HADR) events. The authors applied Joint Publication 4-10 and Yoder's Three Tier Model approach to inform a disaster model that delineates roles and responsibilities for stakeholders. The authors also reviewed 104 after-action reports to identify trends within FEMA's 15 emergency support functions and added three more categories to capture trends: finance, manpower, and training. This research resulted in six recommendations to the USAF contracting exercise designers: 1) ensure that exercise frameworks are aligned to the lead agency; 2) consolidate the many advance contracts throughout the federal agencies into one location such as Acquisition Gateway or GSA Advantage, or on a SharePoint site; 3) continue adopting category management practices within the disaster environment in order to effectively implement advance contracts; 4) further refine the career field education training plan with tiered development under a synthesized HADR framework; 5) consolidate the federal external stakeholders into a simplified location to improve the ability to research trends within the USAF contracting career field; and 6) ask other federal agencies for their approaches while de-conflicting procurement strategies.

THIS PAGE INTENTIONALLY LEFT BLANK

TABLE OF CONTENTS

I. INTRODUCTION....1
- A. BACKGROUND....1
- B. OBJECTIVES OF THE PROJECT....3
- C. RESEARCH QUESTIONS....4
- D. ASSUMPTIONS, LIMITATIONS, AND SCOPE....4
- E. PROJECT METHODOLOGY....5
- F. BENEFITS OF RESEARCH....6
- G. TERMINOLOGY....6
- H. ORGANIZATION OF THE PROJECT....7

II. LITERATURE REVIEW....9
- A. ABOUT DISASTERS....9
- B. PHASES OF A DISASTER....13
  - 1. DOD Disaster Framework....14
  - 2. USAF Disaster Framework....15
  - 3. FEMA's Disaster Framework....17
  - 4. Yoder's Three-Tier Model Framework....20
  - 5. A Synthesized Three-Phase Approach....21
- C. LAWS THAT APPLY WHEN A DISASTER OCCURS....22
  - 1. The Economy Act, 31 U.S.C. § 1535 (2020)....23
  - 2. Stafford Act 42 U.S.C. § 5170, 5191 (2020)....23
  - 3. The Posse Comitatus Act, 18 U.S.C. § 1385 (1878)....24
  - 4. The Federal Acquisition Regulations (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and the Air Force Acquisition Regulation Supplement (AFFARS)....25
- D. POTENTIAL STAKEHOLDERS AND THEIR ROLES AND RESPONSIBILITIES....27
- E. DISASTER POLICIES AND PROCEDURES....36
- F. EXERCISE DESIGN APPROACHES....43
- G. AFTER ACTION REPORTS....46
- H. CONCLUSION....48

III. METHODOLOGY....49
- A. WHY CHOOSE A HURRICANE?....49
- B. HOW THE DOD APPROACHES EXERCISE CREATION IN CJCSM 3500.03....49

C. DEPARTMENT OF HOMELAND SECURITY EXERCISE AND EVALUATION PROGRAM 53
D. THE DOD–FEMA HYBRID EXERCISE FRAMEWORK 56
E. LESSON OBJECTIVES DESIGNED FOR SKILL SETS 59
F. TTX EFFECTIVENESS 61
G. CONCLUSION 62

IV. ANALYSIS 63
A. JOINT MISSION TASK LIST SYNTHESIS 63
B. USAF CONTRACTING CFETP SYNTHESIS FOR A CONUS HADR EVENT 64
C. AAR REVIEW 67
1. AAR Review: Pre-Disaster 68
2. AAR Review: Disaster 76
3. AAR Review: Post-Disaster 80
4. Conclusion 87
D. HURRICANE MICHAEL PURCHASE REVIEW AND POTENTIAL ESF REQUIREMENTS 88
E. CONCLUSION 96

V. CONCLUSION 99
A. CONCLUSIONS TO RESEARCH QUESTIONS 99
B. RECOMMENDATIONS 103
C. AREAS FOR FUTURE RESEARCH 106
D. SUMMARY 107

APPENDIX A. SYNTHESIZED USAF CONTRACTING CFETP FOR A CONUS HADR EVENT 109

APPENDIX B. SYNTHESIZED USAF UJTL FOR A CONUS HADR EVENT 119

APPENDIX C. FEMA, DOD, AFMAN 10–2502 BRIDGE 127

APPENDIX D. HURRICANE MICHAEL FPDS–NG AWARD AND MODIFICATION TIME LINE 129

APPENDIX E. USAF CONUS HADR TTX DESIGN FOR CONTRACTING 133
A. DESIGN 133
1. Pre-Disaster 133
2. Disaster (Day 0–Day 6) 137

3. Post-Disaster (Recovery Begins) 138
B. MISSION ESSENTIAL TASK LIST (HSEEP MASTER SCENARIO EVENTS LIST) 139
C. EXERCISE SCHEDULE SAMPLE 140
D. TTX SUGGESTED DOCUMENT LIST 141

SUPPLEMENTALS 143
A. CONUS HADR TTX DESIGN POWERPOINT FILE 143
B. STAKEHOLDER LIST ASSESSMENT (BLOCK 1, 2) TOOL EXCEL FILE 143
C. MARKET RESEARCH ADVANCE CONTRACT (MRAC) TOOL (BLOCK 3, 4) EXCEL FILE 143
D. GAP ANALYSIS TOOL (BLOCK 6) EXCEL FILE 144
E. AFTER ACTION REPORT SAMPLE WORD DOCUMENT 144
F. SAMPLE SYNTHESIZED HADR CFETP EXCEL FILE 144

LIST OF REFERENCES 145

INITIAL DISTRIBUTION LIST 165

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF FIGURES

Figure 1. The Number of Disaster Declarations per Year. Adapted from DHS (2020a). 11

Figure 2. Percentage of Total Disaster Declarations by Disaster Type. Adapted from DHS (2020a). 12

Figure 3. FEMA's Recovery Continuum. Source: DHS (2016d, p. 11). 20

Figure 4. Air Force Wing Structure. Adapted from AFMOA (2019) and OMFM (2019).....30

Figure 5. FEMA Regions. Source: FEMA (2020b). 33

Figure 6. FEMA's Unified Coordination Staff. Source: DHS (2019b).....34

Figure 7. Methods, Modes, and Media Selection. Source: JCS (2015). 45

Figure 8. Joint Training System Four-Phase Process. Source: JCS (2015). 50

Figure 9. Training Plan Process. Source: JCS (2015). 52

Figure 10. Priorities, Objectives, and Capabilities. Source: FEMA (2020b). 54

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF TABLES

Table 1. Supporting Data for Figure 2. Adapted from DHS (2020a). 12

Table 2. Requirements by YTTM Phase. Source: Yoder (2004). 21

Table 3. Three-Phase Approach to a Disaster Exercise 22

Table 4. USNORTHCOM- and AFICC-Provided AARs 47

Table 5. YTTM for Contingency Contracting Operations. Source: Yoder (2004). 60

Table 6. Task and Subject Knowledge Level Definitions. Adapted from Applegate (2017), Bennett (2019), and Conger (2016). 66

Table 7. Disaster Recovery Participation Between DHS and DOD in the Past 15 Years (Minimum 100 Contract Actions). Adapted from GSA (2020). 88

Table 8. USAF Methods of Purchase for Non-Indefinite Delivery/Indefinite Quantity (IDIQ) Contracts. Adapted from GSA (2020). 91

Table 9. Which Stand-Alone Contracts Had Potential Advanced Contracts Available? Adapted from GSA (2020). 94

Table 10. Enterprise-Level Contract Support Used by DOD During Hurricane Michael. Adapted from GSA (2020). 95

Table 11. Sample Synthesized USAF Contracting CFETP for a CONUS HADR Event. Adapted from Applegate (2017), Bennett (2019), Conger (2016), and Yoder (2004). 109

Table 12. Total Number of Signed DOD Contract Actions Per Day. Adapted from GSA (2020). 129

Table 13. Total Number of Signed DOD Contract Actions per Month During Hurricane Michael. Adapted from GSA (2020). 130

Table 14. Hurricane Michael Time Line. Adapted from Berg et al. (2019) and National Oceanic and Atmospheric Administration (2019). 131

Table 15. Sample Exercise Schedule 140

Table 16. TTX Suggested Document List 141

THIS PAGE INTENTIONALLY LEFT BLANK

LIST OF ACRONYMS AND ABBREVIATIONS

A&E	Architect and Engineering
AAR	After Action Report
AFB	Air Force Base
AFFARS	Air Force Federal Acquisition Regulation Supplement
AFI	Air Force Instruction
AFICC	Air Force Installation Contracting Center
AFIMS	Air Force Incident Management System
AFMAN	Air Force Manual
AFMOA	Air Force Medical Operations Agency
BPA	Blanket Purchase Agreement
C2	Command and Control
CAAF	Contractors Authorized to Accompany the Forces
CAP	Civil Air Patrol
CAPR	Civil Air Patrol Regulation
CCO	Contingency Contracting Officer
CES	Civil Engineering Squadron
CFETP	Career Field Education Training Plan
CJCSM	Chairman of the Joint Chiefs of Staff Manual
COAD	Community Organization Active in Disaster
COCOM	Combatant Command
CON-IT	Air Force Contracting Information Technology
CONS	Contracting Squadron
CONUS	Continental United States
COTR	Contracting Officer's Technical Representative
COVID-19	Coronavirus Disease 2019
CPTS	Comptroller Squadron
CRS	Congressional Research Service
CS	Communication Squadron
DAU	Defense Acquisition University
DAWIA	Defense Acquisition Workforce Improvement Act

DEAMS	Defense Enterprise Accounting Management Systems
DECA	Defense Commissary Agency
DFARS	Defense Federal Acquisition Regulation Supplement
DHS	Department of Homeland Security
DISA	Defense Information Systems Agency
DLA	Defense Logistics Agency
DOD	Department of Defense
DUNS	Data Universal Number System
EOC	Emergency Operations Centers
ESF	Emergency Support Function
FAR	Federal Acquisition Regulations
FEMA	Federal Emergency Management Agency
FPDS–NG	Federal Procurement Data System–Next Generation
FMR	Financial Management Regulation
FSS	Force Support Squadron
GAO	Government Accountability Office
HADR	Humanitarian Assistance Disaster Response
HSEEP	Homeland Security Exercise and Evaluation Program
IDIQ	Indefinite Delivery/Indefinite Quantity
IPE	Integrated Planner and Executor
JCS	Joint Chiefs of Staff
JMETL	Joint Mission Essential Task List
JMTL	Joint Mission Task List
JP	Joint Publication
JTF	Joint Task Force
JTIMS	Joint Training Information Management System
JTL	Joint Task List
JTP	Joint Training Plan
LCO	Leveraging Contracting Officer
LMR	Land Mobile Radio
LOE	Lines of Effort
LRS	Logistics Readiness Squadron

MAJCOM	Major Command
MBA	Master of Business Administration
METL	Mission Essential Task List
MSEL	Master Scenario Events List
NGA	National Government Agency
NIMS	National Incident Management System
NGO	Nongovernmental Organization
NRF	National Response Framework
NVOAD	National Voluntary Organizations Active in Disaster
OCONUS	Outside the Continental United States
OCS	Operational Contract Support
OCS-JX	Operational Contract Support Joint Exercise
OMB	Office of Management and Budget
OOM	Ordering Officer Model
OPLAN	Operation Plan
PACOM	Pacific Command
PSC	Product Service Code
SAR	Search and Rescue
SCO	Senior Contract Official
SFS	Security Forces Squadron
TO	Training Objective
TTX	Tabletop Exercise
UJTL	Universal Joint Task List
USA	United States Army
USAF	United States Air Force
USACE	U.S. Army Corps of Engineers
USC	United States Code
USN	United States Navy
USNORTHCOM	United States Northern Command
UTDT	Universal Task Development Tool
VOAD	Voluntary Organizations Active in Disaster
YTTM	Yoder Three-Tier Model

THIS PAGE INTENTIONALLY LEFT BLANK

ACKNOWLEDGMENTS

We could not have completed this MBA project without the invaluable insight from our advisors, Dr. Deborah Gibbons and Commander (Ret.) Elliot "Cory" Yoder. Thanks to Dr. Gibbons's extensive civilian knowledge and CDR Yoder's sizeable military knowledge, we hope we created a way forward to marry these two organizational philosophies into one.

As part of Naval Postgraduate School and the Acquisition Research Program, we would be remiss if we did not thank the incredible editors that had to work with military writing and help pull us into a more academic setting. This is not an exhaustive list, but thanks to Emily Miller, Rebecca Jackson, Michele D'Ambrosio, and the whole Graduate Writing Center and Acquisition Research Program teams.

Thanks to Lieutenant Colonel William Muir, Major Daniel Finkenstadt, Dr. Rene Rendon, and Brian Hudgens for teaching, advising, and providing a helpful ear when advice was needed. The Graduate School of Defense Management's professors provided incredible input and a curriculum that will have a lasting positive impact on our careers . We hope to share this positive influence with the whole USAF contracting career field.

Finally, Geoff would like to thank his wife, Alyce, for dealing with a stressed-out husband who worked in the same office, which was clearly a joy at all times. Without her patience, he would not have been able to complete this project.

Chase would like to thank his family, Mom, Dad, Sasha, and Hunter, for being there in spirit and keeping him on the right path. The project was easier knowing they were always by his side.

THIS PAGE INTENTIONALLY LEFT BLANK

I. INTRODUCTION

A well-designed tabletop exercise (TTX) can prepare people and organizations to respond efficiently and effectively to disasters. This Master of Business Administration (MBA) project addresses improvements to the United States Air Force (USAF) and Department of Defense (DOD) TTX for the contracting career field in order to plan, prepare, mitigate, and recover from humanitarian assistance disaster response (HADR) within the continental United States (CONUS) effectively, efficiently, and holistically. This chapter introduces the reader to the background, objectives, research questions, assumptions and limitations, scope, methodology, benefits, terminology, and organization of this project. By the end of this chapter, the reader should understand the purpose and scope of this project.

A. BACKGROUND

When a natural disaster strikes, no one can predict how much damage will occur. To make matters worse, there are an increasing number of examples of hurricanes going from Category 3 to Category 5 with only three or four days' notice (Berg, Pasch, & Penny, 2017; Stewart, 2017; Berg, Cangialosi, & Latto, 2018; Avila, Berg, & Hagen, 2019; Berg, Beven, & Hagen, 2019), and numerous instances of multiple disasters hitting simultaneously as recently as 2017 with hurricanes and wildfires (DHS, 2020a). When these incidents happen, countless federal agencies are deployed to assist in remedying the damages. The use of the military has increased, with many disasters having at least 25% of the expenditures attributed to the Department of Defense (DOD; General Services Administration [GSA], 2020). Within the DOD's contracting career field, these disaster response members are labeled contingency contracting officers (CCOs). The CCO's job is quite simple: acquire the supplies and services needed to support their agency's mission. But what is the agency's mission? Is it isolated to the member's base, or does it expand past the base's fence line? Understanding the whole mission relies on the CCO's ability to expand their tool set while identifying who to contact to realize the potentially more extensive mission set. The base is subordinate to the Air Force Installation Contracting

Center (AFICC), which is subordinate to United States Northern Command (USNORTHCOM) during a disaster. USNORTHCOM works with the Federal Emergency Management Agency (FEMA), meaning the future mission-focused business leaders of the USAF need to know how to work in a joint environment and with other federal agencies (Department of Homeland Security [DHS], 2016d, 2017; Holt, 2019). This project is designed to improve the USAF base-level preparation to meet the future challenges of HADR events within the CONUS.

Focusing on the USAF, each unit/squadron's annual requirement is to complete contingency contracting training. These trainings are developed by a flight located at Wright-Patterson Air Force Base (AFB), OH. This flight has pushed significant changes to the contingency contracting training, from the creation of the Pacific Command (PACOM) TTX in 2018 to a new, user-friendly SharePoint site with myriad tools, procedures, policies, and information applicable to contingency. Hurricane Michael hit in 2017 and destroyed Tyndall AFB, FL; this event reinforced the USAF's need to address gaps in their contracting force training for HADR events. Although the USAF may be tempted to focus purely on the mitigation, prevention, preparedness, and recovery of their base, we assert that the USAF should incorporate all stakeholders in their planning, especially regarding supply chain management and mission alignment. This assertion is supported in Chapter IV, Section D. Fortuitously, in 2019–2020, training is being revamped, and new templates and objectives are being developed for the USAF. Because AFBs are located around the world, not all objectives and situations will be the same, and each trainer and commander at the respective locations will alter the objectives to fit their missions (Fedrigo, 2020; Spencer, 2014).

From 2017 through 2019, Hurricane Michael destroyed Tyndall AFB (Lock, 2019), flooding at Offutt AFB caused half of the runway to become nonexistent (Losey, 2019), and tornadoes at Wright-Patterson AFB ruined military families' homes (Axelrod, 2019). This project is primarily focused on the USAF's role in CONUS contingencies. It incorporates other stakeholders within that focus to minimize internal competition and improve the USAF's ability to succeed at its mission while not hindering others. Past after action reports (AARs) inform the analysis, as well as Government Accountability Office

(GAO) reports and objectives identified within multiple USAF tools. The researchers also incorporate Yoder's (2004) Three-Tier Model approach to contingencies to identify the different levels of knowledge, skills, abilities, and expectations for each USAF contracting participant. Finally, the authors examine the issues that have plagued the federal government in CONUS HADR deployments to develop a training model that attempts to minimize the chance of repeating past mistakes of the USAF and other agencies and organizations.

B. OBJECTIVES OF THE PROJECT

This project's main objective is to provide guidance and an updated framework for the next CONUS HADR TTX design for the AFICC contingency contracting cell to train USAF contracting personnel. The researchers analyze multiple federal organization responses to natural disasters from 2005 through 2020, ranging from 2015's Hurricane Katrina to California wildfires throughout the years. Through the lessons learned during that analysis and through the recommendations found in AARs and GAO reports, the authors seek to improve the USAF training process to avoid repeating past failures and to improve the CCO's preparation for a HADR event within CONUS. The authors incorporate the Department of Homeland Security's (DHS) approach to disaster management to align the USAF's approach within the DOD to the lead agency in a CONUS disaster (Air Force Civil Engineer Center [AFCEC], 2018; DHS, 2017). The authors also review how the DOD designs training and identifies task objectives and agency missions, and how the USAF contracting career field identifies the knowledge, skills, and ability levels within its ranks. The authors attempt to align the joint and mission-focused business leader approach that has been highlighted in General Cameron Holt's (2019) *Air Force Contracting Flight Plan* as Line of Effort 4: Expeditionary Contracting as a Joint Force Capability (Holt, 2019, p. 7) into their recommended future design as well. To match tactics with strategy, future exercise development will require more holistic approaches, including identifying all federal and state government entities to identify the overarching government mission and align the USAF's actions into that umbrella (Cohen & Eimicke, 2008). As Burkle et al. (2017) concluded in the *Journal of Homeland Security and Emergency Management*, the

military is now a critical member within disasters, and, as such, must learn how to work with their civilian counterparts to maximize everyone's effectiveness in disaster recovery.

C. RESEARCH QUESTIONS

The primary research question is, "What are the key recommendations for the next USAF contracting career field design in its next CONUS HADR TTX?" This project's secondary questions are as follows:

- How do the federal government's multiple disaster frameworks align? How should the USAF contracting career field design its next CONUS HADR?
- What do the federal and state government AARs identify as common discrepancies, and can requirements and task objectives be incorporated to reduce the trends?
- How can the USAF use its current toolbox (training plans and task lists) to identify the necessary skill set in a CONUS HADR event, thereby enabling its members to better train and educate themselves in preparation for future events?
- Which stakeholders should be taken into consideration during a CONUS HADR event?
- What exercise objectives should be prioritized?

D. ASSUMPTIONS, LIMITATIONS, AND SCOPE

The authors' first assumption in this project is that the reader has a basic knowledge of CCO functions and of the USAF and DOD contracting processes, rules, and regulations, which include the information located in the Federal Acquisition Regulation (FAR) and the Department of Defense Federal Acquisition Regulation Supplement (DFARS). The authors assume that the training member has completed at least one training exercise mandated by the Management Internal Control Toolkit (MICT) if in the USAF. Finally,

the authors assume that the reader understands that contracting rules and regulations are changing every year, requiring the reader to know that the exercise developed is a framework adapted to fit their mission.

The authors' main limitation in this project was getting the best information from the AARs and publicly available GAO reports. AARs are supposed to be written after every deployment, but there is no available centralized database with all the AARs in one location. The information used in this project ranges from Hurricane Katrina in 2005 to the Offutt flooding in 2019. Finally, all knowledge from the authors is from a USAF point of view. The information from other federal organizations (e.g., FEMA) is not given as firsthand knowledge but is based on available researched information.

The scope of this project, as explained in Chapter III, is limited to hurricane-based CONUS HADR events, similar to Hurricane Michael. This project is shared from a USAF perspective. All federal organizations are looked at through different perspectives regarding past natural disasters; the authors try to identify those perspectives through a stakeholder analysis to the supposition that the USAF's primary concern is the base's recovery. The authors assume that the upcoming changes to the enlisted contracting career field education training plan (CFETP) are not drastically different than the current iterations of the officer and civilian CFETPs, as they were recently updated. Finally, the authors limit the recommendations to the chain of command within a CONUS HADR event, namely, FEMA, USNORTHCOM, and the USAF contracting personnel (DHS, 2017).

E. PROJECT METHODOLOGY

The researchers synthesize FEMA's (2020b) *Homeland Security Exercise and Evaluation Program* (HSEEP), published in January 2020, and the *Joint Training Manual for the Armed Forces of the United States* (Joint Chiefs of Staff [JCS], 2015), which was published on April 20, 2015 to promote an exercise design that emulates the environmental chain of command. The project methodology includes a qualitative analysis of 104 AARs and GAO reports from different governmental organizations and actors within a disaster environment context. Finally, different frameworks like the National Planning System

(DHS, 2016d), the National Planning Frameworks (DHS, 2020q), and Yoder's Three-Tier Model (YTTM; Yoder, 2004) were intertwined into the exercise design recommendations to train the future CCOs in a more holistic method that mitigates agency ignorance of the overall or competing missions within the government. This ignorance is attributed to stovepiping, wherein different subgroups are designed independently of each other despite all the subgroups belonging to the same group (e.g., USAF, United States Army [USA], FEMA, and USNORTHCOM all falling within the federal government).

F. BENEFITS OF RESEARCH

This project promotes a holistic approach to CONUS HADR disasters to help the USAF achieve its mission while minimizing negative impacts on other government agencies and potentially providing an invaluable resource to the USAF's mission partners. The most significant impact of a well-designed TTX is reducing the unknowns within the TTX's incorporated training environment (i.e., a disaster event within CONUS). CCOs that deploy to natural disaster HADR events may enter into a confused and chaotic setting. This suggested TTX design is intended to mitigate that chaos through an emphasis on advance contracts and an understanding of the potential government agencies competing for resources (Mak, 2018a). This project attempts to be an invaluable tool for new and veteran CCOs. This project's analysis aims to improve the CCO's ability to maximize the utility of their actions by incorporating the effects on the whole community while responsibly spending taxpayer money. The benefit of understanding who the different federal organizations are and what they do can help accurately guide those deployed in fulfilling their roles and responsibilities. This knowledge can help develop new federal training and procedures that evolve everyone's abilities to approach a CONUS HADR event as a government team instead of various teams competing to meet each of their separate missions (Dodaro, 2011).

G. TERMINOLOGY

The authors assume that the reader has the necessary knowledge in government contracting terms. Many of these terms can be in the FAR Part 2. Any terms not defined within FAR Part 2 or the cited document are defined within the section itself.

H. ORGANIZATION OF THE PROJECT

In this chapter, the reader is provided with an introduction to this project's intent, an overview of the complexity of the problems with and solutions to a TTX, and an outline of how this project is organized. Chapter II consists of a literature review of the historical issues that have plagued contingency contracting in the federal government during natural disasters. The chapter also contains a review of exercise design frameworks; disaster phase frameworks; government policies, procedures, and laws; and the stakeholders that inform how to improve an exercise's development. Chapter III dives deeper into the authors' methodology to determine how to formulate the TTX's task objectives, requirements, and overall design. In Chapter IV, the researchers analyze past issues in the various reports, which helps inform how to build a more vigorous exercise to address as many high priorities and recurring issues as possible. The basic requirements of a CONUS HADR event are also presented. In Chapter V, the authors conclude their findings and provide recommendations for going forward with helping to further the USAF's CCO CONUS HADR program. Appendix A is a sample synthesized USAF CFETP specifically geared towards CONUS HADR events. Appendix B is a sample synthesized USAF Universal Joint Task List (UJTL) for a CONUS HADR event. Appendix C is an example fill-in sheet intended to align the base's priorities per Emergency Management's Air Force Manual (AFMAN) 10–2502 to FEMA's annexes. This facilitates the alignment of the emergency support functions (ESF) of the subordinate agency, USAF, to the lead agency, FEMA. Furthermore, the method includes identifying FEMA's delegable tasks to the DOD in order for the subordinate agencies, such as the USAF, to appropriately plan prior to delegation. Appendix D includes the time line for Hurricane Michael per the GSA (2020) and the time line of contract actions during this event. Last, Appendix E is a suggested TTX design to prepare for a USAF CONUS HADR event. This MBA project also has supplemental files available upon request from the Calhoun Library. The supplemental files include

- a TTX based on Appendix E: USAF CONUS HADR TTX Design for Contracting;
- worksheets to use with the TTX, including the

    - After Action Report Sample,
    - Gap Analysis Tool (Block 6),
    - Market Research Advance Contract (MRAC) Tool (Block 3, 4),
    - Stakeholder List Assessment (SLA) Tool (Block 1, 2);
- an Excel version of Appendix A: Synthesized USAF Contracting CFETP for a CONUS HADR Event.

II. LITERATURE REVIEW

To create the desired TTX, the authors prioritize understanding the whole environment in a HADR event. This chapter includes identifying potential stakeholders that may be involved, providing their definitions of a disaster, and outlining the existing policies and procedures that must follow. After defining the environment, the authors apply the lessons learned from the multitude of disasters over the past 20-plus years to improve the defined environment in future exercises. Finally, the authors incorporate those lessons learned into the DOD's and the USAF's desired learning objectives and into the federal government's lead agency in disasters: FEMA, a non-DOD agency. This knowledge helps create a meaningful exercise that can evolve and benefit all parties involved, such as top leadership, trainers, and trainees with a wide range of experience levels. Learning from government actors' past experiences helps develop all federal agents' desired skill sets, ranging from the new Airman to the 20-year lieutenant colonel.

A. ABOUT DISASTERS

In this section, the authors review multiple sources focused on disaster management to capture the different definitions and sources of the word *disaster*. Also, the authors look at other words that are synonymous or connected to disaster. The authors then look at how many times the U.S. government has declared a natural disaster to provide an understanding of the frequency and importance of preparedness. This information gives a better grasp of which disasters the USAF should prioritize to better train its Airmen when a natural disaster strikes.

As a simple Google search reveals, there are countless definitions of the word disaster. Therefore, it is essential to explain what the authors mean by disaster and why the classification matters. A contracting officer or administrator must know what constitutes a disaster, as not all tornadoes, hurricanes, earthquakes, and rainy days are equivalent. That difference impacts the applicable rules and regulations for the contracting team. The Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act, 2019) is the overarching act that provides the federal government authority to step in to help states in

times of emergency. Section D of this chapter further explains the Stafford Act's (2019) definitions of *emergency* and *major disaster*.

> "Emergency" means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States. (Stafford Act, 2019, p. 11)
>
> "Major disaster" means any natural catastrophe (including any hurricane, tornado, storm, high water, wind driven water, tidal wave, tsunami, earthquake, volcanic eruption, landslide, mudslide, snowstorm, or drought), or, regardless of cause, any fire, flood, or explosion, in any part of the United States, which in the determination of the President causes damage of sufficient severity and magnitude to warrant major disaster assistance under this Act to supplement the efforts and available resources of States, local governments, and disaster relief organizations in alleviating the damage, loss, hardship, or suffering caused thereby. (Stafford Act, 2019, p. 11)

The FAR's definition of an *emergency* is as follows:

> "Emergency," as used in 6.208, 13.201, 13.500, 18.001, 18.202, 18.203, and subpart 26.2, means any occasion or instance for which, in the determination of the President, Federal assistance is needed to supplement State and local efforts and capabilities to save lives and to protect property and public health and safety, or to lessen or avert the threat of a catastrophe in any part of the United States (42 U.S.C. 5122). (FAR 2.101, 2020)

The other word that is important in regard to disasters is *contingency.* The FAR defines *contingency operation* as follows:

> "Contingency operation" means a military operation that … results in the call or order to, or retention on, active duty of members of the uniformed services under section 688, 12301 (a), 12302, 12304, 12304a, 12305, or 12406 of this title, chapter 15 of this title, section 712 of title 14, or any other provision of law during a war or during a national emergency declared by the President or Congress. (FAR 2.101, 2020)

FEMA's database, *Disaster Declaration Summaries, Version 2*, has a comprehensive list of all U. S. natural disaster declarations from 1953 to 2020 (DHS, 2020a). There were 42,095 declared disasters between January 1990 and May 2020, with an average of 1,432 nonbiological/nonchemical disaster declarations per year. The year 2020 is not included in the mean, as the data only accounts for less than half a year. With

Coronavirus Disease 2019 (COVID-19), 2020 is on track to increase the average or become an outlier—like 2004—as shown in Figure 1. Figure 1 provides a visualization of state disaster declarations per year and depicts a steady increase in declared disasters between 1965 and 2019 (DHS, 2020a).

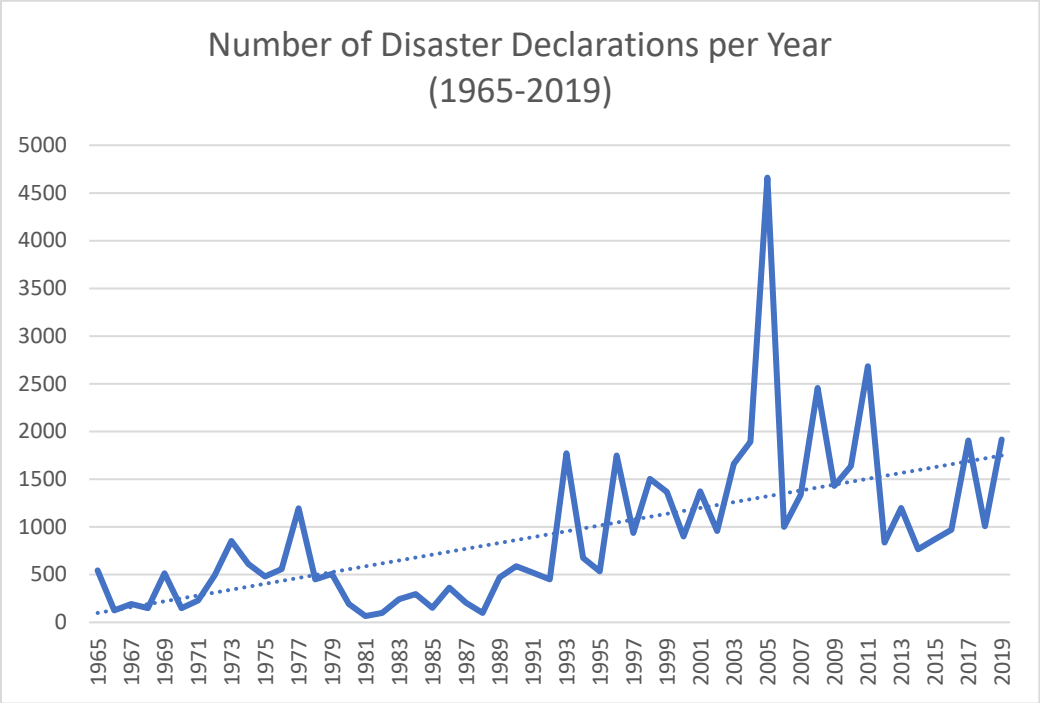

Figure 1. The Number of Disaster Declarations per Year. Adapted from DHS (2020a).

The majority (64%) of disasters declared from 1953 to May 2020 have been water-related (severe storms, hurricanes, and floods), while the fourth most declared disaster type is classified as biological; however it is primarily the COVID-19 pandemic of 2019–2020 (DHS, 2020a; see Figure 2). COVID-19 is not in this project's scope; however, it does provide an excellent opportunity for further research. The authors encourage designing an exercise focused on a hurricane or a water-based event because of this data. The "other" category comprises only 1% of total disasters. It includes relatively rarer events such as earthquakes, typhoons, volcanic eruptions, fishing losses, landslides, the release of toxic substances, tsunamis, dam/levee breaks, and human-caused events.

Table 1. Supporting Data for Figure 2. Adapted from DHS (2020a).

Type of Disaster	Occurrences (1953-2019)	Percentage	Cumulative Percentage
Severe Storm(s)	16625	32.87%	32.87%
Hurricane	10834	21.42%	54.29%
Flood	10327	20.42%	74.71%
Snow	3659	7.23%	81.94%
Fire	3302	6.53%	88.47%
Severe Ice Storm	1990	3.93%	92.40%
Tornado	1445	2.86%	95.26%
Drought	1292	2.55%	97.82%
Coastal Storm	507	1.00%	98.82%
Freezing	301	0.60%	99.41%
Other	297	0.59%	100.00%
Grand Total	50579	100.00%	N/A

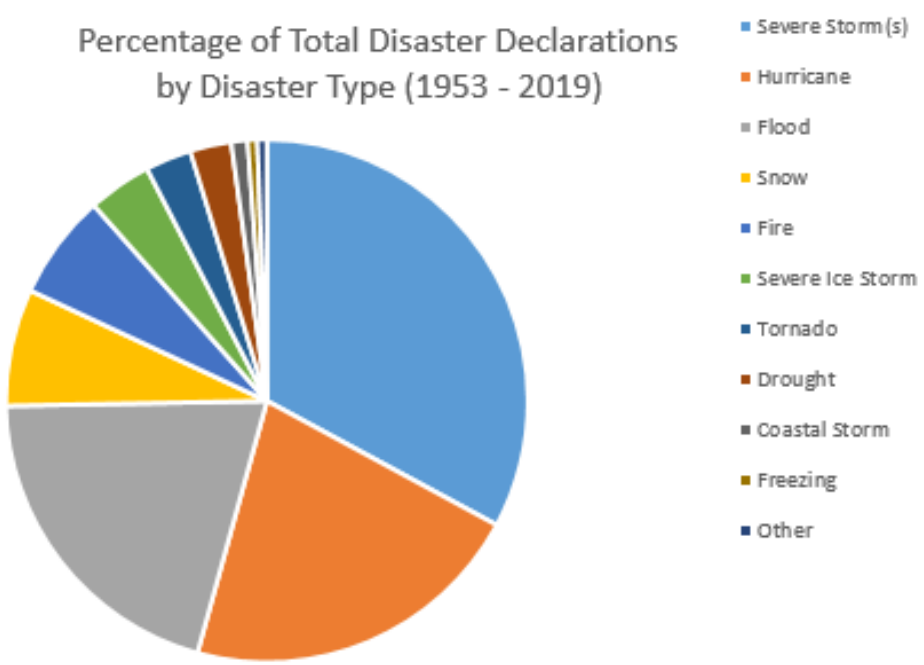

Figure 2. Percentage of Total Disaster Declarations by Disaster Type. Adapted from DHS (2020a).

With the data shown in Figure 2 and Table 1, the authors recommend HADR exercises centered around a hurricane event that incorporates flooding events as well. The authors also reviewed other emergencies, such as earthquakes and tornadoes, to see if there are lessons incorporated into the exercise but in a hurricane-centric manner. An example of a unique earthquake requirement is damage to underground pipes. Although unlikely in a hurricane, airfield repair could potentially damage underground pipes if inaccurate maps are consulted.

Understanding how the Stafford Act (2019) and the FAR Part 2 (2020) define a disaster helps inform the desired environment regarding applicable laws, rules, and regulations. Analyzing the history of federally declared natural disasters provides a context for what the United States might expect to occur in the future. While there are outliers like COVID-19, the government can still use examples and behaviors from the past to inform the future. Creating an exercise based on this analysis helps the USAF prepare for future natural disasters that are most likely to occur annually. This TTX will hopefully be a framework for other services and agencies to expand upon for future endeavors.

B. PHASES OF A DISASTER

In this section, multiple models are addressed to analyze how different agencies respond to disasters and what sources and frameworks they utilize. Unfortunately, federal agencies do not respond identically to natural disasters which is exemplified by the multiple frameworks that exist. Identifying the similarities and differences between the agencies' approaches in this analysis can help develop a training exercise for the USAF that alleviates the communication barriers between other federal government agencies due to these differences.

Multiple models provide a phased-approach disaster management framework. As this MBA project's primary focus is to create a USAF TTX that may interface with sister services as well as FEMA, it is vital to speak the different organizational languages within the federal government. After reviewing the DOD's framework, FEMA's framework, and the YTTM framework, the different framework phases can be broken into three time

frames—pre-disaster, disaster, and post-disaster—which in this report is referred to as the three-phase approach.

1. DOD Disaster Framework

The 2019 Joint Publication (JP) 4–10, *Operational Contract Support*, references JP 3-0, *Joint Operations* (JCS, 2018) and identifies six phases to an operation: "shape, deter, seize the initiative, dominate, stabilize, and enable civil authority" (JCS, 2019b, p. 33). Unfortunately, these phases are designed for wartime contingencies. Fortunately, the JP 4-10 phases of an operation and FEMA's phases of a disaster connect in a relatively synonymous way. Pre-disaster phases of operations would be labeled under the shape and deter phases. The shape phase "help [s] set conditions for successful theater operations. Shaping activities include military engagement, security cooperation, and deterrence actions to assure friends, build partner capacity and capability, and promote regional stability" (JCS, 2019b, p. 34). The deter phase is "characterized by preparatory actions that indicate the intent or ability to execute subsequent combat operations. This includes contracted support to deterrence activities … but contracting support is often limited due to fiscal constraints, lack of emergency procurement authority flexibilities, and the urgent nature of deterrence missions" (JCS, 2019b, p. 34).

These two phases are critical for the preparation before the disaster occurs. In these two phases, the JCS provides the guidance and directives needed when a disaster happens. These two phases are critical in enabling the DOD stakeholders so they can identify the internal capabilities and tools necessary in a HADR event and the deficiencies that need to be addressed organically (i.e., through training) or nonorganically (i.e., through procurement), so there are fewer surprises. The more an organization knows before a disaster hits, the easier it is to manage and predict the following four stages.

The seize the initiative and dominate phases take place during a disaster. The seize the initiative phase is described as

> focus [ing] on applying force to gain access to the operational area and expand friendly freedom of action. Military actions during this time period are characterized by an extremely high operating tempo and freedom of

> action of maneuvering forces and their supporting organizations. (JCS, 2019b, p. 34)

The dominate phase

> focuses on breaking the enemy's will to resist or, in non-combat situations, to control the [operational environment]. … Contracting personnel and CAAF will continue to arrive, though not necessarily at a rate commensurate with the number of troops to be supported" (JCS, 2019b, pp. 34–35).

These two phases are crucial during a disaster because the organizations get the first glimpse of what recovery may entail. Controlling the environment and knowing what essential mission personnel is needed leads to a smoother transition from the disaster phase to the post-disaster phase.

The stabilize phase occurs both during and after a disaster occurs. The enable civil authority phase is post-disaster. During the stabilizing phase, the organizations shift from direct support to empowering the community affected to sustain itself, including a shift to infrastructure projects and nonforce support. The enable civil authority phase is "predominantly characterized by joint force support to legitimate civil governance, along with a reduction in the deployed U.S. military and CAAF footprint" (JCS, 2019b, p. 35). These two phases help transition from government intervention to local normalcy wherever the disaster has impacted. These two phases are only practical if the four preceding JP 4-10 phases, captured in the pre-disaster and disaster stages of the three-phase approach, appropriately set up the affected area to transition. There will always be unknowns or surprises, because no two natural disasters are the same; however, the JP 4-10 six-phase approach improves the probability of success.

2. USAF Disaster Framework

The 2018 AFMAN 10–2502, *Air Force Incident Management System (AFIMS) Standards and Procedures* (AFCEC, 2018), referenced in the emergency management career field's Air Force Instruction (AFI) 10–2501, *Emergency Management Program* (AFCEC, 2020), identifies four phases of a disaster in sequential order: prevention, protection, response, and recovery, with a fifth background phase of mitigation as an

ongoing process, which closely emulates FEMA's framework (AFCEC, 2018). The first of the four phases, prevention, includes "proliferation prevention, fire prevention, disease prevention, and contamination prevention" (AFCEC, 2018, p. 5). *Prevention*, in this context, is the "actions to avoid an incident or to intervene to stop an incident from occurring. Prevention involves actions to protect lives and property" (AFCEC, 2018, p. 33). Prevention uses gathered information and intelligence to try and stop what might occur. Some incidents are unavoidable, but mitigating preventable events, such as preventing flooding by investing in sandbags at the front end or delineating the chain of command to reduce communication problems, will set up the organization for success during and after a disaster.

The second phase identified in AFMAN 10–2502 is protection and consists of "actions necessary to secure installations and personnel against acts of terrorism and manmade or natural disasters" (AFCEC, 2018, p. 5). It is vital to separate force protection and protection in a disaster. Force protection does not "protect against accidents, weather, or disease" (AFCEC, 2018, p. 30). *Protection*, in this context, is "an integrated application of offensive and defensive actions that deter, detect, pre-empt, mitigate, or negate threats against or hazards to USAF air and space operations and assets, based on an acceptable level of risk" (AFCEC, 2018, pp. 30–31). Examples of protection actions are protecting military equipment or assets from flooding and wind damage by moving them inside and hardening warehouses against hurricane-level winds. One real-world example occurred when, before Hurricane Michael hit, the military aircraft at Tyndall AFB were flown to a different location to protect them from damage (Losey, 2018).

The third phase identified in AFMAN 10–2502 is the response, which consists of "actions taken during an incident which could include deploying the Disaster Response Force [DRF], implementing response plans and checklists, and initiating the installation notification and warning system" (AFCEC, 2018, p. 5). The actions in the response phase are directly impacted by the activities that occur in the first phase, prevention. Response examples include "sav [ing] lives, protect [ing] property, and meet [ing] basic human needs" (AFCEC, 2018, p. 34).

The fourth phase is recovery, which consists of

> operations such as implementing casualty treatment, rendering unexploded ordnance safe, personnel and resource decontamination, airfield damage, repair and facility restoration. Recovery planning and actions begin as soon as possible to ensure sustainment of crucial missions and restoration of normal operations. (AFCEC, 2018, p. 5)

When the natural disaster or any other incident has passed, the USAF team, per AFMAN 10–2502's guidance, will assess and determine what actions will be taken for the "development, coordination, and execution of service- and site-restoration plans for impacted communities and the reconstitution of government operations and services through individual, private sector, non-governmental, and public assistance programs" (AFCEC, 2018, p. 33). For example, after Hurricane Michael hit Tyndall AFB, the USAF estimated the repair costs to the base at $3 billion, including repair and hardening efforts to mitigate future storm surges (Allen, 2019). This leads to the next identified phase.

The fifth phase identified in AFMAN 10–2502 is mitigation. According to AFMAN 10–2502, mitigation is an "ongoing process and is considered, to some degree, a part of every phase of incident management" (AFCEC, 2018, p. 5). Mitigation is kept separate from the other four phases in the manual due to the unique holistic approach (i.e., no time-bound aspect). The purpose of mitigation is to reduce the risk and impact of an incident.

These phases play an essential role in the USAF standards and how the USAF secures its operations. This four-phase-plus-one approach is similar to the other frameworks within the government's purview. By defining each organization's phases and approaches, the authors hope to create a Rosetta stone for the different federal frameworks that the USAF may run into in a disaster environment.

3. FEMA's Disaster Framework

FEMA has five different mission frameworks that fall underneath the National Planning Frameworks' umbrella label (DHS, 2020q). They are the National Prevention Framework, the National Protection Framework, the National Mitigation Framework, the National Response Framework, and the National Disaster Recovery Framework. All of these frameworks are part of the National Preparedness System. There are six parts to the National Preparedness System, including assessing and identifying risk, estimating

capability requirements, building and sustaining those capabilities, planning to deliver the capabilities, validating the capabilities, and reviewing and updating the system. This system is incorporated within Chapter III, as it is quite similar to the DOD's JP 5-0 *Joint Planning* instruction (JCS, 2017), as well as the Chairman of the Joint Chiefs of Staff Manual (CJCSM) 3500.03E: *Joint Training Manual for the Armed Forces of the United States* (JCS, 2015).

The first framework within the National Planning System is the 2nd edition *National Prevention Framework*, published in June 2016 (DHS, 2016e). This framework applies before the disaster and identifies what a community "should do upon the discovery of an imminent terrorist threat to the homeland" (DHS, 2016e, p. 1). Interestingly, the prevention framework does not detail natural disasters; however, by replacing the word *terrorist threat* with *natural disaster*, the framework is quite similar to the other federal frameworks. Unfortunately, there isn't an available method of preventing hurricanes or storms. This is why the next four frameworks are considered more important in the case of natural disasters.

The second framework within the National Planning Framework is the 2nd edition *National Protection Framework* published in June 2016 (DHS, 2016f). This framework occurs before a disaster happens and entails informing the community what they "should do to safeguard against acts of terrorism, natural disasters, and other threats or hazards" (DHS, 2016f, p. 1). The prevention framework is activated upon the first sign of disaster. For example, the weather radar predicts when a hurricane will hit land and at what speed. This framework covers communication, roles and responsibilities among the different stakeholders, capabilities and task goals within a protection mindset, how the framework relates to the other frameworks, and how to apply it.

The third framework within the National Planning Framework is the 2nd edition *National Mitigation Framework,* published in June 2016 (DHS, 2016c). This framework occurs before the disaster occurs and "establishes a common platform and forum for coordinating and addressing how the Nation manages risk using mitigation capabilities and describes mitigation roles across the whole community" (DHS, 2016c, p. 1). In this framework, FEMA's goal is to reduce property damage and minimize loss of life. The

prevention, protection, and mitigation frameworks integrate before the disaster to prevent or reduce the disaster's impact on people, property, and overall society during and after the disaster.

The fourth mission framework within the National Planning Framework is the 4th edition *National Response Framework,* published in October 2019 (DHS, 2019b). This framework is the most recently updated. The update expands its "principles and concepts to better integrate government and private sector response efforts" (DHS, 2019b, p. 1). It cannot be understated how important the integration of all stakeholders in disaster management is to respond effectively to a disaster, whether it be through search and rescue (SAR) missions, supply chain management and sourcing, or de-conflicting duplicative or competing efforts.

The last mission framework within the National Planning Framework is the 2nd edition *National Disaster Recovery Framework* (DHS, 2016a), published in June 2016. This framework emphasizes that all entities, at all levels of the government and community, need to "collaborate and coordinate to more effectively utilize existing resources to promote resilience and support the recovery of those affected by an incident" (DHS, 2016d, p. 1). This framework also focuses on "how to restore, redevelop, and revitalize the health, social, economic, natural and environmental fabric of the community" (DHS, 2020f, p. 1)

Arguably, each framework can be applied to the three-phase approach, as shown in Figure 3, where FEMA provides an ongoing preparation until the disaster occurs, leading to the appropriate response over different time frames. A caveat to this approach is that through feedback systems each of these frameworks are technically constantly active. For example the mitigation framework is designed to be active prior to disaster; however, during and after a disaster occur, additional mitigation strategies may be implemented or attempted which should inform future pre-disaster mitigation strategies.

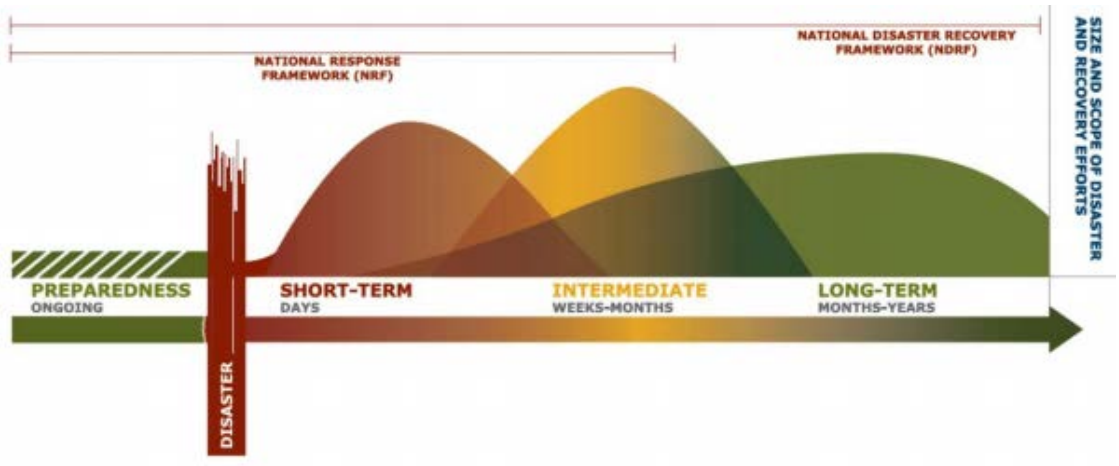

Figure 3. FEMA's Recovery Continuum. Source: DHS (2016d, p. 11).

4. Yoder's Three-Tier Model Framework

According to YTTM, there are four phases to a disaster or emergency, with an implied Phase 0 for planning for those four phases. Phase 1 is mobilization and initial deployment, which leads to the second phase of build-up and stabilization. Phase 3 transitions to sustainment, which ends in Phase 4's termination and redeployment. The three tiers in the model are the Ordering Officer Model (OOM), the Leveraging Contracting Officer (LCO) Model, and the Integrated Planner and Executor (IPE) Model. The OOM describes the contracting officers who order the different agencies and communities in the contingency environment. The LCO Model is a more complex version of the OOM in that it takes into account regional and geographical tendencies to order what is required. The IPE Model describes the big picture of why the contracting officer is buying for that region. This model can achieve what the National Security Strategy (NSS) set forth to do. These tiers correlate with Table 2, which lists the actions that occur during each phase to provide further clarification.

Table 2. Requirements by YTTM Phase. Source: Yoder (2004).

Phase 1: Mobilization & Initial Deployment (30-45 dys)	Phase 2: Build Up & Stabilization	Phase 3: Sustainment Range: weeks to years	Phase 4: Termination
Requirements emphasis on	Requirements emphasis on	Requirements emphasis on	Requirements emphasis on
• life support • security items • Food, water • Shelter • Utilities • Transportation • Fuel • Sanitation • Interpreters, guides • Liaison development	• Phase 1 requirements • Construction and infrastructure • Habitability • Quality of life items • Establish a reliable vendor base • Establish contracting controls • Shift to a pull strategy for requirements • Increased personnel support	• Phase 1&2 requirements • Establish Indefinite Delivery style contracts • Improve and refine internal controls • Increase competition • Plan for termination point • Create advance contracts	• Continue priority of life support and security items and services • Phase out Priorities: • Packing and freighting services • Transportation • Termination and Closeout of Contracts • Audit and account for all actions taken during the disaster period

There is additional literature on the YTTM by Lawson and Cashwell (2018), who analyzed YTTM for precontract award applications. The authors incorporated a key recommendation throughout this project was integrating JP 4-10 along with the YTTM to synergize the multiple federal responses into one overall response. The advantage to using the YTTM literature, is that it provides a relatively simple to use system to develop a potential or current CCO's skill set. First the contracting personnel is trained to meet the objectives of an OOM, then to the LCO, and finally to the IPE.

5. A Synthesized Three-Phase Approach

Table 3 synthesizes the above frameworks into the three-phase approach of pre-disaster, during the disaster, and post-disaster. The purpose is to create a chart that aligns the different stakeholder languages and doctrines into a simple-to-use format.

Table 3. Three-Phase Approach to a Disaster Exercise

Three Phase Approach to a Disaster Exercise		
Pre-Disaster	Disaster	Post-Disaster
JP 4-10: Shape JP 4-10: Deter AFMAN 10-2502: Prevent AFMAN 10-2502: Protect FEMA: Mitigate FEMA: Prevent FEMA: Protect Yoder: Phase 0, planning	JP 4-10: Seize Initiative JP 4-10: Dominate JP 4-10: Stabilize AFMAN 10-2502: Response FEMA: Protect FEMA: Response Yoder: Phase 1, Mobilize and initial deployment Yoder: Phase 2, build up and stabilize	JP 4-10: Stabilize JP 4-10: Enable Civil Authority AFMAN 10-2502: Recover FEMA: Recover Yoder: Phase 3, sustainment Yoder: Phase 4, termination

Reviewing the different agencies' publications and processes shows that there are different views on disaster phases. These varied thought processes can be alarming. Each of these organizations should have the same plan in dealing with natural disasters, especially when they are expected to work together to achieve the same goal for the American public. Even though different words are used (e.g., prevent, deter, mitigate, protect), each of these publications can be easily integrated. The authors developed the exercise recommendations to incorporate each of these approaches to maximize the USAF's ability to ensure a holistic approach to their disaster management.

C. LAWS THAT APPLY WHEN A DISASTER OCCURS

This section presents the various laws that apply to a disaster and how organizations use them in the event of a disaster. The section also covers to whom the laws and regulations apply. Although some regulations will be redundant, it is essential to highlight the complex regulatory environment involved with a disaster. Knowing the laws and regulations keeps the contracting officer from breaking the rules. It also provides them and their customers with avenues to request funds or identify and utilize existing tools.

1. The Economy Act, 31 U.S.C. § 1535 (2020)

Regardless of the natural disaster and its impact, nothing can be achieved by the federal government's acquisition actions without funding. It does not matter whether there is an emergency; the government cannot purchase goods or services without certified funds. However, these certified funds have a specific line of accounting that only certain federal agencies can allocate. When a natural disaster occurs, different agencies will be involved, and some agencies might not have access to the correct funds or sufficient funds. The Economy Act (31 U.S.C. § 1535 (2020)), helps mitigate this issue. The agency agreement is as follows:

> The head of an agency or major organizational unit within an agency may place an order with a major organizational unit within the same agency or another agency for goods or services if – (1) amounts are available; (2) the head of the ordering agency or unit decides the order is in the best interest of the United States Government; (3) the agency or unit to fill the order is able to provide or get by contract the ordered goods or services; and (4) the head of the agency decides ordered goods or services cannot be provided by contract as conveniently or cheaply by a commercial enterprise. (Economy Act, 2020)

The Economy Act appears in FAR 17.502-2. However, the FAR applies "when one agency uses another agency's contract to obtain supplies or services. If the interagency business transaction does not result in a contract or an order, then the FAR does not apply" (FAR 17.502-2, 2020). Fortunately, if this is ever needed, getting it approved is a simple process described within the FAR. When natural disasters occur, agencies might not need to use this act, but it is available to improve the government's spending effectiveness.

2. Stafford Act 42 U.S.C. § 5170, 5191 (2020)

One of the laws that the federal government can activate through the executive branch is the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act, 2019), which was discussed in Section A of this chapter. The purpose of the Stafford Act is "to provide an orderly and continuing means of assistance by the federal government to state and local governments in carrying out their responsibilities to alleviate the suffering and damage which result from such disasters" (Stafford Act, 2019, p. 1). The president

needs to declare a natural disaster and activate the Stafford Act's powers after a governor of the state requests assistance. When authorized,

> the funding that supports and resources these efforts comes from the Disaster Relief Fund (DRF). This is a "no-year" revolving fund account that does not expire from year to year, similar to the Defense Working Capital Fund. Congress appropriates funds as needed to keep the account solvent. (King & McKay, 2006, p. 74)

It is essential to note the no-year fund allocation. The contracting officer needs to be aware of these funds' limitations, when available, as compared to operations and maintenance funds that would typically be available to a USAF base in a familiar environment (which have a 1-year fund allocation).

3. The Posse Comitatus Act, 18 U.S.C. § 1385 (1878)

The Posse Comitatus Act (1878) is another law that can be activated by the president when certain conditions exist. This act "outlaws the willful use of any opart of the Army or Air Force to execute the law unless expressly authorized by the Constitution or an act of Congress" (Elsea, 2018); however, in certain times of need, there are exceptions to these prohibitions/limitations which are located in 10 U.S.C. § 271–284 (USNORTHCOM, 2019a; Elsea, 2018). There are 13 different sections, and they cover activities ranging from reimbursement, maintenance and operation of equipment, and use of information collected during military operations, to name a few. These different sections tie to the various missions that are needed to support the American people. One activity that the military might assist with is security services. For example, during Hurricane Katrina, military personnel were responsible for providing security to the Superdome "to ensure no one entered that area that the Environmental Protection Agency condemned" (Greenberger & Spaccarelli, 2010, p. 51). This act allows the DOD to provide security in very few cases—for example, in the presence of hazards to the local populace and on rare instances where the state enforcement agencies are considered insufficient. If called upon, the contracting officer will need to understand the limitations of contracting inherently governmental functions per FAR 7.5, *Inherently Governmental Functions* (2020).

4. The Federal Acquisition Regulations (FAR), Defense Federal Acquisition Regulation Supplement (DFARS), and the Air Force Acquisition Regulation Supplement (AFFARS)

When a natural disaster occurs, it is not a guarantee that the president will declare a contingency. There are locations worldwide to which service members deploy that are not considered a declared contingency operation because neither Congress nor the U.S. president has made a formal declaration. While contingency operations differ between CONUS and outside the continental United States (OCONUS), the rhetoric does not change. For example, when construction first started at Air Base (AB) 201 Agadez, Niger in 2016, the location was not labeled a declared contingency. Because of this, all rules, regulations, and dollar thresholds were the same as contracting actions and awards stateside. For a contingency operation to be declared, military members contribute to "military actions, operations, or hostilities against an enemy of the United States or an opposing military force: or during other provisions of law during war or during a national emergency declared by the President or Congress" (Military Support for Civilian Law Enforcement Agencies, 1956, p. 1). Overall, there are multiple plans, actions, and targets for different scenarios that correlate with the military's various branches. The reasoning for this is that each branch has their own mission set forth by the Pentagon.

Three different federal acquisition regulations that govern the USAF are the FAR, the DFARS, and the AFFARS. When looking at the FAR for contingency operations, the regulations provide five different title sections: the definition within FAR 2.101 (2020), the micro-purchase threshold, the simplified acquisition threshold, the Standard Form (SF) 44, and the simplified procedures for certain commercial items. These simplified procedures for commercial items are in FAR 13.500 (2020). The regulations in Part 13 guide the contracting officer through commercial acquisition methods that do not exceed $250,000, which is the simplified acquisition threshold; however, when natural disasters occur, the dollar amount can increase to $13 million.

The DFARS provides a more direct look at the rules and regulations of defense federal contracting, as it is the DOD's supplement to the FAR. When dissecting the

language in DFARS 218.201 (2020), *Contingency Operations*, more in-depth processes are given that align with different methods of purchasing within the following 12 topics:

- selection, appointment, and termination of appointment
- policy for unique item identification
- use of the government-wide commercial purchase card
- government commercial purchase card
- imprest funds and third party drafts
- SF44
- only one offer
- approval of determination and findings for time-and-materials or labor-hour contracts
- undefinitized contract actions
- prohibited sources
- authorizations acts
- electronic submissions and processing of payment requests

Knowing this information is vital to disaster response, because once the disaster is declared a contingency operation, the contracting rules change and become more flexible in order to meet the mission. For example, having multiple offers helps promote competition and shows that the winning bid will be fair and reasonable when soliciting a contract. Under contingency operations, however, the contracting officer can receive only one offer and still award the contract due to the circumstances. Another example is the government purchase card. The limits and the micro-purchase threshold will change due to the environment. These are just two examples out of the 12. The contracting team needs to

know these changes and be aware of what is available when the environment changes to a contingency operation.

The AFFARS is a set of USAF-specific rules and regulations of federal contracting. The information in AFFARS 5318.201 (2020) aligns with the FAR's rhetoric. Sections in this subpart include the micro-purchase threshold, the simplified acquisition threshold, and selection, appointment, and termination of appointment. When understanding the regulations, it is unfortunate that all services and some agencies have their own guidelines to follow. It would make joint contracting, exercises, and deployments easier if the regulations were consolidated into a joint supplement.

Acknowledging the complexity and vastness of the laws, statutes, and regulations, the authors attempt to incorporate them into the TTX. It is not only important to acknowledge what this subject currently entails; it is imperative to know where to find the information and accept that what was true last year may not be true this year, depending on administrative changes by the governing agencies.

D. POTENTIAL STAKEHOLDERS AND THEIR ROLES AND RESPONSIBILITIES

This section identifies what the different levels of the government are and highlights the responsibilities and roles of the different agencies and offices. There are multiple positions in government held by individuals with high-level responsibilities who oversee their specialty areas. It is crucial to identify each of these positions and the corresponding priorities, as the individuals in charge will intentionally or unintentionally compete for the priorities of their organization. This is understandable as it is the individual's job to align to their agency. In this literature review, the authors discuss the responsibilities and roles associated with each agency/position and attempt to capture the various priorities in the disaster environment.

In a disaster, there is a multitude of public and private stakeholders. According to the *National Disaster Recovery Framework*, there are more than 600 stakeholders across public and private enterprises for recovery alone (DHS, 2016a). The authors conclude that the USAF should train with nongovernmental organizations (NGOs), FEMA, DOD, and

state and local governments in mind during any exercise, using the guidelines stated in the DOD's JP 4-10 (JCS, 2019b) and FEMA's *National Disaster Recovery Framework* (DHS, 2016a). With this information, the organizations may require supplies and services that may conflict with the other organizations if appropriate communications and actions do not occur.

The USAF base's most critical player/section is the emergency management flight, which falls under the civil engineering squadron (CES). Emergency management personnel are "trained to handle recovery and response operations after natural disasters and manmade crises. Their goal is to reduce casualties and help those affected by a disaster to reach safety" (Powers, 2019, para. 1). The emergency management flight is

> establishe [d for] Air Force emergency management responsibilities, procedures, and standards to physical threats resulting from: major accidents; natural disasters; conventional attacks; terrorist attacks; and chemical, biological, radiological, and nuclear (CBRN) attacks or incidents. It provides a framework for planning and preparedness across the five National Incident Management System mission areas: prevention, protection, response, recovery, and mitigation; and includes domestic and foreign guidance. (AFCEC, 2020, p. 8)

This responsibility and communication are accomplished at all USAF levels, from major command (MAJCOM) to the Air Force Installation and Mission Support Center (AFIMSC) level. There are multiple roles and responsibilities for each deputy chief of staff to fulfill in order to prepare themselves for any of the listed events. When these natural disasters occur, all levels—from the local bases to the MAJCOM—have a form of a command and control (C2) center set up to facilitate open communication lines for all parties involved. More information on the C2 is in Section F of this chapter.

Just like in FEMA's framework and in the *AFIMS Standards and Procedures* (AFCEC, 2018), the five mission areas appear. Fortunately, the USAF Emergency Management is aligned to FEMA's framework (AFCEC, 2018; 2020); however there are still minute differences. Prevention, response, recovery, and mitigation are defined the same in both approaches and defined in Section C of this chapter. There is no definition of protection in the AFI 10–2501 (AFCEC, 2020). However, it is defined in the AFMAN 10–2502 (AFCEC, 2018) under Section 3 in this chapter. Furthermore, the definition of

protection is not found in either document's terms section but is only found in the AFIMS system overview section in AFMAN 10–2502 (AFCEC, 2018). If the FEMA framework and the AFMAN/AFI can define these similar words, communication lines can improve between the two federal agencies.

The hierarchy depicted in Figure 4 should be treated as the primary central hub for communications chains, as this hierarchy is the basis for contingency planning for USAF bases. The wing commander is in charge of the base, and the emergency management function is the wing commander's program (Air Force Medical Operations Agency [AFMOA], 2019; Office of Military Force Management [OMFM], 2019, p. 85). Figure 4 highlights other vital support organizations on a USAF installation in response to a HADR event in red.

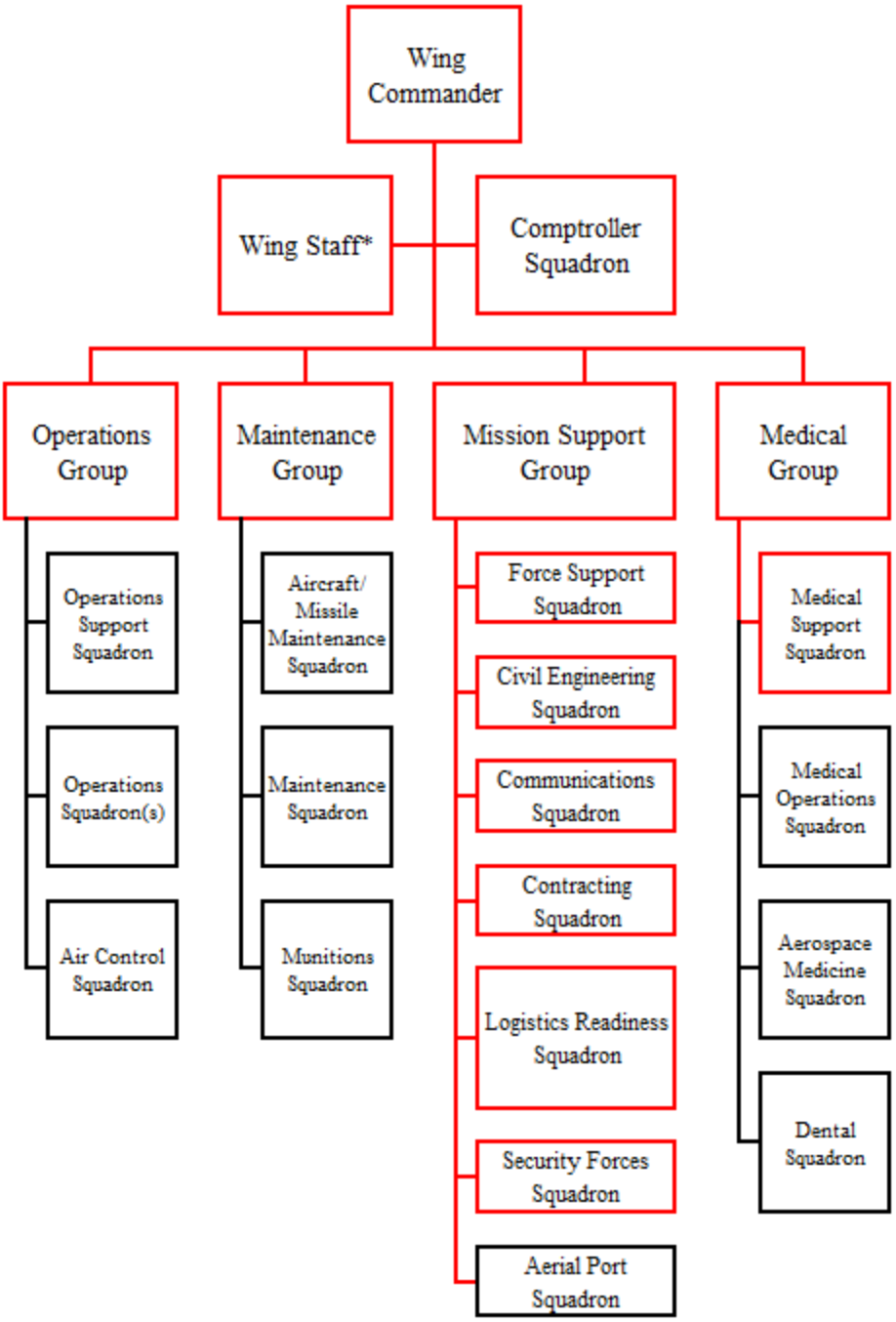

Figure 4. Air Force Wing Structure. Adapted from AFMOA (2019) and OMFM (2019).

Another critical function that falls under the wing commander's support staff is public affairs. The public affairs function is guided by AFI 35–105, which "implements

Air Force Policy Directive (AFPD) 35–1, Public Affairs Management, and procedures for planning and executing community relations and civic outreach programs" (Air Force Office of Public Affairs, 2017, p. 1). The comptroller squadron also directly falls under the wing staff support agency instead of its own group. This squadron runs the wing's budget and is the initial point of contact for requesting additional funding for the base's requirements. If the Stafford Act (2019) is enacted, this squadron will help allocate funds through the current USAF systems (i.e., Defense Enterprise Accounting Management System [DEAMS]). If the Stafford Act (2019) is not enacted or if the funding from the act is not available to the base, the comptroller squadron will be critical in identifying available funds and provide the base funds available to address the disaster.

The majority of the key players on an Air Force installation fall under the mission support group (MSG). The force support squadron (FSS) responsibilities include housing assignments, temporary duty orders, dining facilities, and mortuary affairs. CES responsibilities include managing roads and facilities, repairing airfields, providing power and water, removing debris, as well as maintaining the equipment needed for each of these mission sets. The fire department and emergency management functions also fall under the CES purview. The communication squadron (CS) runs the land mobile radio (LMR) function and the USAF installation's information technology capabilities. The logistics readiness squadron (LRS) responsibilities include planning aircraft flights (called "grey tail") and managing the base's vehicle program. The security forces squadron (SFS) runs base security, including higher priority security requirements for critical facilities and other important areas. The contracting squadron (CONS) has the responsibility to acquire supplies and services to support all of the previously mentioned functions (AFMOA, 2019). When a disaster response occurs, these particular squadrons have considerable input in how to complete the mission and whether the mission is feasible or not.

The medical group's (MDG) primary point of contact for contracting is the medical support squadron's logistics flight. The logistics flight follows AFMAN 41–209 (AFMOA, 2019). An essential medical logistics function is the identification and documentation of damaged equipment due to natural disasters in order to let commanders and leadership positions know what is available after the disaster and which asset acquisition needs to be

prioritized to protect the base and the local veteran community. Additionally, this group may be relied upon to provide medical support to disaster casualties and integrate with the Civil Air Patrol (CAP) mission for SAR, which is identified in the Civil Air Patrol Regulation (CAPR) 60–3 (Civil Air Patrol [CAP], 2012).

CAP, surprisingly, does not garner a lot of attention despite its benefits. Their mission statement is "supporting America's communities with emergency response, diverse aviation and ground services, youth development and promotion of air, space, and cyber power" (CAP, n.d., p. 1; Saltzman, 2018). CAP is a volunteer force that is an auxiliary of the USAF that flies missions to support natural disasters. This all-volunteer force fills a beneficial role, especially during a natural disaster. Although the CAP does not fall under the installation's command and control, the CAP is a great asset. CAP can "accomplish damage assessment, transport of equipment and supplies, [and] monitoring of overall operations" (CAP, 2012, p. 11) and "may provide crash site surveillance and/or crowd control duties" (CAP, 2012, p. 16). Even though not all military bases have a CAP nearby, it is vital to identify whether this is the case within each TTX to understand the operational disaster environment and which assets are available to complete the installation's mission set. From a USAF contracting point of view, AFI 10–2701 (2018) defines what types of support may be provided from the USAF which includes aircraft, vehicles, computers, communications equipment, and uniforms.

While the local affected bases may be dealing with their own issues, it is unlikely that they are the only stakeholders, let alone bases, affected by a disaster. USNORTHCOM's mission includes addressing disasters within the United States and coordinating with FEMA on behalf of the DOD. In response to a disaster, USNORTHCOM will create a joint task force made up of useful functions guided by CJSM 3500.03E (JCS, 2015) and JP 4-10 (JCS, 2019b), which may include some or all of the following: manpower (J-1), intelligence (J-2), operations (J-3), logistics (J-4), cyber (J-6), engineering, staff judge advocates, comptrollers (J-8), and public affairs (JCS, 2019b). AFICC falls underneath the J-4 logistics function umbrella, which would be the local base's point of contact for requirements fulfillment (JCS, 2019b). Although the base-level CONS's main priority will be supporting the base, there may be additional requirements

levied on them by USNORTHCOM through AFICC. By understanding the different USNORTHCOM and joint functions within the operational contract support (OCS) mission, the USAF and AFICC can adapt their preparedness planning to incorporate those potential requests to reduce additional confusion or surprise during a disaster.

If the federal government declares a disaster, FEMA is the lead organization per the 4th edition of the *National Response Framework* (NRF; DHS, 2019b). FEMA is broken up into 10 different regions, as shown in Figure 5.

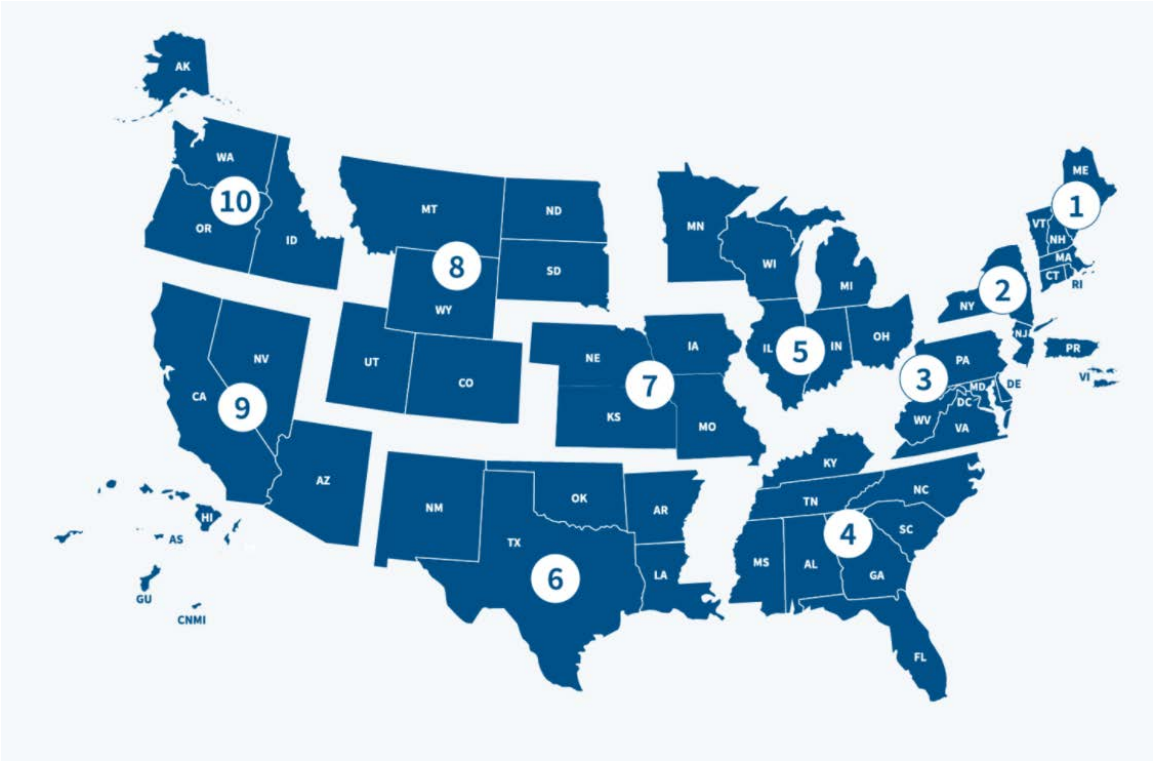

Figure 5. FEMA Regions. Source: FEMA (2020b).

During a disaster, the NRF provides a unified coordination chart (see Figure 6) as well as the roles and responsibilities allocated to each section. The joint task force commander/liaison is the bridge to FEMA's unified coordination group, including a defense coordinating officer (DHS, 2019b).

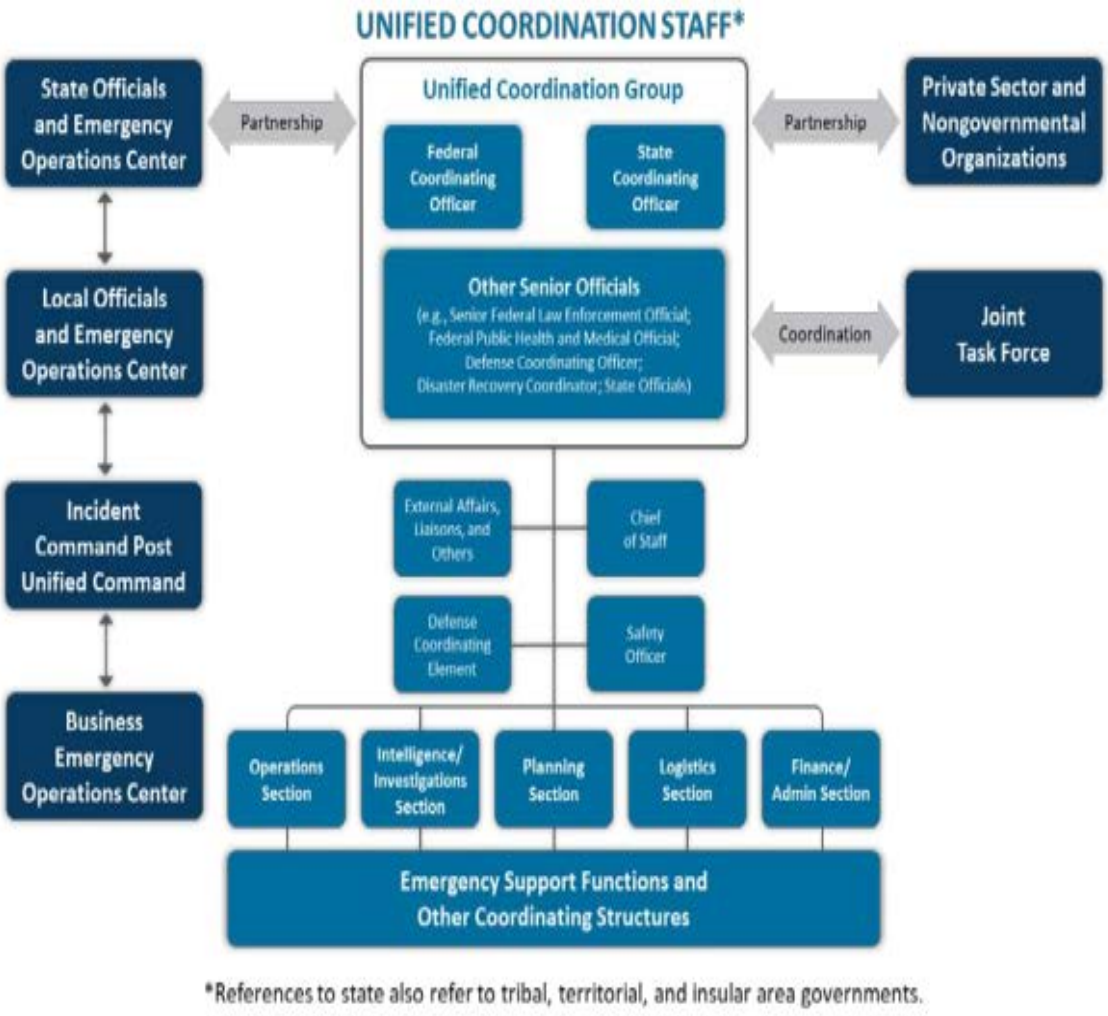

Figure 6. FEMA's Unified Coordination Staff. Source: DHS (2019b).

Per the *National Disaster Recovery Framework*, each regional office has multiple points of contact that are useful in planning and preparing for disasters (DHS, 2016a). Each regional office may be staffed slightly differently due to hiring and funding; the authors believe that each TTX should encourage identifying each of these points of contact as well as their current responsibilities and any upcoming exercises that the local base participates in.

The *National Disaster Recovery Framework* provides two NGO groupings that help build a list of local vendors that may be available even in a disaster environment in the applicable region or area (DHS, 2016a). The Voluntary Organizations Active in

Disaster (VOAD) is a national coalition of organizations that support a community in the face of a disaster (National Voluntary Organizations Active in Disaster [NVOAD], n.d.). The NVOAD is "a coalition of 70+ of the nation's most reputable national organizations (faith-based, community-based, and other non-profit organizations) and 56 State/Territory VOADs, which represent Local/Regional VOADs and hundreds of other member organizations throughout the country" (DHS, 2016c). While there are different agencies in the NVOAD that are available to help the community in a time of need, some of their specializations are not in natural disasters. Knowing this emphasizes the importance of identifying the companies that can or cannot help, depending on the emergency, before disaster strikes. The Community Organization Active in Disaster (COAD), unlike the NVOAD, is not a national program and may exist only in certain localities—unlike the NVOAD, which exists in all states and territories (New Jersey Volunteer Organizations Active in Disaster [NJVOAD], 2016). The COAD's mission is similar to that of the NVOAD's, with the only difference being locality.

An additional directive given by FEMA is the National Incident Management System (NIMS; DHS, 2016b). The purpose of the NIMS is to guide "all levels of government, NGO, and the private sector to work together to prevent, protect against, mitigate, respond to, and recover from incidents" (FEMA, 2017, p. 11). One structure used by multiple jurisdictions and organizations is called the emergency operations center (EOC). The EOC "is a facility from which staff provide information management, resource allocation, and tracking, and/or advanced planning support to personnel on the scene or at other EOCs" (FEMA, 2017, p. 15). The EOC staff will be different during every natural disaster based on the disaster's impacts and created requirements. However, while various organizations will have diverse representation,

> all EOC teams receive oversight from elected and/or appointed officials such as governors, tribal leaders, mayors, and city managers. These individuals may be present in the EOC, but more often provide guidance from elsewhere, either as part of a formal policy group or individually. They typically make decisions regarding priorities and one issues such as emergency declarations, large-scale evacuations, access to extraordinary emergency funding, waivers to ordinances and regulations, and adjudication of scarce resources. (FEMA, 2017, p. 47)

There are different EOC structures and staff organizations that will depend on how the EOC director or emergency manager establishes the C2 hierarchy. It is interesting to note that the state governors do not need to be present at the EOC. Nevertheless, "this does not mean that the governor should be engaged in the details of disaster response operations, but the governor's presence in the EOC can serve to defuse interagency turf battles and eliminate bureaucratic red tape" (National Governors Association Center for Best Practices [NGA], 2007, p. 14). Within the NIMS, no guideline or regulation mandates government elected officials need to be a part of the EOC. The NIMS does guarantee that government officials are working together side-by-side. One needs to remember that the military and civilians have a different command chain, so communication is vital to make sure both sides de-conflict requirements and acquisitions.

The purpose of the stakeholder analysis is to inform the planners of the competing interests for services and supplies in support of disaster response and recovery. A secondary benefit of this analysis is for CCOs. By understanding all available organizations, performing market research per FAR Part 10 (2020) can be tailored to the disaster environment. The COAD, VOAD, and FEMA regional offices are excellent resources for identifying local suppliers focused on disaster recovery. The last benefit of this analysis is understanding the USAF's internal players, including the well-known CES and the lesser-known CAP. The next section utilizes the stakeholder section to inform the different policies and procedures that various agencies must consider when integrating. While some of these stakeholders will never see or work with each other, their collective work will rebuild the community and help it return to normal. With so many different government layers, it is imperative to understand what each organization's roles and responsibilities are, despite how daunting that task may appear.

E. DISASTER POLICIES AND PROCEDURES

This section identifies the different policies and procedures related to the various government agencies that may be involved in the disaster environment. While multiple agencies use the same laws and regulations, each organization may interpret or implement

them differently. These different interpretations can even occur in the same agencies, which can be a blessing or a curse in the contracting career field.

When a natural disaster occurs, the USAF will set up a C2 center per AFMAN 10–2504 (AFCEC, 2013), published March 13, 2013. According to the manual, the definition of a C2 is

> the exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. C2 functions are performed through an arrangement of personnel, equipment, communications, facilities and procedures employed by a commander in planning, directing, coordinating and controlling forces and operations in the accomplishment of the mission. (AFCEC, 2013, p. 47)

When the C2 forms, the squadrons, flights, or other essential personnel members may differ based on location and mission set. An example would be if a disaster hits in an OCONUS location, local nationals will be members of the C2 because there needs to be a steady communication line for the local populace with what the base is doing; this would be a member of the public affairs section. However, there are squadrons, flights, or other essential personnel that preside at all AF locations such as CES, CS, CONS, Comptroller Squadron (CPTS), FSS, LRS, SFS, aircraft maintenance squadron (AMXS), maintenance squadrons (MXS), operations group (OG), the base commander, and the base commander's support staff, which can include legal, public affairs, safety, and others. These agencies assigned at the C2 have

> responsibilities to ensure overall success of unit and installation mission priorities and management of emergency response and recovery operations. Each level also performs organization and installation support functions to enable safe management of incidents that threaten the primary mission of the installation. Actions are prompted from standard operating instructions, checklists and other written procedures. (AFCEC, 2013, p. 27)

Again, each location and agency will have a different mission and required operation based on the natural disaster that occurred. Some of the agencies mentioned above will be needed throughout the disaster, while some may never be used at all or just may not be necessary for a specific disaster or mission set. The purpose of identifying and

integrating these agencies' roles, responsibilities, and regulations is to minimize the uncertainties that are inherent within a disaster environment.

One of AFICC's goals is to enlighten other USAF squadrons regarding the importance of contingency contracting and how acquisitions can support their mission sets. The USAF is using the phrase *operational contract support* (OCS) to explain the significance. OCS was created to show commanders, Airmen, and the local community what contracting is and how it is integrated within everything throughout a disaster response. The JP 4-10 (JCS, 2019b) goes into further details on what OCS means, as well as the three pillars or lines of effort (LOE) of OCS. These pillars explain the USAF mission. The pillars and what they do are as follows:

> Contract integration (the plan pillar) occurs before and during all planning phases to anticipate and synchronize contracting support into the operation. … Through the contracting support LOE (the procurement pillar), contracting professionals execute their authority and coordinate contracts in support of joint operations. … OCS LOE, contractor management (the manage pillar), involves control, support, and integration of contractor personnel and associated equipment deployed for use in the operational area. (Trevino et al., 2019, pp. 5, 7)

These three pillars help facilitate communication within the community and with any other force to help with the rebuilding process. Tyndall AFB's experience with Hurricane Michael in 2018 is a recent example with multiple lessons to improve future reaction time. One lesson learned resulted after contracting officers from Langley AFB, VA, deployed to Tyndall AFB, FL, and duplicated efforts on contracts that were already in place. There were confusing communication efforts between different agencies and entities regarding who was responsible for which contract or project. Information was readily available to utilize the existing contracts, but the personnel from Langley AFB intended to use their own contracts. One of the most egregious examples of these duplicative efforts was the creation of three separate contracts for tarping and building assessments by three different entities within DOD: the Rapid Engineer Deployable Heavy Operational Repair Squadron (REDHORSE), the Air Force Contract Augmentation Program (AFCAP) contractor, and the base operations support contractor (Trevino et al., 2019). If the OCS pillars were followed, there would have been integration and de-conflicting of this

procurement, saving time—which is in short supply during a disaster—and the taxpayers' money.

When a natural disaster occurs, the first agency that comes into mind may be FEMA. FEMA is known for being one of the first federal organizations to go to where the natural disaster hits to assess the damages and provide the needed supplies. FEMA's response time varies with how long it takes for the location to ask for FEMA's help or for the federal government to order them to respond. Using the example of Hurricane Michael again, FEMA responded in 4 days. The state's and city's deployment will normally occur first to help with the situation as there are additional steps to request FEMA's assistance (i.e. Stafford Act).

Before going into FEMA's microsections and how FEMA handles contracts and the contract actions, understanding FEMA's macromission is essential.

> FEMA is responsible for monitoring states, territories, and tribal governments to ensure they are properly administering grants. States, territories, and tribal governments, in turn, must manage local government and non-government entities to ensure grant fund expenditures comply with Federal procurement requirements. (Mak, 2019, p. 5)

FEMA has been in the spotlight due to their response and handling of these natural disasters. FEMA is a federal organization, so they follow the same guidelines as other federal agencies when it comes to contract actions.

> [FEMA] competes procurements whenever possible and practical, uses advance contracting for recurring disaster-related requirements, and at times uses other contracting methods. FEMA is responsible for ensuring all contract activities comply with the Federal Acquisition Regulation (FAR), which requires agencies to carry out acquisition planning activities for all acquisitions to ensure that the Government meets its needs in the most effective, economical, and timely manner possible. (Mak, 2019, p. 4)

All federal agencies look at the FAR for guidelines for what procedural actions need to happen to award a legal contract. Per FAR 8.004 *Use of other sources* (2020), agencies are encouraged to use existing sources such as federal supply schedules, governmentwide acquisition contracts, multi-agency contracts, and other existing contracts within the federal purview. FEMA, has awarded their own advance contracts in lieu of

utilizing already existing contracts within GSA Advantage (FEMA, 2020a; GSA, 2020a). In 2017, FEMA used advance contracts for $4.5 billion worth of goods or services, including debris removal, prefabricated and portable buildings, inspection services, and power transmission equipment installation. While these services and products are needed, FEMA does not have the training to manage these contracts. Mak (2018) reported in GAO report GAO-18-335 that FEMA's advance contracts have an "outdated strategy and unclear guidance on how contracting officers should use advance contracts during a disaster, and challenges [in] performing acquisition planning" (Mak, 2018a, p. 2). Training for FEMA contracting officers is limited; however, there is training for the contracting officer's technical representative (COTR). As recently as 2018, the Committee on Homeland Security and Governmental Affairs noted that FEMA does not effectively award prepositioned contracts. FEMA tends to expedite the acquisition process, leading to subpar market research and less competition, increasing cost, and negatively impacting delivery times of critical products. According to FEMA, these are some of their responsibilities:

> The program office acquiring the contracted goods and services selects a COTR from its staff. The selection is sent to the contracting officer, who verifies that the nominee has the prerequisite training for the contract. The COTR is then appointed to the contract by the contracting officer and is authorized to monitor the contract on behalf of the contracting officer. However, the COTR is not authorized to make any contractual commitments or changes that may affect the contract price, terms, or conditions without the approval of the contracting officer. Some COTRs are assisted by task monitors (also known as project or technical monitors), who review and report on the technical aspects of the contractor's performance, such as compliance with specific contract terms. The COTR role can be either part time or full time, and is often a collateral duty. (Bumgardner et al., 2011, p. 4)

While this information is similar to that of other federal organizations, comparing the contracting officers is not as simple. Understandably, FEMA needs their own contracting officers. The authors could find no information on whether contracting officers from other federal organizations communicate to each other before, during, or after the natural disaster occurs. The authors assume this occurs during joint exercises; however, no after action reports were found. Natural disasters that occur in the United States are not always near military installations. Even so, in order to minimize contracts for the federal

government, FEMA and other military contracting agencies can work together to simplify the process through the application of the Economy Act. To maximize the utility of the Economy Act (2020), stakeholders within the federal government should strategically source similar requirements such as roofing, portable bathrooms, and architect and engineering (A&E) services. In doing so, there can potentially be monetary savings realized, but more importantly, the result would be a structured and well-managed supply chain that all stakeholders could utilize without internal competition. One example of this approach is between the Defense Logistics Agency (DLA) and FEMA for fuel requirements under ESF 12 (DHS, 2020m). The majority of the disasters have similar requirements, and by identifying these requirements and the primary stakeholders responsible for managing each requirement, the community will recover faster and more efficiently.

When it comes to FEMA contracting, even though FEMA is part of the federal government and follows the same regulations, FEMA is an organization that does their contracting work independently. When looking at the literature for FEMA contracting actions and processes, positives are scarce. Most of the literature review for FEMA is after action congressional joint hearings on how FEMA can improve future endeavors. One of FEMA's offerings to improve these conditions is to implement a procurement disaster assistance team. This team is "to provide procurement-specific training and resources to state and local government officials, typically during response efforts, to achieve greater compliance with procurements under grants" (Mak, 2019, p. 5). It is difficult to say whether these policy changes have worked since—as of June 5, 2020—there are no data to back it up. It will also take some time to see if changes have been made, as it took multiple years to get data and information from Hurricane Katrina, which occurred in 2005. FEMA is still learning from their mistakes, and that was over a decade ago. Having these joint hearings are beneficial and shine a light where improvements are needed.

Continuing with other federal government agencies, DHS has its own framework for managing natural disasters, and it is called the NRF. The NRF publication is on its 4th edition and was last updated on October 28, 2019. According to the executive summary, the NRF "provides foundational emergency management doctrine for how the Nation

responds to all types of incidents" (DHS, 2019b, p. 2). The NRF builds lifelines throughout each community, though the word *lifeline* only started being written in the 4th edition of the NRF publication. Lifelines with the community are needed to succeed, and DHS determined this rhetoric was required to explain the mission. There are two interpretations to the community lifeline, that they "are interdependent and vulnerable to cascading failures" and that they rely "on businesses and infrastructure owners and operators who have the expertise and primary responsibility for managing their systems in emergencies" (DHS, 2019b, p. 2). Since the last NRF publication, which was in 2016, the 2019 publication "expands principles and concepts to integrate government and private sector response efforts better and introduces the community lifelines concept and terminology" (DHS, 2019b, p. 7). Contracting services are in two sections of the ESF annex: Public Works and Engineering (Annex 3) and Logistics (Annex 7). There are 15 annexes, and each involves some level of contracting support. Annex 3 and Annex 7 specifically deal with creating and awarding contracts, which is the sole responsibility of a warranted contracting officer. ESF Annex 3 addresses what the DOD/U.S. Army Corps of Engineers (USACE) can accomplish when disaster strikes in "emergency contracting support or life-saving and life-sustaining services" (DHS, 2019b, p. 45). ESF Annex 7 highlights include procuring supplies for the survivors and responders and outlining what the GSA and DHS/FEMA will do to help. The resource support in ESF Annex 7 includes contracting services.

For joint service policy and procedures, information is secretive in some aspects. For example, in contracting, each service has its own contracting writing system. Because of this, it makes it harder to work together. If a USAF member needs to deploy with the U.S. Army (USA) to help with contingency contracting, it will be harder to work and access the system. There used to be a joint service exercise called Operation Contract Support Joint Exercise (OCS-JX) with all these negatives. This exercise was active from 2014–2017 and was designed for the USAF, the USA, Defense Contract Management (DCM), and Defense Logistics Agency Joint Contingency Acquisition Support Office. The exercise consisted of

> 450 service members from numerous career fields outside the standard trifecta of contracting, legal, and financial management to showcase cross-service and cross-specialty ownership of OCS. The downsizing of this event comes at a detriment to the joint warfighting community. Enlisted and officer members alike from Logistics, Security Forces, Maintenance and other career fields took part in this exercise and realized in short order the role they played in OCS endeavors. Paring this exercise down to a minimal-force, contracting-centric effort is an enormous missed opportunity and only furthers the misperception that other specialties are absolved from any responsibility in executing OCS. (Meyer, 2018, pp. 10–11)

These yearly exercises took place in Hawaii and Arizona; unfortunately, OCS-JX was unfunded after 3 years. As of June 2020, there are no plans to restart the exercise. Each service is now in the process of updating or creating a new exercise that fits what they think the future will hold.

With policies and procedures changing every day, it is virtually impossible to keep up with all of them. Regardless of the abolition of OCS-JX, between JP 4-10's guidance and GEN Holt's (2019) *Air Force Contracting Flight Plan*'s the USAF contracting career field understands the value of bridging the gaps between the stovepiped agencies. The flight plan incorporates four lines of effort of which two are directly involved in this project: Line of Effort 1: Building Mission-Focused Business Leadership and Line of Effort 4: Expeditionary Contracting as a Joint Force Capability. This suggested TTX design will push contracting personnel to understand the many different federal missions involved within the HADR environment (mission focused and joint focused) while improving contingency fundamentals and preparation. One day, the policies and procedures might be the same for everyone, but until then, the best option is to align priorities, and understand and mitigate differences within those priorities.

F. EXERCISE DESIGN APPROACHES

This section reviews how different organizations design and create exercises. Developing exercises helps and trains people to prepare them for what might occur. Each organization has its own unique jargon to help further the education and knowledge for the future. By reviewing and incorporating different organizations' methods, the TTX will

hopefully encourage embracing the whole disaster environment instead of only viewing the environment from one lens.

Before beginning to create recommendations for the next CONUS HADR exercise, the authors' first question was whether a TTX is the best method of training and testing the USAF career field for emergency preparedness and how it can be best utilized. Chen et al. (2002) researched tabletop drills' efficacy versus real exercises regarding leadership, communication, and skills in an emergency setting for hospitals. They concluded that skills training must still occur independently of the TTX or field operation exercise and that the TTX is a more effective training setting for testing plans. Fowkes et al. (2010) published another study to measure the effectiveness of TTXs. Out of the 30 sites they tested, 21 (91%) showed improvements in their emergency plans and actions after utilizing the exercise (Fowkes et al., 2010).

The CJCSM 3500.03E provides the "policy for determining joint training requirements, planning and executing joint training, and assessing training for input to command readiness" (JCS, 2015, p. 3). This manual is DOD-centric. However, it does mention humanitarian assistance disaster response three times with particular attention to civilian mission counterparts. The CJCSM 3500.03E Appendix B provides a method to design training events that optimize the requirements' benefits, as shown in Figure 7.

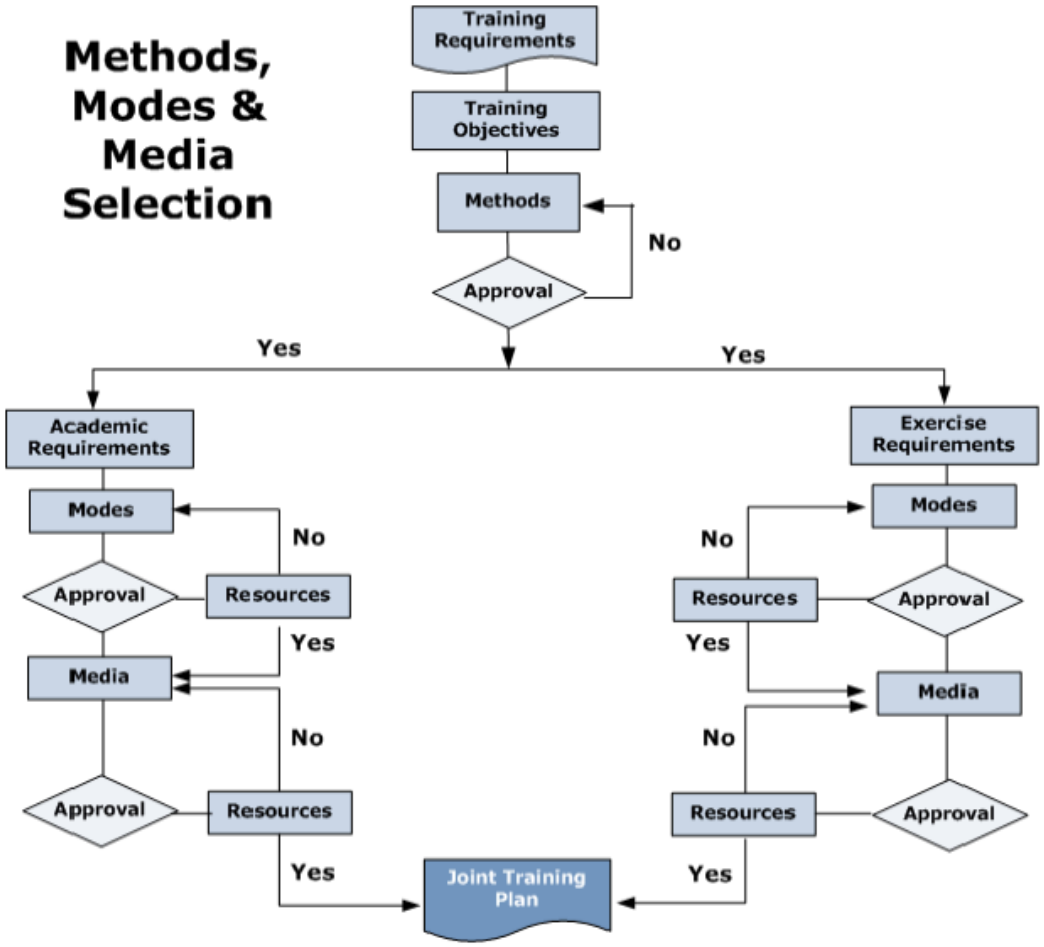

Figure 7. Methods, Modes, and Media Selection. Source: JCS (2015).

FEMA provides a *National Mitigation Framework* (DHS, 2016c) and a *National Protection Framework* (DHS, 2016f) for pre-disaster notification. FEMA also provides three applicable pieces of training regarding designing an exercise: IS-120.c, IS-139.a, and how the military supplements FEMA's efforts, IS-75. IS-120.c is the introduction course to exercises. This course is supposed to help multiple homeland security professionals know what to do during an emergency management situation and get the information for what an exercise should accomplish. IS-139.a is the course that is supposed to help in designing an exercise. There are many guidelines in the course that FEMA uses to get the students to understand how to translate real-world examples to allow for the future. IS-75 is a course directed towards civilians to let them know what military resources are available during an emergency response. This course provides a perspective of the rules and

regulations military members have to follow and why from DHS's point of view. These pieces of training help inform the methodology of the exercise to ensure a holistic environment that includes federal agencies, state governments, and local governments.

AFICC requested a TTX. FEMA defines a *TTX* as

> a discussion-based exercise intended to stimulate discussion of various issues regarding a hypothetical situation. Tabletop exercises [TTX] can be used to assess plans, policies, and procedures or to assess types of systems needed to guide the prevention of, response to, or recovery from a defined incident. TTXs are typically aimed at facilitating understanding of concepts, identifying strengths and shortfalls, and/or achieving a change in attitude. Participants are encouraged to discuss issues in depth and develop decisions through slow-paced problem-solving rather than the rapid, spontaneous decision-making that occurs under actual or simulated emergency conditions. TTXs can be breakout (i.e., groups split into functional areas) or plenary (i.e., one large group). (FEMA, n.d.)

AFICC currently has a PACOM version of a TTX on their SharePoint, and the expectation is to have this CONUS HADR exercise mirror its format. Fortunately, the characteristics of FEMA's definition of a TTX and the AFICC tabletop are identical. The authors use the developed environment, requirements, and scenarios to encourage dialogue and critical thinking by all three tiers of skill levels identified in YTTM while incorporating CFETP requirements determined by the contracting career field manager.

Luckily, for designing an exercise, FEMA and AFICC appear to be on the same page. Having the same goal is a positive step to ensuring all federal government levels can work together. Once the exercise is built and the agencies can participate in the exercises together, more changes can improve other functions. The process will not be easy, but hopefully the manpower hours will pay off with fewer contracts and faster awards when completed.

G. AFTER ACTION REPORTS

In this section, firsthand knowledge and experiences will be considered to decide what worked and what did not in different contingency environments. This information could be the most critical because one can build an exercise, but the exercise will fail without past knowledge. Using these different experiences will give the proper context of

what other regions and disasters need, thereby improving the next contracting officer's expertise.

Savoia et al. (2012) concluded that lessons learned are invaluable in the development of training. Further, it is essential to have a sound knowledge management system. First, this project's authors tried to identify a central repository of all USAF AARs and DOD AARs; however, one does not exist. Therefore, this section provides the reader a collection of AAR-centric documents the authors could collect to support the exercise recommendations.

The databases searched include Dudley Knox Library's Calhoun database, Google Scholar, Defense Technical Information Center (DTIC), and the Center for Homeland Defense and Security, which partners with the Naval Postgraduate School (NPS). The authors also contacted USNORTHCOM and AFICC for any USAF AARs that may not be public. The authors collected 104 AARs, GAO reports, and Congressional Research Service (CRS) reports from these databases, which the authors synthesized per their methodology. The request to the USAF provided the AARs listed in Table 4.

Table 4. USNORTHCOM- and AFICC-Provided AARs

Disaster	Publication Title
Hurricanes Harvey, Irma, and Maria	*After Action Report for Senior Contract Official (SCO) Operations in Support of Hurricanes Harvey, Irma, and Maria* (Widmann, 2017)
Hurricane Maria	*After Action Report* (Johnson, 2017)
Hurricane Irma	*After Action Report* (Yoakum, 2017)
Hurricane Michael	*After Action Report for Contingency Contracting Officers (CCO) Operations in Support of Hurricane Michael* (Galindo & Kennedy, 2019)
Hurricane Irma, Maria	*After Action Report for Operation Hurricane Relief Virgin Islands and Puerto Rico* (VIPR; Nieves, 2017)
Hurricane Harvey	*Hurricane Harvey CCO Support Provided by SSgt Derek Urban* (Urban, 2017)

This method incorporates all of the different lessons learned and the strengths and weaknesses identified. This information, combined with the USAF contracting career field's currently identified skills for the career field supplied by the CFETPs, provides a foundation for designing learning objectives that will inform which requirements AFICC should focus on in their next exercise.

H. CONCLUSION

Disaster frequency and spending have increased over the past 30 years (DHS, 2020a). The USAF and other stakeholders must be prepared to react to these events, which requires proactive measures that include mitigation efforts, prevention efforts, and planning efforts. This MBA project targets the planning option through the development of a TTX framework and design and incorporates prior experiences of different stakeholders that have been and will be involved with HADR events in CONUS. The scope of these experiences are spread over the past 30 years of FEMA, state, and DOD reports. Methodology is discussed in the next chapter, and the authors describe how they created the recommended TTX for AFICC in Appendix E to prepare for future HADR CONUS events.

III. METHODOLOGY

The methodology the authors chose in order to design a CONUS HADR exercise is based on the *Joint Training Manual for the Armed Forces of the United States* (CJCSM 3500.03), published on April 20, 2015 (JCS, 2015), as well as FEMA's *Homeland Security Exercise and Evaluation Program* (HSEEP), published January 2020 (FEMA, 2020c). The authors first provide the reasons for creating a hurricane-based event instead of other options such as earthquakes, pandemics, or tornadoes. Next, the authors summarize CJCSM 3500.03 and its applications. The authors then cover additional guidance of DHS's HSEEP. The authors also cover three different audiences that the exercise will train. Last, the authors will provide the format for the exercise.

A. WHY CHOOSE A HURRICANE?

Utilizing FEMA's database of disasters since 1953, the authors chose to do a hurricane-based event. As discussed in Chapter II, Section B, 64% of disasters over the past 67 years have been severe storms, hurricanes, and floods (DHS, 2020a). Additionally, the FEMA, DOD, and NPS databases have a plethora of lessons learned, AARs, and GAO reports that cover disaster management and the potential for future DOD involvement in hurricane recovery efforts.

The authors use Hurricane Michael, the worst hurricane to impact the USAF, as the case study regarding requirements based on an actual event (Allen, 2019). This event caused more than $3 billion of damage, and the Federal Procurement Data System–Next Generation (FPDS–NG) provided an excellent database of contracts awarded in response to the disaster.

B. HOW THE DOD APPROACHES EXERCISE CREATION IN CJCSM 3500.03

The purpose of this section is to describe the CJCSM 3500.03 (JCS, 2015) instructions for designing and running an exercise. This section, along with Section III.C of the HSEEP (FEMA, 2020c), provides the framework for the authors' suggested exercise design, further explained in Section D: The DOD–FEMA Hybrid Exercise Framework.

The purpose of marrying the two designs is to base the TTX's framework on the chain of command in disaster response. FEMA is the lead organization with USNORTHCOM, potentially setting up a joint task force (JTF) made up of multiple branches, including the USAF, as one of the subordinate agencies. By incorporating the different agencies' approaches into one, the variation in training design can be updated based on other agencies' updates to ensure that the USAF personnel is ready to step into the joint environment at USNORTHCOM and potentially work with FEMA directly.

The CJCSM 3500.03 (JCS, 2015) provides a training system that incorporates the identification of requirements, the plan to meet those requirements, and—upon execution of that plan—an assessment to validate the organization's capability to accomplish the plan's response to the requirements. This process, as shown in Figure 8, is a never-ending cycle.

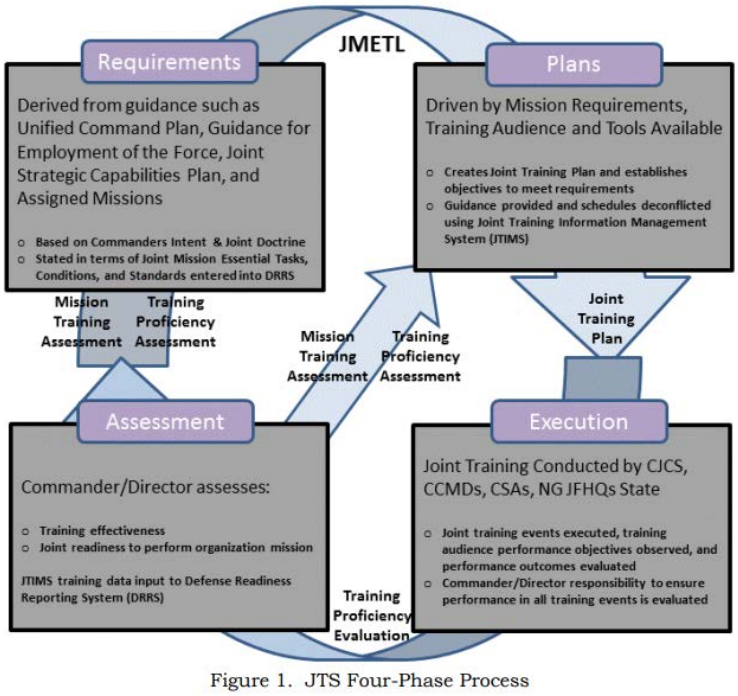

Figure 8. Joint Training System Four-Phase Process.
Source: JCS (2015).

CJCSM 3500.03 (JCS, 2015) provides desired inputs, processes, and outputs for the requirements phase. This process is very similar to the purpose of the discussion points

in the HSEEP planning meetings. For this exercise, the Theater Campaign Plan is synonymous with a Disaster Response Plan. To identify the requirements phase inputs, the authors utilized the following doctrines, documents, reports, and systems.

- JCS Universal Task Development Tool (UTDT) system (utdt.js.mil)
- JP 4-10 (JCS, 2019b)
- JP 5-0 (JCS, 2017)
- FEMA's ESFs (DHS, 2020b–2020p)
- AARs (see Chapter IV, Section C), including congressional reports and GAO reports
- YTTM (Yoder, 2004)
- Enlisted (6C) CFETP (Conger, 2016)
- Officer (64P) CFETP (Applegate, 2017)
- Civilian (1102) CFETP (Bennett, 2019)
- Defense Contingency Contracting Handbook (DOD, 2017)

The authors reviewed, analyzed, and consolidated the potential FEMA and DOD missions, the lessons learned from the AARs, and the CFETP objectives to create a list of objectives and missions that a USAF CONS might support. These mission objectives and the subordinate requirements feed into the next CJCSM phase: plans.

CJCSM 3500.03 (JCS, 2015) also provides desired inputs, processes, and outputs for the plans phase. To identify the information, the authors used the requirements phase outputs and the requirements phase inputs to inform the training plan. CJCSM 3500.03 (JCS, 2015) provides an in-depth review of a seven-step system to create a training plan.

1. Update commander's training guidance
2. Analyze joint and agency mission essential tasks

3. Review training audience assessments and refine training audience based on training proficiency assessment review

4. Develop training objectives (TOs) and determine training methods

5. Design and schedule training events

6. Determine high-interest training requirements

7. Publish joint training plan (JTP) in Joint Training Information Management System (JTIMS)

Figure 9 provides a flowchart that outlines a JTP for training and exercise development.

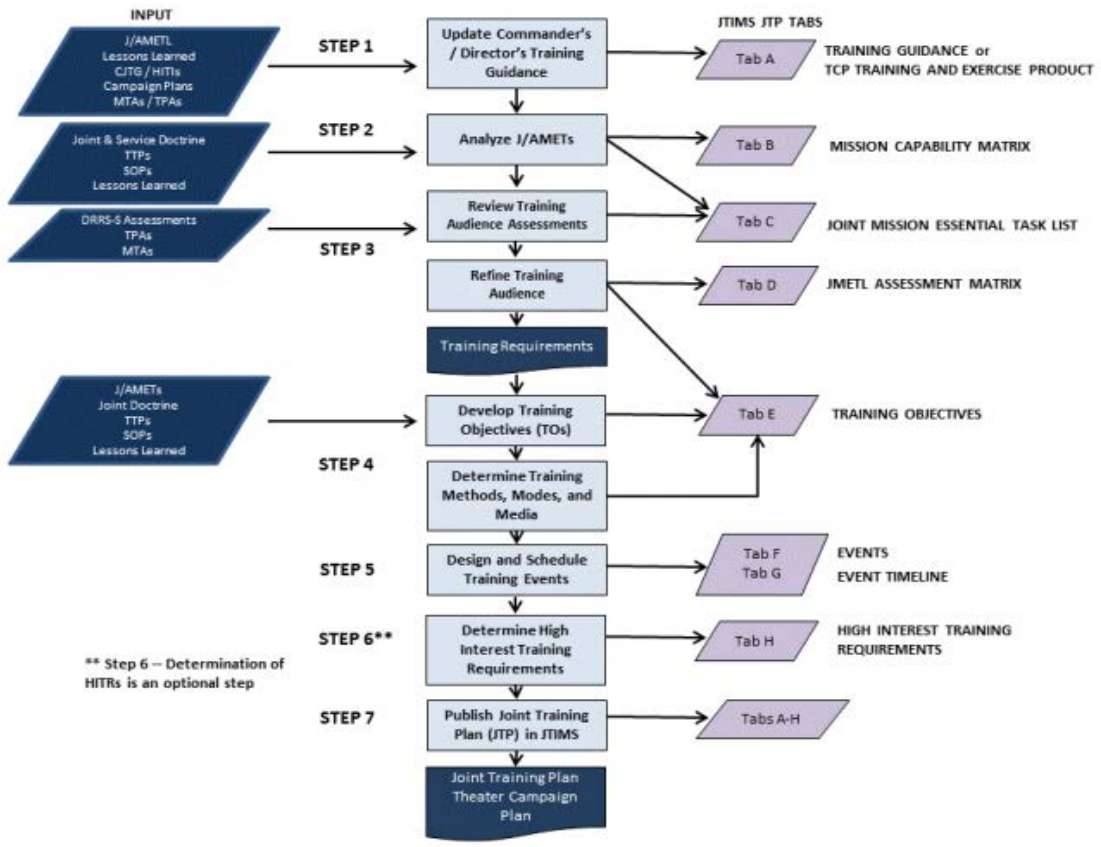

Figure 9. Training Plan Process. Source: JCS (2015).

This MBA projects seek to influence the development and maintenance of an annual CONUS HADR TTX and provide an initial list of appropriate TOs and requirements to meet those TOs.

C. DEPARTMENT OF HOMELAND SECURITY EXERCISE AND EVALUATION PROGRAM

DHS's version of the CJCSM 3500.03 (JCS, 2015) is the 2020 HSEEP (FEMA, 2020c). The purpose of incorporating DHS's doctrine into the DOD's is that FEMA, an agency within DHS, runs lead in a federally declared disaster. This section provides insight into how DHS's doctrine can be incorporated into the DOD's.

Similar to the CJCSM 3500.03 (JCS, 2015) requirements phase, the first step to the DHS exercise design is to identify, develop, and align the participants' desired capabilities in response to a specific overall objective. After defining those objectives, the activities, planning team, design, and exercise development can occur. DHS provides templates for five meeting agendas for accomplishing the milestones needed to complete the exercise's objectives. The HSEEP's five meetings can supplement the CJCSM 3500.03's seven-step model. The meetings provide specific discussions and outcomes that should be taking place during the CJCSM's model that mimic the requirements and planning phase inputs, processes, and outputs format. In tandem, these two frameworks provide an invaluable roadmap into designing an exercise.

The first topic is the exercise's scope. The authors were directed to create a CONUS HADR TTX, which bounds the rules and laws that apply, as identified in Chapter II, Section C; however, this is not sufficient as HADR events can include anything from flooding, earthquakes, and biological phenomena. The authors utilized the FEMA disaster history database and determined a water-based event (flooding, hurricane, tropical storm) is the most likely event for members to face (see Chapter III, Section A). To meet the intent that the TTX be utilized by every CONS in the USAF without requiring additional players, the authors limit the event to the base. This limitation does not eliminate the need to simulate networking with other organizations and can be expanded or tailored for sites with the connections and skills already developed.

The second topic involves identifying objectives and capabilities. The authors utilized the CFETPs, FEMA's ESFs, and the AARs to determine the objectives that will drive the requirements process, as directed by the CJCSM 3500.03. The HSEEP provides four focuses for consideration: threats and hazards, areas for improvement and capabilities, external sources and requirements, and accreditation standards and regulations (FEMA, 2020c). The HSEEP provides a flowchart, which is provided in Figure 10. This flowchart mirrors JCSM's planning inputs.

Figure 10. Priorities, Objectives, and Capabilities. Source: FEMA (2020b).

The third topic involves location and duration. There has been a push for telework during the COVID-19 pandemic, which provides an opportunity to split the squadron's teams and simulate delayed and faulty communications during the HADR event. With teleworking's flexibility in place of in-person meetings in conference rooms and offices, the authors have tailored the objectives and requirements to maximize the desired participation and limit the most experienced members from taking over. To maximize the flexibility of the TTX, the authors have developed three modules (pre-planning, disaster notification up to disaster occurrence, and post-disaster). The pre-planning portion focuses solely on all actions during pre-disaster notification (i.e., mitigation, preparation, and prevention). The post-disaster provides a simulated pre-disaster plan if the squadron decides to skip the exercise's pre-disaster portion. If the squadron has the training time available, they can do both sections together or piecemeal the objectives and requirements over an indefinite amount of time. The authors provide a suggested detailed time line for the whole exercise, which is broken down by phase, objective, and requirement—allowing for maximum flexibility for the training manager.

The fourth topic involves the potential participants and their requisite participation. The authors identified a multitude of outside parties that bring unique knowledge, skills, and abilities to enhance the exercise. The authors used the AARs to provide insight into what requirements may come down from the outside players. Additionally, the authors offer and identify the need for recording each iteration of this exercise in an AAR-type format. The training manager or member of equal knowledge, skills, and abilities must meet this role's requirements.

The fifth topic is defining the exercise planning team makeup. The team consists of Dr. Deborah Gibbons, Cory Yoder, Captain Chase Lehocky, and Captain Geoffrey Bender. Additional members are necessary for the process, and those additional members are the training managers at each squadron. Although the training managers are not planning the initial framework, they will need to have the requisite tools to plan for this TTX at each of their respective squadrons.

The sixth topic involves defining assumptions. Refer to Section I, Section D for the authors' assumptions. The first assumption is that participants understand what CCO functions are and that the participants are familiar with the USAF and DOD contracting processes, rules, and regulations, including the information located in the FAR and the DFARS. The second assumption is that the training members have completed at least one training exercise mandated by the MICT. The final assumption is that the readers understand that contracting rules and regulations are changing every year, requiring the reader to know that the exercise developed is a framework adapted to fit their mission.

The seventh topic involves defining how to control and evaluate the TTX. Fortunately, each squadron's commander has an inspection program with trained individuals in inspections and feedback. The authors provide a training rubric based on the CFETPs and universal joint task list (UJTL) with inputs and outputs for the inspectors to utilize as an exercise evaluation guide.

The eighth topic involves available resources. The authors broke available resources down into people, places, and supplies. AFICC has a SharePoint site for the

TTX's material storage, and the site's availability will depend on each squadron's environment.

The ninth topic involves engaging with senior leaders for guidance and intent. GEN Cameron Holt, deputy secretary of the Air Force for contracting, provided four lines of effort in regards to his vision for the USAF contracting career field which included building mission-focused business leaders, focusing on tools and not rules, improving processes, and improving the joint force capabilities in expeditionary contracting (AFICC, 2020). The fourth level of effort directs the contracting career field to develop contingency capabilities, with each level having a leader and team. He has also created a team to address the planning, coordinating, and marketing of the exercises.

Last, the HSEEP guidance provides a list of documentation that the authors include in Appendix E, Section D: TTX Suggested Document List, which is based on the DHS's guidance (FEMA, 2020b). This list of documents helps users of the TTX understand how to implement the training and provide feedback after the training occurs.

By answering all of the DHS topics and addressing all of the documentation suggestions in Appendix E, Section D: TTX Suggested Document List, the suggested exercise design should meet the DHS's framework. By synthesizing the DOD's framework into the DHS framework, the authors have ensured that the created TTX is aligned with the DOD's requirements, which should be aligned with FEMA's, as they are the lead in CONUS HADR events. This framework, along with the CJCSM discussed in the previous section, informs the DOD–FEMA Hybrid Framework to meet both organizations' intent.

D. THE DOD–FEMA HYBRID EXERCISE FRAMEWORK

The authors have translated the CJCSM's seven steps and the HSEEP into a hybrid version to represent the organizational hierarchy in a federally declared disaster environment. The authors have also removed non-applicable topics, such as foreign organizations or warfare (in the case of the CJCSM 3500.03), and have removed operations-based requirements in HSEEP, as the TTX design is a discussion-based exercise.

Step 1 is to create a formalized commander's training guidance from AFICC's direction. This guidance includes developing a TTX for a CONUS HADR event that a training manager can run without additional training.

Step 2 requires analyzing potential objectives associated with a CONUS HADR event. The inputs include the USAF contracting CFETPs and the YTTM model, relevant AARs (including CRS reports and GAO reports), FEMA's ESFs, DOD's joint task lists (JTLs), the discussion points from the HSEEP, and the initial training guidance. The authors perform qualitative analysis on the inputs to identify lesson objectives from the CFETPs, ESFs, and JTLs and lessons learned to accomplish this task. This includes identifying potential issues from the AARs to inform the possible objectives of this training. Once the analysis is performed, the desired outputs include a list of potential TOs for the Mission Essential Task List (HSEEP's Master Scenario Events List). The list consists of a Required Documents List (see Appendix E, Section D) that names each required document and provides a template, an initial exercise concept, an initial time line to cover the exercise duration, and a list of potential stakeholders with their roles and responsibilities.

Step 3 is to further develop and define the TOs for the TTX. The inputs include the outputs from the previous step along with another review of the AARs for objectives that might not be explicitly identified in the CFETP, ESF, or JTL. The authors qualitatively analyzed the AARs with the list of applicable CFETPs, ESFs, and JTLs to prioritize the initial list of objectives and categorize them into the exercise's active phase (pre-disaster, during a disaster, or post-disaster). In addition to prioritizing and categorizing the list, each objective was reviewed to ensure that they were specific, measurable, achievable, relevant, and time-bound (FEMA, 2020b). The Required Documents List and templates were refined to ensure the participants have the tools and information needed to run the exercise, including the scope and scale of the TTX, the time line and duration of the exercise, and the Stakeholder Analysis Document. The desired outputs include the first draft of the Exercise Schedule, the final Stakeholder Analysis Document, and the final scope and scale of the TTX, included in the Commanders Guidance Document.

Step 4 is to suggest a design of the TTX based on the TOs and suggested exercise schedule. The inputs include the outputs from the previous three steps. From these inputs, the authors ensure each objective can be achieved by training each requirement within the TTX scope. The process involves reviewing each objective in the Mission Essential Task List (METL) and the Mission Scenario Event List (MSEL), the objective's potential requirement(s), and the requirement's place in the schedule. Once accomplished, the METL is reviewed again to ensure that all the tools and resources needed to achieve each requirement are provided, identified, and easily accessible. The outputs from this step are the final METL and MSEL, the final TTX schedule, and the Required Documents List with finalized templates for all of the requirements.

Step 5 is to create two levels of formalized assessments based on the phases of a disaster and ensure that each objective's requirement(s) can validate the assigned learning objective. There are two outputs from this step. The first output involves identifying each requirement's question(s), locating an answer to each question that validates the lesson objective of the requirement, and providing a feedback mechanism to allow for corrections and updates to those answers and lessons. This mechanism includes a form to be filled out by the evaluator and their notetaker. Throughout the exercise, the notetaker identifies lessons that were learned and those that were not. The second output is the development of an AAR, which is accomplished at the end of the exercise. All participants develop the AAR, which will be consolidated by the training manager. The purpose of this AAR is to provide the AFICC training team appropriate feedback to update the training—including missing information, outdated lessons, and so on—and to institute a continuous improvement mentality for this training.

Step 6 is to publish the TTX package to the AFICC SharePoint. This step also involves publicizing the location to the contracting career field, ensuring that participants understand how to use the material, and communicating where the TTX fits into the overall training strategy.

E. LESSON OBJECTIVES DESIGNED FOR SKILL SETS

In this section, the authors identify how to categorize the intended training audience. The 3-, 5-, 7-, and 9-level career field identifiers in the USAF are not a perfect fit for this exercise, as the roles and responsibilities are tied to position and rank, not only the level. YTTM describes three levels of knowledge and skills, as shown in Figure 11. The enlisted contracting CFETP identifies four levels of knowledge, skills, and abilities which fit into the YTTM (i.e., 3, 5, 7, and 9). The 3- and 5-levels fall under Tier 1, the 7-level falls under Tier 2 and potentially Tier 3, and the 9-level falls under Tier 3. The YTTM's tiers are a better fit to align the TOs than the CFETP four levels; however, the CFETP's four levels must be incorporated to ensure a common framework. YTTM's better fit is due to the flexibility of the YTTM's tier system. A 20-year technical sergeant cannot attain the designation of 9-level regardless of the knowledge, skills, and abilities gained through 20 years of experience due to the rank requirement. However, the YTTM's tiers take the individual's knowledge, skills, expertise, and function to assign the sergeant into either Tier 2 or 3, depending on the situation.

Table 5. YTTM for Contingency Contracting Operations. Source: Yoder (2004).

Model Tier Level & Model Title	Functions/Education/Rank	Highlights and Drawbacks
Ordering Officer—Tier One	• basic ordering • some simplified acquisitions • training: DAU CON 234 • DAWIA Certified CON Level I or II • junior to mid-enlisted, junior officers, GS-7 to GS-9 1102 series civilians	• simple buys • little integration • no operational planning • no broad liaison functions
Leveraging Contracting Officer—Tier Two	• leverages to local economy • reduces "pushed" material support • training/education: • DAU CON 234, recommended higher education • DAWIA Certified CON Level II or III • senior enlisted, junior to mid-grade officers, GS-11+ 1102 series civilians	• better local operational planning • some integration • more capability for the operational commander • no planned theater integration • no broad liaison functions • may perform to optimize local operations at the detriment to theater ops
Integrated Planner and Executor (IPE)—Tier Three	• highest level of planning and integration—joint • linked/integrated with J-4 and J-5 • creates and executes OPLAN CCO strategy • provides direction to tier two and one • links operations strategically to theater objectives of COCOM • education: Master's degree or higher and, JPME Phase I and II • DAWIA Certified CON Level III, and other DAWIA disciplines (LOG, ACQ, FIN, etc) • senior officers (0-6+), senior civilians, GS-13+ or SES	• performs operational and theater analysis, integrates results into OPLAN • link between COCOM and OPLAN to all theater contracting operations • coordinates theater objectives with best approach to contracted support • can achieve broader national security goals through effective distribution of national assets • includes planning, communication, coordination, and exercising with NGO and PVO in theater

E. Cory Yoder, Naval Postgraduate School, 2004.

For this exercise, the authors use the language of the CFETP's four levels within the framework of the YTTM. To accomplish this, each requirement and objective was assigned a level within the YTTM framework. Once achieved, the authors converted the tier into its corresponding CFETP level(s) and the appropriate knowledge, skill, and ability level within each of the lesson objectives in the three USAF contracting CFETPs. Appendix A has a consolidated list of the CONUS HADR event applicable objectives from the civilian, enlisted, and officer CFETPs, as well as the minimum knowledge and ability based on the expectations of the YTTM framework.

F. TTX EFFECTIVENESS

Dausey et al. (2007) developed, conducted, and evaluated 31 TTXs, and their research has been cited 74 times since its creation. The lessons learned from their analysis can easily be applied to this TTX. First, they suggested that the exercise should have one specific objective. This proposed exercise framework is designed to focus on the contracting career field's potential role in disaster management before, during, and after a disaster. Secondly, they suggested that the TTX should be designed around critical areas instead of the overall scenario. To meet these suggestions, the authors review the AARs and GAO reports to focus on the lessons learned from each of these reports to identify trouble areas. Some examples include identifying all stakeholders involved during the disaster, understanding the impact of awarding locally in a low-resource environment, and locating and utilizing advance contracts during a disaster. The third lesson that the authors provided is that despite the exercise encouraging discussions and open debate, it is crucial to provide "forced, targeted, and time delineated" (Dausey et al., 2007, p. 7) decisions so that the audience understands the intended outcome. Applying this tactic to each of the requirements identified within this TTX framework will have a learning outcome that will be provided upon completing the task or overall scenario. Fourth, the authors suggested that exercises should be strategic in who is included in the exercise. Every member added increases the risk that the exercise will derail. This TTX provides critical participants outside of the CONS to contact and provide potential handouts if the additional personnel is too cumbersome to the TTX. Dausey et al. (2007) also suggested splitting the broad audience into different subgroups, which this TTX does. At a minimum, this TTX has a

planning team (the MBA project team), the action team (each squadron), the support team (AFICC), and the teacher/evaluator team (training managers at each site). The last suggestion was that expanding the exercise design stakeholders can illuminate the unknown unknowns in a disaster environment (Kurian, 2013). The authors have included optional requirements that involve reaching out to other local organizations to tailor the TTX to the local area. For example, one condition consists of reaching out to the local FEMA representative involved with acquisitions to identify advance contracts and potential supply chain management issues and request input into the design of the TTX to include local tailoring.

G. CONCLUSION

By combining the two frameworks, the authors intend to reduce miscommunication and misunderstanding between the DOD and FEMA when dealing with a CONUS HADR event. This event is a unique instance due to the DOD's and FEMA's dynamic in a federally declared CONUS disaster. A common theme in the AARs and GAO reports is miscommunication in this environment. If the design methodology does not incorporate both agencies' doctrines from the start, the unknown unknowns become worse in training, communication, and evaluation. The FEMA–DOD Hybrid Framework aligns the contracting TTX into the organizational hierarchy (FEMA > USNORTHCOM > USAF) in order to appropriately perform analysis and development as if in a CONUS HADR environment. Additionally, by incorporating all three CFETPs within the YTTM, trainers and trainees will be better able to translate the required ability levels the authors have identified. Finally, by incorporating the research of Dausey et al. (2007), the authors can improve the objectives, requirements, and design process of this TTX.

IV. ANALYSIS

This chapter utilizes the methodology described in Chapter III to inform the contracting career field's contingency contracting team on putting together a CONUS HADR TTX. First, the authors created a synthesized Joint Mission Task List (JMTL) to provide the first part of the TTX objectives section. Second, the authors synthesized relevant HADR skill sets included in the three contracting CFETPs (Civilian [1102], Enlisted [6C], and Officer [64P]) and fit those skill sets into the three-tiered system in YTTM. Third, the authors synthesized 104 AARs for potential requirements within FEMA's 15 ESFs, finances, manpower, and training within the authors' three-phase approach of pre-disaster, disaster, and post-disaster. The conclusions of this analysis inform Appendices A–G.

A. JOINT MISSION TASK LIST SYNTHESIS

Utilizing the DOD's UJTL UTDT system, the authors pulled all potential Air Force tasks that included JP 4-10, *Operational Contract Support*, in its description, resource, or task title, which provided 32 potential tasks. These 32 tasks are explicitly tied to how contracting is planned into the DOD's operations. Appendix B provides the synthesized version of these 32 separate tasks into nine overarching concepts. The table includes a subject (task title), a brief description, measurements associated with the tasks to validate ability, the referenced task list numbers in the system, and the system's references for guidance and instruction. The JMTL measures are designed in answerable questions to provide deliverables to validate the local contracting office's ability to meet the USAF's potential mission sets for the contracting career field.

The authors identified two measurable outcomes for each of the tasks identified, which can be found within the UTDT system. The first measure is a yes-or-no response. If the trainer answers in the affirmative, then the task is complete; if not, then the trainer is advised to work with the participants until the task is complete. The binary response may be used to determine whether or not the unit has an updated form or list (for example, Appendix B, Task 1.2.) or whether the participants have an understanding up to the level

specified in the following section, Section B. If the answer is negative, there are resources to build the requisite skill sets in both Appendix A and Appendix B.

The second measure is less direct and requires the application of the experience of the training manager. Some tasks require a list as a deliverable; however, the synthesized JMTL does not specify what this list's format should be or which individuals must approve or agree to it, nor does it direct what is considered sufficient. The trainer can measure this requirement's output through the synthesized CFETP's expected levels of understanding based on an individual's role within the YTTM (see Appendix A). This provides flexibility to meet each CONS's local demands, as they differ slightly in regards to their required real-life missions and their allocated manpower. For example, suppose the USAF base is remote and the mission is small. In that case, local operation plans (OPLANs) may not need to be as complicated as the plans for bases that house multiple agencies and headquarters.

The utilization of the synthesized task list still meets the comprehensive plan's goals; however, Appendix B is explicitly geared towards a CONUS HADR event from a USAF perspective. In this section—along with Chapter IV, Sections A-C—the authors provide the Air Force with a good objective list to choose from when devising a TTX. Using the JP 4-10–tied tasks, the USAF should be ready if the JTF directs assistance on behalf of the DOD (JCS, 2019b). Per FEMA's ESF Annexes, FEMA will request assistance after their capacity is met, meaning the DOD and/or USNORTHCOM. The USAF must be ready by proxy before they are asked, as the disaster will have already commenced (FEMA, 2020c).

B. USAF CONTRACTING CFETP SYNTHESIS FOR A CONUS HADR EVENT

There are currently three CFETPs in the contracting career field: Enlisted (Conger, 2016), Officers (Applegate, 2017), and Civilians (Bennett, 2019). As was discussed in Chapter III, the authors synthesized these three CFETPs within the YTTM, located in Appendix A. This section describes how to use the appendix, using the first knowledge requirement as an example.

Each requirement has a reference to each CFETP and a level of knowledge identified within the YTTM. This allows the training manager to update each contracting individual's training plan to validate that they have the suggested knowledge set required to meet a CONUS HADR event's potential missions.

It is important to note that each CFETP is uniquely labeled and organized; however, the CFETPs have identical designations for requirements (see Table 6). Although the CFETPs identify core tasks, the authors created a synthesized Task List for a CONUS HADR TTX event. In future research, it may be beneficial to identify core tasks within a HADR TTX event and reviewing the selected tasks the authors identified. Because the TTX is discussion-based and not performance-based, the scope of the synthesized HADR knowledge set is limited to the task and subject knowledge level scales identified in each CFETP provided in Table 6—in other words, the letters, not the numbers. Both the enlisted (6C) and officer (64P) CFETPs have number identifiers for each task and subject knowledge requirement, while the civilian (1102) CFETP does not. Fortunately, the task list is available in Excel; therefore, the authors used each subject knowledge and task row number within the most current software version (2019). The enlisted CFETP contained an easy-to-use header system based on the FAR, which the authors emulated. The authors then added additional requirements found within the other two CFETPs and additional topics that were not included within any of the CFETPs that fit under each of the enlisted headers. An example of a unique 1102 and 64P knowledge requirement is "identify fraud indicators," which is Task 10.3 for the officer CFETP and Row 81 for the civilian CFETP. The authors placed this requirement under Header 3: Improper Business Practices and Personal Conflict of Interest to add this requirement. For the enlisted reference, we kept it as the header, as it falls within the purview of the header but not any specific function. An example of a topic introduced within the synthesized list that was not explicitly listed within any of the CFETPs is the Stafford Act (2019), which the authors placed under the subheading of Contract Law, which is under Header 1: Federal Acquisition Regulations System.

Table 6. Task and Subject Knowledge Level Definitions. Adapted from Applegate (2017), Bennett (2019), and Conger (2016).

TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task (NOMENCLATURE)
	b	Can determine step-by-step procedures for doing the task (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject (FACTS)
	B	Can identify the relationship of basic facts and state general principles about the subject (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject (EVALUATION)

The remainder of this section describes how to use Appendix A. The first column contains each requirement listed within a topic header. The first knowledge requirement is titled Fiscal Law, which falls within Header 1: Federal Acquisition Regulations System. Additionally, the authors place references for the topics. This requirement falls under the guidance of FAR Part 1 (2020), AFI 65–601 (Roth, 2018), and DOD Financial Management Regulation (FMR) 7000.14-R (Under Secretary of Defense [Comptroller], 2019). The next three columns provide the reference within each CFETP to which the requirements are tied. Fiscal Law ties into Task 1.1 in the 6C CFETP (Conger, 2016), Task 47 in the 64P CFETP (Applegate, 2017), and the Excel Row 385 in the 1102 CFETP (Bennett, 2019). The last three columns provide the suggested task knowledge level or subject knowledge level per the YTTM.

This synthesized task and subject knowledge list are critical to the success of the HADR TTX. Without an expectation of task or subject knowledge, neither the lead trainer nor the planner for the CONS will assess the ability of the squadron's personnel to meet a

mission set. For example, if none of the planners (YTTM's third tier) demonstrate the ability to analyze how a supply chain works and its impact within a disaster environment, FEMA, USNORTHCOM, the local state government, and other stakeholders may compete against each other. This impact can cause increased prices, delayed deliveries, and other adverse outcomes as suppliers await the highest bid or confuse all of the government's different demands. As disasters increase in frequency, it will be easier to predict the requirements based on the records within the federal contract database FPDS–NG while addressing trends within the AARs from CRS and GAO, which should help decrease the chaos inherent in a disaster.

C. AAR REVIEW

AARs and spend analyses are an excellent resource for organizations to decrease the unknowns of a disaster's effect. As mentioned earlier, the frequency of disasters has increased over the past several decades, leading to more information regarding positive and negative outcomes. It is important to note that despite the government's great analytics, the government and the public will always be at the mercy of natural disasters over which we have no control. As an example, in August 2020, it was predicted that two hurricanes were going to hit the Gulf Coast: Hurricane Marco and Hurricane Laura (The Weather Channel, 2020a). When they got closer to the mainland, Hurricane Marco disappeared, while Hurricane Laura accelerated to a Category 4 the night before landfall (The Weather Channel, 2020b). Even though a storm can change at the last minute, the processes that disaster responders follow and the plans that they create do not need to change. There is plenty of information from the 104 AARs that the authors analyzed to improve responders' preparation for a disaster. There are 15 different ESFs provided by FEMA and three created by the authors (manpower, finance, and training) that will be discussed and categorized within the authors' three-phased approach of pre-disaster, disaster, and post-disaster. It is important to note that not all ESFs will apply for each category, and the DOD may be in a primary or support function. Appendix C includes a sample fill-in table to help bridge the local bases' AFMAN 10–2502 guidance to the overarching FEMA guidance. USACE, part of the DOD, is the primary on ESF 3: Public Works and Engineering, while the DOD is recognized as a support agency for all of the other ESFs. Within those ESF Annexes,

FEMA outlines roles and responsibilities for the primary and support agencies. Unfortunately, unlike in their 2008 version, each ESF appendix is separated into its own document, so the authors created a method to consolidate the appendices into a DOD-centric consolidated list in Appendix C, which breaks down each FEMA ESF responsibility and assigns them to either the primary agency or the DOD. With the current push for more joint focus within the USAF and the DOD, the USAF needs to keep the potential for future missions in mind (Holt, 2019).

The ESF priorities and responsibilities on a level above that of the local base should focus on contracting personnel, not just the local base's needs. It is important to remember that while the USAF base may be trying to recover, so are other bases within the proximity of the disaster, as well as the surrounding local government and population. Without considering other government agencies, the contracting career field can accidentally create an internal competition, which helps the external competitors (i.e., suppliers) drive up prices by encouraging government agencies to bid against each other. This competition can potentially hurt the region's overall mission and the USAF base, as there are finite resources and money.

1. AAR Review: Pre-Disaster

This section is broken out by each ESF and the additional finance, manpower, and training. This section provides the qualitative analysis identified within the context of actions taken pre-disaster to mitigate, prepare, or prevent impacts from the disaster. The authors excluded ESF 4: Firefighting and ESF 10: Oil and Hazardous Materials in this section because trends were not identified within the 104 AARs researched.

a. Finance

When analyzing the AARs, there were recurring finance issues that could be addressed pre-disaster. The first issue that occurred three times was that when individuals deployed to a location, they did not know the lines of accounting or the correct codes to obligate the funds (Johnson, 2017; Mak, 2019; Widmann, 2017). The second issue that occurred two times was a misunderstanding of how much money was available, which led to running out of funds and mismanaged funds (Johnson, 2017; Jones, 2010). The third

issue, which occurred two times, involved funds expenditure and the change in priorities from now (recovery) to the future (mitigation and prevention; Currie, 2019c, 2019d). Last, financial procedures were complicated due to multiple systems from different agencies deployed and inadequate procedures, which was reported five times (Cuffari, 2020; Davis, 2019b; Galindo & Kennedy, 2019; Jenkins, 2012; Nieves, 2017). Understandably, one will not know the financial amount needed before a disaster; however, understanding these trends and how to mitigate them will improve the contracting officers' ability to operate and ensure the success of the operation.

b. Manpower

Manpower issues ranged from not understanding the roles of the personnel deployed to being understaffed. When deploying personnel to a location, it is vital to make sure the deployed personnel are competent and knowledgeable about the mission, which was identified as an issue six times (Currie, 2018b; FEMA, 2012, 2013b, 2015; Flagler County Board of County Commissioners [FCBCC], 2017; Urban, 2017; Widmann, 2017). If inexperienced personnel deploy, issues can arise that will affect the civilian populace and hinder results. Furthermore, this issue that occurred once might seem small, but having the employees wear a uniform will help distinguish their roles in the operations (Jones, 2010). Overall, the biggest issue identified in the AARs was not having the correct number of personnel for the mission (Creighton et al., 2014; Currie, 2018b; Mak, 2019); this issue occurred three different times. Last, Hurricane Joaquin presented an interesting problem of tracking personnel internally to the task force (The National Emergency Management Agency [NEMA], 2015). With that stated, it would be interesting to know whether those in charge have an accurate picture of the internal federal personnel (i.e., FEMA, military, etc.) and the contractor manpower (i.e., outsourced manpower). Unfortunately, with downsizing the government, fixing that problem might become more pronounced moving forward.

c. Training

Training is always an issue, and every organization that published an AAR talked about not having the right amount of training. Different organizations wished that they had

more training in payment methods, contract writing, utilizing checklists, understanding what the state and local partners do, developing policies and procedures, and understanding the different terminology each organization uses (Besser, 2006; Creighton et al., 2014; FCBCC, 2017; Galindo & Kennedy, 2019; Information Collection, Analysis, and Dissemination Team [ICAD Team], 2010; Mak, 2019; National Emergency Management Association [NEMA], 2018). Some topics that are essential to improving training are missed, including how to evacuate and care for disabled or elderly citizens and how to de-conflict and manage competing missions and tasks (Denigan-Macauley, 2020).

d. ESF 1: Transportation

Transportation and location awareness (i.e., map knowledge) are critical in understanding the routes to take before a disaster strikes and understanding the planned coordinates of emergency centers. This issue occurred on four different occasions, where responders did not know where transportation buses were located, did not have updated and accurate Global Positioning System (GPS) information, and did not have the correct number of vehicles to transport essential personnel and civilians to safe locations (Christopher et al., 2005; Creighton et al., 2014; Governor's Office of Homeland Security and Emergency Preparedness [GOHSEP], 2012; Jones, 2010). Even though this is pre-disaster, roadways and airports can still be damaged due to flooding before the disaster, and this issue was brought up on three separate occasions (C. Currie, 2015; Creighton et al., 2014; ICAD Team, 2010). A USAF base's second-best asset, next to its personnel, is its airfield, which should be a top priority of USAF wing leadership (Scott & Watson, 2018). The airfield can serve as an excellent hub for personnel to come in and out. Without transportation, lives will be lost due to the needed supplies being stagnated.

e. ESF 2: Communications

Knowing how many organizations are present for the recovery mission to succeed, one can argue that the mission will be lost without communication. Unfortunately, some of the issues that occur pre-disaster happen when there is no disaster in sight. For example, there are issues with bandwidth, Wireless Fidelity (Wi-Fi) capabilities, cell phone capabilities, SharePoint and Air Force Contracting Information Technology (CON-IT)

access, email connectivity, and having different organizations either using personal computers or government-issued computers (Alabama Emergency Management Agency, 2014; City of Marco Island, 2018; Conover, 2008; FCBCC, 2017; FEMA, 2013a, 2015; Galindo & Kennedy, 2019; Johnson, 2017; King & McKay, 2006; NEMA, 2018; Widmann, 2017). These communication issues occurred 21 times. The last one—regarding personal versus government-issued computers—might not seem like a big deal, but with the various computers having unique firmware and connectivity options, they might not be able to communicate with each other. Last, communication with different organizations was spotty during nine separate occasions (Alabama Emergency Management Agency, 2014; City of Marco Island, 2018; Conover, 2008; Creighton et al., 2014; Curda, 2019; FCBCC, 2017; FEMA, 2013a; Johnson, 2017; Kailes, 2008; Nieves, 2017). Since each organization has its own set of procedures, they do not know what to communicate. Liu and Wayne (2019), in the *International Journal of Communication*, highlight an essential trend of using social media such as Facebook, Twitter, and Slack as an alternative and potentially more effective communication form, internally and externally. Overall, not setting up the right communication lines before a disaster will automatically lead to confusion going forward.

f. ESF 3: Public Works and Engineering

The issues with public works and engineering had to do with making sure fuel was on site, as well as the bladders to hold them, and a problem occurred twice (Creighton et al., 2014; King & McKay, 2006). Once the disaster hits, getting fuel is not an easy task. Also, with FEMA's advance contracts, on three different occasions, some routinely needed requirements were not set up (Creighton et al., 2014; King & McKay, 2006; Margesson & Sullivan, 2019). One example is debris removal. Debris removal will always be required in a disaster setting. Also, with FEMA and USACE contracts, knowing which contract should be used would be beneficial; however, the issue of not knowing the contract happened twice (Creighton et al., 2014; Holland, 2019).

g. ESF 5: Information and Planning

Information and planning might be the topic where issues arose most in this phase for AARs, next to ESF 2: Communications. Some failures included deployed personnel with no understanding of who was there and what their jobs were, no understanding of the objectives when arriving, no plans in place if different scenarios were to occur, no guidance on what the other organizations needed, and no understanding of what advance contracts were available for use (Alabama Emergency Management Agency, 2014; Besser, 2006; City of Marco Island, 2018; Creighton et al., 2014; Cuffari, 2020; Davis, 2019a; Galindo & Kennedy, 2019; Gootnick, 2019; Holland, 2019; Johnson, 2017; Judy, 2019; King & McKay, 2006; Lieberman-Cribbin et al., 2017; Mak, 2018a, 2019; Margesson & Sullivan, 2019; Miller et al., 2005; NEMA, 2018; Nieves, 2017; Sager, 2016; Widmann, 2017). These issues came up in natural disasters that ranged from hurricanes to fires from 2005–2017 and occurred a staggering 37 times. Unfortunately, it appears none of these issues were fixed, and the same problems keep happening. It was not just one organization that had these issues; FEMA, USACE, the Office of the Secretary of Defense, the director of the Office of Management and Budget (OMB), the assistant secretary for Community Planning and Development, and the National Guard all highlighted these problems in their AARs. Understandably, one will not have all the information before a disaster strikes; however, many mistakes are recurring and can potentially be fixed through appropriate planning before the disaster takes place. One additional point of concern brought up by Bartel et al. (2011) is the underutilization of FEMA's flood zone updates. This information is invaluable to planners who can forecast the areas susceptible to flooding and identify future trends in FEMA's flood plain analyses.

h. ESF 6: Mass Care, Emergency Assistance, Temporary Housing, and Human Services

Mass care, temporary housing, and human services are going to be grouped into one category. Some pressing issues that occurred at least four times for mass care were changes to the Red Cross management and organizational structure, individuals in the career field not knowing how to use the Mass Care Resource Management Tool, lack of comprehension of what the mortuary affairs mission was, and different definitions of what

mass care means in the various organizations (Alabama Emergency Management Agency, 2014; FEMA, 2015; GOHSEP, 2012; Hayes, 2010; Larin, 2019). For temporary housing and human services, this issue occurred once: Organizations need to make sure housing is accessible with the right number of restrooms and a stockpile of medication (Kailes, 2008). People are already going to be anxious, and getting this correct makes them feel a little better—knowing that someone is helping during a time of need.

i. ESF 7: Logistics

Logistics can be considered the most complicated topic due to the number of organizations it takes to complete the mission. Some logistical nightmares that appeared 21 times in the research include failing to update advance contracts, missing documentation regarding past performance from past vendors, failing to bring the correct CCO kits, not equipping organizations with the proper gear, failing to manage and track logistical equipment, not having suitable working spaces for the different organizations, making sure local vendors can still meet the requirements, and understanding the local area for all out-of-town organizations (City of Marco Island, 2018; Creighton et al., 2014; Currie, 2019d; Homeland Security & Governmental Affairs Committee (HSGAC), 2018; FEMA, 2013a; Gelfeld et al., 2015; Jones, 2010; King & McKay, 2006; Lock, 2019; Mak, 2018b, 2019; NEMA, 2006; Widmann, 2017; Yoakum, 2017). Many issues can fall under logistics, which makes it difficult to understand what is needed—and even harder to classify the categories. One of the unique aspects of a USAF base is the airfield. The airfield not only serves to transport personnel, it also serves as an excellent logistics hub if roads have been washed out (Scott & Watson, 2018). The airfield can serve as an ideal hub for personnel to come in and out. With all these issues, it is understandable that it is impossible to fix everything, but small and steady fixes can help restore the big picture.

j. ESF 8: Public Health and Medical Services

Public health and medical services range from medicine to food to primary care for all citizens in the community. Some issues that occurred at least eight times were getting the right amount of immunizations for the deploying personnel and the community, understanding the framework of the local hospitals for the patients, coordinating food and

safety, deploying mental health professionals, and realigning medical command structures to save time and money (Christopher et al., 2005; City of Marco Island, 2018; Dodaro, 2011; Florida Department of Health, n.d.; Gootnick, 2019; Miller et al., 2005; NEMA, 2006). Different natural disasters can bring new medical necessities to the region, bringing additional hardship if not addressed and taken care of from these AARs.

k. ESF 9: Search and Rescue and ESF 10: Oil and Hazardous Materials

SAR and oil and hazardous materials (hazmat) are topics for which it is hard to grasp what is needed before a disaster strikes. For pre-disaster, these two categories are going to be grouped. For SAR, the one issue identified in the AARs was making sure the correct equipment was given out for the right scenarios (Christopher et al., 2005). The fire equipment will be different from the equipment for earthquakes, hurricanes, tornadoes, and other disasters. For oil and hazmat, the one issue was to know who oversees the program and where the supplies are in the regional areas (Dodaro, 2015). Knowing both topics and what is available is critical for the other phases.

l. ESF 11: Agriculture and Natural Resources

Agriculture and natural resources are needed for survival. Everyone needs food, water, and utilities. In the pre-disaster phase, communities must have the right amount of supplies because if the supply amount is wrong, there is no way of getting supplies in after the disaster, in which case the situation can become more severe (Gootnick, 2019; ICAD Team, 2010). This issue appeared two times in the research. Monitoring supplies and location is a must for mental and physical preparedness.

m. ESF 12: Energy

The biggest issue that occurred three times for energy was making sure there were enough generators for different locations (Berrick, 2009; Creighton et al., 2014; Department of Energy [DOE], 2005). Fuel can also be labeled under energy—including making sure the right contracts are in place to provide the correct fuel amount. Without power, it would be challenging to do many tasks on this list.

n. ESF 13: Public Safety and Security

Public safety and security can be the most critical category because the government is there for minimal life loss. For security, it regrettably occurred once that a disaster led to looting (ICAD Team, 2010). Government and civilian property needs to be secure. Other security issues were not having the correct checkpoint procedures for base camp and having unauthorized personnel in secure locations (Creighton et al., 2014; Galindo & Kennedy, 2019; Jones, 2010; NEMA, 2006).

o. ESF 14: Cross-Sector Business and Infrastructure

Cross-sector business and infrastructure make organizations like FEMA, the Coast Guard, and USACE work together to ensure that responsibilities are delegated correctly (FEMA, 2013a; Mak, 2019). There are examples of different organizations throwing other organizations under the bus or pointing fingers at who needs to do what. This degrading of customers does not look right or help complete the mission and was documented twice in the research. Working together is the only way to achieve the missions.

p. ESF 15: External Affairs

External affairs comprise outside agencies that need to or may get involved to help with the mitigation, prevention, and recovery process. Issues concerning external affairs management occurred six times and included nonexistent NGOs, timely emergency declarations, different national-scale studies, and intelligence units (Conover, 2008; FEMA, 2013c, 2015; GOHSEP, 2012; ICAD Team, 2010; Kailes, 2008; NEMA, 2006). All these agencies need to be involved before the disaster, but unfortunately, they sometimes get left behind. Evacuation plans are occasionally minimal and do not supply the whole population with the right information (ICAD Team, 2010). Overall, there are many organizations involved in the process. They are needed to complete the mission and preferably de-conflict efforts to maximize each organization's utility and minimize negative impacts on other organizations.

q. Conclusion

Again, even though ESF 4: Firefighting did not have product information in the 104 AARs researched, thousands of other AARs and GAO reports might have information related to these ESFs. Section IV.C.1 summarizes what different organizations have experienced with processes that can and should be changed to improve the USAF's capabilities and actions in the future. It is unknown to what extent organizations take this information and use it, as there are multiple repeated deficiencies, but their review is mandated by both the CJCSM 3500.03E (JCS, 2015) and DHS's HSEEP (FEMA, 2020c). Again, it is difficult to judge what will happen before a disaster, but it is better to be overprepared than underprepared.

2. AAR Review: Disaster

This section is broken out by each ESF and includes the additional categories of finance, manpower, and training. This section provides the qualitative analysis identified within the context of actions taken from the day of the disaster notification to the disaster occurring to mitigate, prepare, or prevent impacts from the disaster. The authors excluded ESF 4: Firefighting; ESF 5: Information and Planning; ESF 6: Mass Care, Emergency Assistance, Temporary Housing, and Human Services; ESF 8: Public Health and Medical Services; ESF 10: Oil and Hazardous Materials Response; ESF 13: Public Safety and Security; and ESF 14: Cross-Sector Business and Infrastructure from this section because trends were not identified within the 104 AARs researched aside from the issues already discussed in the pre-disaster section.

a. Finance

Figuring out the finances when a disaster is occurring is complicated. There are pictures of a tornado going through a town with one home being destroyed while the one next to it is only missing a couple of shingles. Accurately estimating costs during the disaster is difficult, but agencies are starting to understand better what to expect through database management (Currie, 2019c; Kailes, 2008). Not having the correct cost estimators occurred two times. The overall trend was estimating the costs accurately, but with finance, estimations are all the customer has until the quotes arrive.

b. Manpower

For manpower, all the issues with pre-disaster are the same during the disaster phase. The only added problem that arose was that FEMA staffing during the disaster was incomplete (Currie, 2020c; FEMA, 2015), and the staff that was deployed did not have the proper training (FEMA, 2013a). These issues occurred three times. Initiating deployments during a disaster is an interesting concept and a process that should be carefully considered due to its propensity to making the situation more complicated.

c. Training

Training had one issue during the disaster phase; challenges arose when conducting on-the-job training during the disaster (Conover, 2008; Creighton et al., 2014; Currie, 2020c). These training issues occurred in three different AARs. Again, as stated in the previous ESF, while accomplishing necessary tasks for a disaster is not the ideal time to train. One will never have all the information, but this is another process that should be done pre-disaster.

d. ESF 1: Transportation

Transportation during a disaster is difficult due to the need to ensure the safety of the deployed personnel. However, some issues that came up were that the mission-essential personnel could not enter the base, the routes to needed locations were shut down, and the advance contracts were not readily available to remove vehicles for logistical purposes (Creighton et al., 2014; ICAD Team, 2010; Jones, 2010). The transportation issues occurred a total of four times. It should be noted that deployed personnel should not move during a disaster, and transportation should be a last resort. Maybe this thought process should become a regulation to ease up logistics and improve safety.

e. ESF 2: Communications

Communication problems only get worse when a disaster strikes. All the issues that arose during the pre-disaster phase amplified during this phase. Some new issues were a complete loss of communications and infrastructure, single points of failure, a lack of contingency plans for non-U.S. territories and the U.S. deployed personnel was unable to

assist, and organizations having unreasonable or nonexistent time lines to get communications back up and running (Christopher et al., 2005; FEMA, 2015; ICAD Team, 2010; Imlay, 2018; NEMA, 2018; Widmann, 2017). A total of nine issues occurred within these examples. Communications will go down during a disaster; that is a fact. However, having reasonable expectations will help maintain normalcy.

f. ESF 3: Public Works and Engineering

During the disaster, public works and engineering issues included having downed power lines and trees, thereby causing power outages, and having no guidelines in place to handle requests and prioritize them (Creighton et al., 2014; USACE, 2010; Yoakum, 2017). Three times these issues occurred during these different disasters. Downed power lines and trees are expected during the disaster phase and cannot be stopped. However, prioritizing requests should be handled before the disaster, and there is plenty of data from past disasters to help rank these requests.

g. ESF 7: Logistics and ESF 12: Energy

Logistics and energy had one new issue brought up, and it is significant: having generators (DOE, 2005; FCBCC, 2017; FEMA, 2015; Florida Department of Health, n.d.; Imlay, 2018; Mak, 2019; NEMA, 2006). A total of seven issues with generators occurred. During some of these disasters, there were not enough generators for traffic lights, shelters, and other facilities. Some of the provided generators came with batteries that were not charged and could not be recharged, which rendered them useless. The storm damaged antennas and communication towers, and other power outages led to technology failures that affected the energy category. These problems were a logistical nightmare. Once the power goes out, especially in hospitals, lives are in danger. Where technology is heading in the future, not having electricity will hinder progress. Having workable generators cannot be forgotten.

h. ESF 9: Search and Rescue

SAR missions start to intensify in this stage. This category's main issue was making sure the geo-location on responders' smartphones worked to be able to find the people who

need rescuing (DHS, 2020d). This issue occurred once in the research. These people are the frontline workers that are putting their lives on the line. Making sure their equipment is functional is a must.

i. ESF 11: Agriculture and Natural Resources

Meal preparation during the disaster was the only issue in the agriculture and natural resources category (FCBCC, 2017; ICAD Team, 2010). The issues with meal preparation occurred twice. Having hot meals during a disaster is highly unlikely. Having meals ready to eat (MREs) and unitized group rations (UGRs) will be needed during the disaster. These are meals that do not require electricity or can be cooked in hot water. Meals are a must, but this is where quality can be diminished for survival.

j. ESF 15: External Affairs

External affairs issues ranged from getting information from outside actors like the volunteer fire departments and rescue squads, ensuring the intelligence units have the correct equipment, and making sure the rescue dogs are safe (Alabama Emergency Management Agency, 2014; Conover, 2008; FEMA, 2015). These vastly different external affairs issues occurred three times. This category's problems might not directly prevent the contracting personnel from completing their work; however, requirements might come in from these organizations. Overall, these issues are alarming and can be overwhelming with the number of people involved. Still, if everyone is organized and prepared for the disaster, the job will be more comfortable.

k. Conclusion

ESF 5: Information and Planning and ESF 6: Mass Care, Emergency Assistance, Temporary Housing, and Human Services categories did not have new issues that arose during the disaster phase, just recurring issues. The problems during the pre-disaster phase continue throughout the three phases. The categories in this section that did not have problems stated in the AARs were ESF 4: Firefighting, ESF 10: Oil and Hazmat Material Response, ESF 13: Public Safety and Security, and ESF 14: Cross-Sector Business and Infrastructure. This does not mean that there are no issues in these categories. There are

hundreds of AARs written after disasters, and there will always be issues; however, in the AARs researched for this project, there were no deficient trends identified.

3. AAR Review: Post-Disaster

This section is broken out by each ESF, as well as the additional finance and manpower categories. This section provides the qualitative analysis identified within the context of actions taken after the disaster has occurred in order to mitigate, prevent, and recover from the disaster's impacts. The authors excluded the training category, ESF 2: Communications, ESF 10: Oil and Hazardous Materials Response, ESF 11: Agriculture and Natural Resources, ESF 13: Public Safety and Security, and ESF 14: Cross-Sector Business and Infrastructure in this section because trends were not identified within the 104 AARs researched or the issues repeated from the pre-disaster and disaster section.

a. Finance

After surveying the damage, there is a better grasp of how much money is needed to rebuild. However, getting those cost estimates is one of the issues that occurred five times during the post-disaster phase (Currie, 2019b, 2019c; Johnson, 2017; Jones, 2010; Kailes, 2008). Federal buildings are not the only infrastructure damaged, and the government cannot force a contractor to bid on the federal government property first. The other issue is making sure funds are available, and this was a problem that occurred six times. One cannot award a contract without funds, and even if funds were available, the funds assigned to the line of accounting ran out very quickly, or funds never arrived (Currie, 2016a, 2020b; Garcia-Diaz, 2019; Johnson, 2017; Jones, 2010; Rusco, 2020). Six times, projects were given the authority to proceed but never received funds and were in limbo for years (Currie, 2016a, 2020b; Johnson, 2017; Jones, 2010; Kailes, 2008; Rusco, 2020). Furthermore, there were three times when tracking the finances was overly challenging because no files or paperwork were linked to the funds (Currie, 2016a; Jones, 2010; NEMA, 2018). If the government must fix a community without funds, there will be no community.

b. Manpower

In 2017, manpower was a significant issue. When the multiple hurricanes and wildfires coincided, three occurrences were found when there was insufficient manpower at all locations (Creighton et al., 2014; Currie, 2019d; FCBCC, 2017). When personnel was already on the scene, it was challenging to get more or transfer them to a different location; that occurred four times (Creighton et al., 2014; Currie, 2019d; FCBCC, 2017; Urban, 2017). On one occasion, organizations needed to make sure that when meetings occurred, only essential personnel were present for the decision-making process (FEMA, 2015). The final issue, documented twice, involved insufficient oversight over requirements validation to consolidate purchase requests and minimize duplicate purchases (Creighton et al., 2014; Currie, 2019c).

c. ESF 1: Transportation

Transportation restoration was the most significant issue discovered throughout the AARs and was explicitly identified in three reports (Creighton et al., 2014; Jones, 2010; NEMA, 2018). Even with functional vehicles, there is no guarantee that the roads, paths, and other transportation routes are useable. Road debris, airfield damage, and seaport damage are significant barriers to success within the transportation ESF. During recovery, which areas, agencies, etcetera need priority, and which agency gets to decide? While the local community may prioritize property damage surveys, the federal government may indicate road and transportation infrastructure as more critical to more effectively manage the area's damage. This issue demonstrates the importance of a single board or position (i.e., JP 4-10's [JCS, 2019b] joint acquisition review board [JARB] or FEMA's primary ESF agency) to make the prioritization list and disseminate it pre-disaster and then communicate with the affected stakeholders throughout recovery. Surprisingly, runway repair was not mentioned within the AARs, and yet it can be an invaluable resource, especially if there is warehouse space available on a USAF base.

d. ESF 3: Public Works and Engineering

Public works and engineering issues were mostly with equipment, worksites, and personnel. Some of the equipment shortages recorded on three separate occasions were

sandbags, CCO deployment kits, satellite communication radios, and cell phones (FEMA, 2013a; Johnson, 2017; USACE, 2010). It was not easy for some of the engineers to complete the mission without this. There were shortages for some of the items, but it is also the individual's responsibility to deploy with the correct equipment. Again, simple resources like tarps and tents were scarce, which was an issue on time in the research (Johnson, 2017). Not having the correct number of worksites to put debris meant that sites would fill up quickly, and there would be no other site in place to put the debris, or the sites were not fully permitted for use (Creighton et al., 2014; Currie, 2019a; FCBCC, 2017); this occurred three times. When switching people out, there was not adequate turnover, or the new individual was not as experienced, which faltered the mission (Currie, 2018b; FEMA, 2013a; Holland, 2019). This final issue occurred on three different occasions.

e. ESF 4: Firefighting

Post-disaster is the only stage where firefighting had issues or was even brought up. The problem was getting new uniforms or having the correct gear at the location (Creighton et al., 2014). For example, rescue teams during an earthquake had to use construction-style helmets instead of firefighting helmets. Firefighters are not just there to put out fires; they have other skill sets in their portfolio. However, who should provide the equipment is an interesting question. Firefighter equipment is bulky and can get damaged. It does make sense to have stockpiles at different locations because this equipment does not expire.

f. ESF 5: Information and Planning

When reviewing information and planning issues, one critical point was deploying personnel to perform their assigned jobs. Preferably, the personnel should be highly proficient due to the demanding environment. The one recurring issue was that the FEMA press officer was not knowledgeable about what was occurring. When asked questions about the progress of medical operations or when other information about the disaster was requested, no concrete answers were given. There was no control of the media; media personnel were walking in restricted sections without permission, and the press officer was not controlling who was getting interviewed (Miller et al., 2005). A recurring problem was

that information about contracts, payments, state and local official reports, hazards, and changes in the mission was not documented (Currie, 2015, 2016b, 2018a, 2019d; Fekete et al., 2019; Galindo & Kennedy, 2019; Gelfeld et al., 2015; Jones, 2010; Mak, 2019; NEMA, 2018; Widmann, 2017). This issue was reported on 11 different occasions. Not documenting this information upfront will make the closeout stage of the mission more complicated. Additionally, memory fades and even more so in such a chaotic atmosphere as a disaster. Verbal agreements, SF44s, and other non-technology based actions may be missed without regular journal type updates. Advance contracts to source supplies and services strategically relies primarily on accurate data within the disaster environment. There needs to be a validation system in place in order to capture not only the contract actions automatically captured in FPDS-NG, but the manual contracts and micro-purchase threshold purchases as well, preferably in one system.

g. ESF 6: Mass Care, Emergency Assistance, Temporary Housing, and Human Services

Having a stockpile of medicine, enough space for mortuary affairs, a shortage of temporary housing, and uncertainty regarding the local agreements between voluntary organizations for what services they provide were the main issues that occurred six times for mass care, emergency assistance, temporary housing, and human services (Creighton et al., 2014; Currie, 2020b; Kailes, 2008; Larin, 2019; Miller et al., 2005). This uncertainty makes it hard to judge for stockpile because, unlike firefighter suits, medicine expires. Having too little can lead to death, while too much can lead to biohazard issues. Mortuary affairs is another difficult task because the numbers will never be the same. Some tornadoes kill hundreds while some kill none. Electricity is needed to keep bodies, which is another issue of having enough generators. The same can be said about housing because it is uncertain what infrastructures will be intact after a disaster. FEMA's 2017 review noted that shelters for Hurricane Harvey were in use for more than 60 days, leading to underplanned shelter maintenance and manpower contracts (Long, 2018). For the local agreements, this is an issue the provincial government should figure out. Unfortunately, the problems cannot be fixed with this category due to the uncertainties of what will occur.

h. ESF 7: Logistics

Logistics was the category with the most extensive list of issues in this phase. Surprisingly, the long list of topics was relatively repetitive, and incidents occurred a total of 15 times. If the same problems have been happening since 2005, one could ask, what is the point of the AARs if no one is paying attention to them? The recurring issues were difficulties replenishing and tracking supplies, advance contracts that were not prepared because the information was scarce, and contracts that were not filed correctly or lost (Creighton et al., 2014; Currie, 2019d; HSGAC, 2018; FCBCC, 2017; FEMA, 2013a, 2013c; Johnson, 2017; King & McKay, 2006; Mak, 2019; NEMA, 2006). Replenishing supplies can be difficult due to transportation delays, and the same can be said for tracking the supplies. Advance contracts are logistically run by FEMA, with very few organizations understanding how the contracts were awarded or how to use them. Unfortunately, FEMA does not have a good record of giving their logistical information to others for use, even though they have been faulted multiple times for it in congressional hearings. If FEMA were to provide guides to use the advance contracts as hyperlinks on their current advance contract website (FEMA, 2020a), the federal government may drastically decrease the number of contract actions while streamlining other organizations' processes utilizing those contracts per the Economy Act's (2020) instructions in FAR 17.502-2. In the *2017 Hurricane Season FEMA After Action Report* (Imlay, 2018), one of the highlighted issues was the lack of supply chain management knowledge and a lack of planning for the transportation and management of contracted support. Last, contract file management is a core competency of contracting personnel. Without the documentation, the contracts appear to have never existed. Missing documentation leads to the logistical nightmare of contract closeout, termination, and addressing claims against the government. The post-disaster phase will be hectic. If organizations do not want to make the situation more chaotic, they must address and correct these recurring issues plaguing the federal government for over 15 years.

i. ESF 8: Public Health and Medical

The authors identified the following issues within this topic: having the correct life support items, tracking medical supply purchases, misunderstanding agencies' public health and medical capabilities, and knowing what resources are available in the local area (Denigan-Macauley, 2020; Florida Department of Health, n.d.; NEMA, 2006). Some of the life support items that were in short supply were ice, water, and food. Even knowing about this short supply, the federal government had difficulty establishing the correct supply channel. Even worse, the federal government, in several instances, actively reduced several supply channels. It is advisable for contracting personnel to have this information, even though it is the customer's responsibility to track their supplies. The base necessities, such as food, water, and shelter, need to have the shortest supply chains in terms of time. Knowing the local area's supply can de-conflict agencies' priorities and ensure the appropriate rationing of critical supplies. Advance contracts can help prioritize these vital supplies by delegating ordering authority to specific agencies for each contract.

j. ESF 9: Search and Rescue

SAR is utilized the most in this phase. The main issue was that while the military, fire crew, and volunteers were on site, they were sometimes deployed late to handle or help the situation—also, the standard operating procedures needed to be established beforehand (Creighton et al., 2014; Miller et al., 2005). The issue only occurred twice, which is a good thing because this category is critical due to the primary mission of going into dangerous situations to save lives.

k. ESF 12: Energy

Issues with energy deals occurred twice: Energy providers failed to assess the damage and see what could be done for the future to save energy and prevent injury (Berrick, 2009; FEMA, 2005). Two hurricanes caused roughly $3.9 billion in electrical services damage, and some of the repairs were only temporary (Rusco, 2020). The authors noted that within CONUS, the power grid was normally repaired within weeks; however, that is still weeks where generators will be in extremely high demand throughout the impacted areas. As the U.S. continues to update its electrical grid, it will be interesting to

see the effects climate change will have on the reliability and recoverability of the infrastructure (Campbell, 2018).

l. ESF 15: External Affairs

During this phase, many of the external affairs had to do with the 2017 hurricanes that affected Puerto Rico and the U.S. Virgin Islands. Issues arose due to the different jurisdictions, distance from the United States, outdated local infrastructure, amount of personnel deployed due to capacity constraints, and local preparedness being poor (Currie, 2018b; Kailes, 2008; Mak, 2019; NEMA, 2018). A total of 10 issues were recorded in this category. These issues should not be a surprise because of the unusual laws and regulations between the United States and Puerto Rico. Another problem happened with the Coast Guard. There is no formal process for the Coast Guard to get involved in the disaster process. With many of the disasters taking place in the water, it would make sense to get the Coast Guard involved. Although these locations were OCONUS, as the CONUS infrastructure ages, the deployments to disaster-hit areas may become more complicated. These lessons can be applied even in a different environment.

m. Conclusion

There were no new issues with the training category, ESF 2: Communications, ESF 10: Oil and Hazmat, ESF 13: Public Safety and Security, and ESF 14: Cross-Sector Business and Infrastructure. All issues in these categories are recurring issues that were brought up in the pre-disaster and disaster categories. The category in this section that did not have problems stated in the AARs was ESF 11: Agriculture and Natural Resources. Although not addressed again within the post-disaster section, the TTX will need to continue the trends throughout its three modules (pre-disaster, during the disaster, and post-disaster). The information below outlines recurring issues in the post-disaster phase.

Organizations can train to improve after disaster recovery is completed, but training should not be happening in the post-disaster phase (Galindo & Kennedy, 2019). The AARs will reflect the mistakes throughout the whole process, and that is where new training material should come from to supplement the current training objectives.

With communications, expect there to be bandwidth issues and communication blackouts for days (Christopher et al., 2005; Creighton et al., 2014; FEMA, 2015; Galindo & Kennedy, 2019; Jones, 2010; NEMA, 2006; Obayuwana & Lockett, 2010; Widmann, 2017). This issue should not be a surprise but still occurred eight times in this phase. When dealing with email communication or just talking to one another, communication has always been a problem in the military and in the federal government.

For oil and hazmat, the objective is to make sure resources like oil and fuel are readily available and to ensure that hazardous material is taken care of, which poses a problem in one of the AARs (Dodaro, 2015). Out of all the categories, the oil and hazmat had the least information. A possible explanation is that contracting and the other organizations writing the AARs do not directly deal in this category.

There were two reported agriculture and natural resources issues with making sure meals were prepared and water was available (FCBCC, 2017; ICAD Team, 2010). Additionally, there was concern that if a tornado hits the Midwest, it will be harder for the farmers to get their agricultural stockpile back to where it was before.

For public safety and security, the looting that occurred happened twice in the reports because people are opportunists (ICAD Team, 2010; NEMA, 2006). This issue is perhaps the biggest issue for security and keeping the public safe. For cross-sector business and infrastructure, it is anyone's guess what will be readily available or when damaged infrastructure can be reused again (Currie, 2018b; FEMA, 2013a). Public safety and security is another category that is hard to judge, and knowing what is needed can only be discovered once the disaster passes.

4. Conclusion

Even though not all information is needed in the USAF to complete missions, knowing what other organizations must accomplish will allow the USAF to understand the bigger picture. When reading the categories and the issues, one might think that these issues and categories are not crucial to contracting personnel. This notion is incorrect. All these categories can impact what contracting requirements may come before a contracting officer. While it is true that some of these issues might not affect contracting when they

first happen, there is a trickle-down effect that can get contracting involved. There are many issues; however, there will always be issues. Changes can be made and should be made, especially concerning issues that have persisted across the federal government for over a decade.

D. HURRICANE MICHAEL PURCHASE REVIEW AND POTENTIAL ESF REQUIREMENTS

In this section, the authors analyze and pull actual historical contract actions captured in the FPDS–NG database for Hurricane Michael (GSA, 2020b). The authors then identify potential requirements based on FEMA's ESFs, DOD responsibilities, and the requirements that utilized advance contracts already in existence versus stand-alone contracts. This purchase history will be broken into the ESFs that have been identified above. For this project, we focused on the Hurricane Michael DOD expenditures only. However, in future research, it would be useful to have an integrated FEMA, DHS, and DOD requirements breakdown that includes trend analysis of hurricane purchases if the DOD continues to take a larger part in disaster recovery (see Table 7).

Table 7. Disaster Recovery Participation Between DHS and DOD in the Past 15 Years (Minimum 100 Contract Actions). Adapted from GSA (2020).

Hurricanes with a minimum of 100 contract actions by DOD since Katrina	Year	Total action	Total dollars	DOD % of total disaster spend per FPDS–NG	DHS % of total disaster spend per FPDS–NG
Michael	2018	233	$559 million	29%	60%
Florence	2018	210	$139 million	27%	55%
Harvey	2017	463	$198 million	12.5%	83%
Sandy	2012	912	$1.39 billion	47%	25%
Rita	2005	1,411	$797 million	28%	19%
Katrina	2005	9,439	$7.9 billion	23%	45%

The FPDS–NG database provides multiple data points regarding the purchasing tactics of the DOD. The first data point the authors look at is how the DOD acquired supplies and services by reviewing the method of procurement (i.e., stand-alone contracts versus task orders and blanket purchase agreement calls), the method of competition (i.e., 8[a] sole source or full and open competition), and how scope increase or decrease modifications were created (i.e., change order or supplemental). The second data point the authors look at is the vendor pool and whether the vendors are associated with an advance contract or not.

Within this dataset, 233 of the 802 contract actions were attributed to a DOD contracting agency:

- Defense Commissary Agency (DECA; nine contract actions)
- Defense Information System Agency (DISA; one contract action)
- DLA (15 contract actions)
- USAF (38 contract actions)
- USA (136 contract actions)
- U.S. Navy (USN; 33 contract actions)

The USAF had four offices identified within the 38 contracts: 28 CONS specialized flight (PKS) out of Ellsworth AFB, SD; 325 CONS plans and programs flight (PKP) out of Tyndall AFB, FL; Air Combat Command's Acquisition Management and Integration Center out of Langley AFB, VA; and the 772 Enterprise Sourcing Squadron out of Wright-Patterson, AFB, OH. Although the TTX may be run by only one base, it is essential to remember that even within just the USAF, the squadrons are unlikely to be the only acquisition personnel involved.

Of the 233 DOD contract actions, there were 88 awards and 145 modifications. Of the 88 awards, 30 were stand-alone contracts (no referenced indefinite delivery vehicle procurement instrument identifier [IDV PIID]) and 58 were task orders and blanket

purchase agreement (BPA) calls. The next two subsections provide details on the stand-alone contracts and the task orders.

a. Hurricane Michael Stand-Alone Contracts

All 15 of DLA's contract actions were stand-alone contracts for fuel between two contractors: Indigo Energy Partners (DUNS: 827489183) and Tayrona Investments, LLC (DUNS: 832317973). DECA had one stand-alone contract for roll-off dumpsters from Dumpster Services, LLC (DUNS: 081501098). The USA used 8(a) sole sourcing for two stand-alone contracts, which are both available as task orders: modular dorms with Modular Concepts, Inc. (DUNS: 016538643)—for just less than $4 million—and a $199,999.99 initial assessment of Tyndall's hospital with SES Electrical, LLC. The USN had four stand-alone contracts, all using FAR 6.302-2 (2020) sole source procedures to procure building repair from Rubb, Inc. (DUNS: 101190106) and DMR Consulting, Inc. (DUNS: 069417405); internet service from COPASAT, LLC (DUNS: 079382646); and photography equipment from Adorama, Inc. (DUNS: 087403499). The USAF awarded eight contracts, which are detailed in Table 8, four of which were completed under simplified acquisition procedures (SAP) and one under a set-aside for a service-disabled veteran–owned small business (SDVOSB).

Table 8. USAF Methods of Purchase for Non-Indefinite Delivery/Indefinite Quantity (IDIQ) Contracts. Adapted from GSA (2020).

Description	PSC/FSC	Method of Purchase	Vendor Name	DUNS	Advance Contract Available?
Temporary perimeter fence	Y1JZ	8(a) sole source through FAR 6.302-5(A)(s)(1)	Jemison & Partners, Inc.	101297211	Yes
Debris removal	S205	Competed under SAP	T.F.R. Enterprises, Inc.	081346561	Yes
Maintenance of nonbuilding facilities	Z1PZ	8(a) sole source through FAR 6.302-5(A)(s)(1)	Alutiiq Logistics & Maintenance Services, LLC	080017058	Yes
Roofing Supplies	5650	Competed under SAP	Pettibone Concrete Construction, Inc.	949585699	Yes
Mobile barrier	6230	Competed under SAP	Delta Scientific Corporation	094440104	Yes
Metals technician bearing kit	3110	Competed under SAP	MG Machine, Inc.	615132615	No
Crushed concrete for temporary road	5610	Competed under SAP	Green Dream International, LLC	831374546	No
Demolition services	P400	Full and open after exclusion of sources SDVOSB	2H&V Construction Services, LLC	793186557	Yes

There were 24 modifications to the 30 stand-alone contracts. DLA had one no-cost modification. The USA had one modification to extend the period of performance. The USN had one supplemental modification to a shipbuilding contract in Alabama for damages due to the hurricane and one exercise option for additional repairs to a facility. The USAF had 17 modifications. There were two terminations for convenience, four funding only modifications, and two administrative actions. There were six supplemental agreements and three change orders, which involved a mix of changing contracts awarded

before the hurricane to account for the hurricane's impact and changing newly awarded contracts for what appears to be unforeseen site conditions (i.e., the damage was worse than expected or more time was needed).

Of the 73 new awards, 41% were stand-alone contracts, which takes more time than awarding task orders and increases the number of entities working within the disaster environment, adding to the confusion. Even when the DLA is taken out of the data pool, 25% of the contracts awarded by DOD agencies were stand-alone contracts. Reducing this data point is essential for construction materials and services, including debris removal, which is in high demand during a disaster and requires careful allocation by the government. There are finite construction supplies in the local area. The prioritization should not be left to the local base but a higher level—USNORTHCOM and FEMA—emphasizing the use of advance contracts for these services (Mak, 2018a).

b. Hurricane Michael Task Orders and BPA Calls

Of the 58 task orders, there were 32 different IDIQs used with 32 other vendors. The award amounts ranged from DECA's $1,550 task order for kitchen supplies to USAF's $293,000,000 task order for facilities operation support.

DECA awarded three task orders for A&E services and one for kitchen supplies. The USA awarded 35 task orders. There were three building assessments, one building repair, one demolition, two planning debris removal, 13 debris removal, and four roofing repairs. The USAF awarded two financial support service task orders, one repair perimeter fence, three runway repair task orders, one facility maintenance, and three communications task orders for internet access and radios. The USN awarded nine task orders: one for ship recovery, five for building recovery, one for furniture replacement, one for debris removal, and one for refuse and dumpster services. Other than DECA's kitchen supply, which was below the micro-purchase threshold ($5,000), none of these awards were surprising. In the next section, the authors compare the stand-alone contract awards with the task orders to identify potential preplanned task orders to reduce stand-alone contracts further, or—at the very least—improve the USAF's ability to be proactive versus reactive.

There were a total of 120 modifications attributed to task orders during this disaster. There was two additional work bilateral agreements, 19 change orders, one definitized change order, six funding only, 58 administrative only, and 34 supplemental agreements for work within scope. During a disaster, agility is an essential trait of the contracting officer, best exemplified by the number of modifications versus awards. It is important to note that the preponderance of modifications was attributed to the increased scope and revised quantities, which is unsurprising during a disaster that inherently contains unforeseen site conditions. The authors suggest further research into the effectiveness of different contract actions during a disaster, as it is outside this project's scope.

c. Did Indefinite Delivery/Indefinite Quantity Contracts Exist for the Stand-Alone Contracts?

The purpose of Table 9 is to inform the reader whether an IDIQ contract exists for each of the DOD's awarded stand-alone contracts. Except for three, there were enterprise-wide contracts available. It would be surprising if there were no concrete BPA in existence at the local base, as there would typically be a repeating commodity requirement for the concrete for repairs to the roads and runways on the base. This information should help guide the TTX's objective to identify the existing IDIQs and BPAs at the enterprise scale and develop new IDIQs and BPAs at the local level to fill any requirement gaps.

Table 9. Which Stand-Alone Contracts Had Potential Advanced Contracts Available? Adapted from GSA (2020).

DOD stand-alone contract	Description	Agency	IDIQ used for similar PSC or description	FEMA IDIQ vendor (FEMA, 2020a)
HDEC0519P0004	Dumpster Rental	DECA	Yes	Yes
SPE60519P8628	Fuel	DLA	No	Yes, with DLA
SPE60519P8629	Fuel	DLA	No	Yes, with DLA
SPE60519P8635	Fuel	DLA	No	Yes, with DLA
SPE60519P8636	Fuel	DLA	No	Yes, with DLA
SPE60519P8637	Fuel	DLA	No	Yes, with DLA
SPE60519P8641	Fuel	DLA	No	Yes, with DLA
SPE60519P8650	Fuel	DLA	No	Yes, with DLA
SPE60519P8652	Fuel	DLA	No	Yes, with DLA
SPE60519P8658	Fuel	DLA	No	Yes, with DLA
SPE60519P8659	Fuel	DLA	No	Yes, with DLA
SPE60519P8667	Fuel	DLA	No	Yes, with DLA
SPE60519P8668	Fuel	DLA	No	Yes, with DLA
SPE60519P8679	Fuel	DLA	No	Yes, with DLA
SPE60519P8693	Fuel	DLA	No	Yes, with DLA
SPE60519P8709	Fuel	DLA	No	Yes, with DLA
FA481919CA001	Fencing	USAF	Yes	Yes
FA481919CA003	Construction, Demolition, Debris Disposal	USAF	Yes	Yes
FA481919CA004	Facility Services	USAF	Yes	Yes
FA481919PA002	Roofing	USAF	Yes	Yes
FA481919PA005	Mobile barrier	USAF	No	Yes
FA481919PA008	Metals Tech Bearing Kit	USAF	No	No
FA481919PA012	Crushed Concrete	USAF	No	No
FA481919PA026	Demolition Services	USAF	Yes	Yes
W9127819C0007	Modular Dorms	USA	Yes	Yes
W9127S19C6014	Damage Assessment	USA	Yes	Yes
N6133119P0003	Building Repair	USN	Yes	Yes
N6133119P0005	Building Repair	USN	Yes	Yes
N6133119P0010	Internet Services	USN	Yes	Yes
N6133119P0014	Vacupress for Printing	USN	No	No

d. Purchase Analysis Within the ESF Context

The purpose of Table 10 is to demonstrate that the DOD already acts within many of FEMA's ESFs, even if not directly for FEMA. This information will help immensely when filling in for FEMA's potential capacity gaps; however, being prepared before the tasking is just as important, demonstrated by the numerous stand-alone contracts that could have been addressed through advance contracts.

Table 10. Enterprise-Level Contract Support Used by DOD During Hurricane Michael. Adapted from GSA (2020).

ESF	**Actual Enterprise-Level Contract Support Used in a Hurricane**
1 – Transportation	No
2 – Communications	Yes – internet, cell service
3 – Public Works and Engineering	Yes – A&E services, debris removal, and so on
4 – Firefighting	No
5 – Information and Planning	Yes – debris removal planning, building repair planning
6 – Mass Care, Emergency Assistance, Temporary Housing, and Human Services	Yes – modular dorms, hospital repair
7 – Logistics	Yes – planning, runway repairs
8 – Public Health and Medical Services	Yes – hospital repair
9 – Search and Rescue	No
10 – Oil and Hazardous Materials Response	Yes – debris removal
11 – Agriculture and Natural Resources	No
12 – Energy	Yes – fuel
13 – Public Safety and Security	Yes – fencing repair
14 – Cross-Sector Business and Infrastructure	Yes – all
15 – External Affairs	Yes – external road repair

e. Additional Hurricane Michael Notes

Additional contract action charts and the Hurricane Michael warnings and watches time line can be found in Appendix D: Hurricane Michael FPDS-NG Award and

Modification Time Line. These charts demonstrate the importance of pre-disaster planning and recovery plans. Table 14, in Appendix D, illustrates the brevity of the time period between hurricane notice and hurricane ending, which would be the three-phase approach's disaster phase. For this Category 5 hurricane, Florida had a warning 3 days before landfall and potentially 5 days prior if planners considered warnings for Mexico or other nearby locations. Additionally, the preponderance of contract actions took place after landfall. One potential issue with this data is whether or not verbal agreements were in place in lieu of formalized contracts between the first warning, October 6, and landfall, October 10 (Berg et al., 2019, and National Oceanic and Atmospheric Administration, 2019).

E. CONCLUSION

This analysis first identified potential objectives that the USAF should utilize when creating a CONUS HADR TTX. Within the objectives, the authors first synthesized the three separate USAF contracting CFETPs into one HADR-centric list of objectives in Appendix A. Next, the authors sifted through the JMTL in the DOD's UTDT system to create a HADR list of USAF objectives from the DOD perspective, found in Appendix B. Last, the authors reviewed 104 AARs for lessons learned and best practices. These objectives should be utilized to ensure that the USAF's CCOs and personnel are better prepared to deal with the ever-increasing disasters within CONUS.

The second part of the analysis focused on potential DOD requirements that the CONUS HADR TTX should use to achieve the identified objectives through the consolidated FPDS–NG Hurricane Michael disaster purchase database. Each objective should be matched to a requirement, or if no requirement currently exists, a requirement should be created to simulate the potential occasion. A lesson requirement centered around the award of an 8(a) sole-source contract within the disaster recovery/post-disaster phase (mirroring Hurricane Michael) can meet multiple possible lesson objectives. This includes but is not limited to understanding 8(a) procedures, understanding potential supply chain issues (i.e., addressing the importance of identifying who the 8[a]'s matched prime contractor is and if that prime contractor is already a prime contractor that FEMA is planning to utilize), and understanding solicitation procedures. One requirement that the

authors did not directly find but believe is immensely useful is identifying the USAF base's capability to provide warehousing and logistics support to FEMA, and whether the USAF base can support the local government with those same capabilities.

Finally, suppose the USAF can incorporate external players within their TTX including a USNORTHCOM point of contact, the local FEMA planning point of contact, and other bases' purchasing offices within proximity. In that case, the government can gain a competitive advantage by de-conflicting their internal competitions. The ESFs and the JMTLs can help inform potential and actual roles and responsibilities. Further application of this analysis is covered in Chapter V.

THIS PAGE INTENTIONALLY LEFT BLANK

V. CONCLUSION

This chapter provides the authors' conclusions derived from the analysis performed in Chapter IV. The first section of the chapter addresses the five questions posed in Chapter I Section C. After answering the five questions, the authors provide five recommendations to AFICC in regards to TTX exercises and training in the future. The authors then provide additional areas for research that may bolster this MBA project's analysis and outputs. Finally, the authors summarize the chapter.

A. CONCLUSIONS TO RESEARCH QUESTIONS

This MBA project focused on designing a TTX for the USAF regarding a HADR event. The authors drew several conclusions from their analysis, which is discussed within the following paragraphs and captured in the authors' suggested TTX design in Appendix E. This answer to the primary question is broken into a three-stage approach to the HADR event: pre-disaster conclusions, during disaster conclusions, and post-disaster conclusions. After addressing the conclusions for the primary question, the secondary questions are addressed.

1. How should the USAF design the next CONUS HADR TTX?

Due to the differences between JP 4-10 and FEMA's framework, the authors synthesized the two frameworks into a three-phased approach: pre-disaster, disaster, and post-disaster. During the pre-disaster phase, also known as Phase 0 in military jargon, several crucial steps must be taken to minimize the inherent confusion within a disaster and maximize local contractors' capacity while de-conflicting with other government stakeholders. During this phase, incorporating stakeholder analysis, reviewing the roles and responsibilities of those stakeholders, advancing contract identification, conducting financial planning, and analyzing the capability gap must be incorporated within the TTX to maximize its effectiveness. A TTX that helps minimize the confusion of the stakeholders' mission sets should improve effective communication by identifying the proper stakeholders. The TTX should also address reducing the confusion of finances, improving the awareness of acquisition options (i.e., local area set aside versus advance

contracts), and identifying the potential additional mission gaps of higher-ranking organizations (i.e., USNORTHCOM and FEMA). By addressing these topics, the local CONS will significantly improve their ability to recover from a HADR event while ensuring that they do not hinder the external stakeholders' mission sets.

From the first day of notification to the disaster ending (i.e., recovery begins), the plans put in place during the pre-disaster phase will "turn-on" and begin the reaction phase. There are mitigation strategies that can be turned on, such as sandbag purchase and placement. Additionally, discussions with the contractors with advanced contracts (e.g., for airfield repair and road repair) can ensure that they are notified to be ready on standby. These actions can supplement or augment the local CES if they have limited capacity or are incapacitated. These discussions should include external stakeholders to prioritize the contractor's actions in the disaster environment. Hopefully structured and planned during the pre-disaster phase, communication needs to be focused on what damage occurs and keeping all appropriate stakeholders in the loop. Communication contingencies include having a local LMR setup for the base and a plan to stay in communication with state and local officials to improve situational awareness.

When the disaster ends, the recovery stage begins, and any planning weakness will become readily apparent. Creating an exercise that demonstrates the lessons learned in the AARs and other disaster analyses can help reinforce the importance of careful planning in the pre-disaster phase. Performing market research at this phase will be excessively difficult due to the inherent chaos discussed throughout the paper, as will formulating a communications plan when stakeholders are already focused on recovering. This project's AAR review highlighted the importance of planning and the relative ease of planning with the copious amount of analyses published from the GAO, educational institutions, and FPDS–NG's disaster database.

Overall, the suggested TTX design reinforces successful habits highlighted in the AARs and addresses the deficiency trends identified. After using Appendix E and reviewing Chapter IV, the reader should be better informed on designing an exercise that will improve planning, preparation, and actions during a HADR event.

2. Can the DOD's CJCSM 3500.03 and the DHS's HSEEP be synthesized to align the federal government's approach to CONUS disaster training? If so, how?

In Chapter III, the authors combined the HSEEP and CJCSM 3500.03E into one framework to align their research with the federal government's method of creating exercises. As FEMA is the federal agency in charge during a disaster, and the DOD's framework falls in line with the FEMA framework—specifically the NIMS and the AFI 10–2501 (AFCEC, 2020)—the authors decided to subordinate the DOD to FEMA for this TTX recommendation. The language used between the two documents is inconsistent at best. The authors advise correcting or, at the very least, providing the equivalent positions and vocabulary necessary to improve communications between the two agencies. A common theme in the AARs was a failure to communicate correctly. This starts with aligning the design, training, and vocabulary of personnel for disaster management.

3. What do the AARs and GAO reports identify as common discrepancies, and can requirements and task objectives be incorporated to reduce the trends?

The AARs and GAO reports are a treasure trove of lessons learned. These reports can aid in trend identification, from inherent communication issues (power outages) to communication issues (identifying stakeholders) to financial planning problems (confused lines of accounting awareness and disaster threshold awareness). These lessons and trends are reasonably easy to incorporate into a TTX as it is discussion-based and, at the most basic level, only requires a simple prompt to incorporate. These trends should be included from the pre-disaster stage mitigation strategies through the recovery stage. The authors found that most of the issues that arose are mitigatable through thorough and deliberate training (see Chapter IV Section C).

4. How can the USAF use its current toolbox (training plans and task lists) to identify the necessary skill set in a CONUS HADR event, thereby enabling its members to better train and educate themselves in preparation for future events?

Appendix A contains a sample synthesized USAF contracting CFETP, and Appendix B has a sample USAF UJTL based on current USAF tools. By synthesizing the enlisted, civilian, and officer CFETPs and listing the required mission sets per the DOD, the USAF can provide the participants with specific expectations that are quantifiable, attainable, realistic, and time-based (Dausey et al., 2007).

5. Which stakeholders should be taken into consideration during a CONUS HADR event?

Chapter II's literature review identified a multitude of potential stakeholders. At the very least, the local base's stakeholders, such as the CES's emergency management flight, the wing commander, and the CS, must be consulted. External stakeholders should include the regional FEMA coordinator, local and state representatives, and the appropriate USNORTHCOM SCO. The following is a list of potential stakeholders (not exhaustive):

- Local Base (see Figure 4)
    - Wing Commander
        - Wing Staff Agency
        - Comptroller Squadron
        - Public Affairs
    - Mission Support Group
        - Communications Squadron
        - Civil Engineering Squadron
            - Emergency Management Flight
            - Firefighting Flight
        - Force Support Squadron
    - Medical Group

    - Medical Support Squadron
- Higher-level Organizations
    - United States Northern Command Senior Contract Official
    - Federal Emergency Management Agency Regional Coordinator
- External
    - Civil Air Patrol
    - National Voluntary Organizations Active in Disaster
    - Voluntary Organizations Active in Disaster
    - State Emergency Operations Center
    - Local Emergency Operations Center

6. What exercise objectives should be prioritized?

The two most important trends identified were the use of advance contracts and the multitude of communication errors that can occur before, during, and after a disaster. Advance contracts can identify and maximize the country's impressive supply chains, while improved communication has a plethora of secondary effects, such as improving planning through agency mission awareness, de-conflicting stakeholders' priorities, and reducing repeated efforts consolidation of purchases.

B. RECOMMENDATIONS

This section provides five recommendations that are based on Chapter IV's findings. These recommendations are aligned explicitly to recently published strategic documents from the OMB, the USAF, and the DOD.

1. Focus on communication and aligning training practices with the lead agency.

The HADR event within CONUS is unique within the DOD due to the lead agency being a different federal agency: FEMA. In *the Responsible Contract Manager*, by Cohen and Eimicke (2008), there is a specific emphasis on recognizing the use of networks to supplement the procurement method. The authors of this MBA report identified that the majority of active federal agencies within a CONUS HADR were not utilizing their networks effectively and that this cropped up continually in ESF #2: Communications. By aligning the training practices with the lead agency, the participants will begin aligning their mindset and actions to the agency in charge. Although JP 4-10 is extremely useful for military operations overseas, it may need to be tailored in order to maximize its utility within a CONUS HADR event.

2. Incorporate the links to the different locations of advance contracts (i.e., GSA Advantage, Acquisition Gateway, AFICC SharePoint, etc.) and provide intuitive instructions to navigate and utilize those advance contracts.

There has been a push from the OMB circulars M-13-02 (Zients, 2013) and M-19-13 (Weichert, 2019) and the USAF Deputy Assistant Secretary for Contracting's 2019 strategic guidance, *Air Force Contracting Flight Plan,* Line of Effort 3, encouraging the use of advance contracts (Holt, 2019). In disasters, time is limited, and strategically utilizing the local supply chain is critical to success. Through advance contracts, the sourcing can be planned earlier on in the process, and contractors can be prepared to react in a disaster when they know which federal agencies will go to them first. This leads to Recommendation 3.

3. Continue to build category management practices through additional spend analysis into the planned USAF disaster response.

One of the critical tools within a successful category management strategy is strategic sourcing (Pandit & Marmanis, 2008). The FPDS–NG disaster databases are useful tools but may be incomplete. The USAF should invest in developing a central repository that supplements the FPDS–NG database, including all the individual unpublicized contract actions—such as government purchase card (GPC) purchases and SF44 PIIN logs.

This can also help validate the accuracy of the federal data. Between these two databases, the USAF can develop a better negotiating strategy with contractors capable of disaster response. This repository will help users to develop more accurate pricing, recognize appropriate advance contract coverage, and identify common purchasing strategies.

4. Update the three USAF contracting CFETPs to either mimic the YTTM model or the deployment kits to provide personnel specific expectations.

Within the SAF/AQC's Line of Effort 1 is Objective 2's guidance to "reimagine training and culture from initial skills through executive level" (Holt, 2019). The synthesized CONUS HADR CFET, which the authors have provided in Appendix A, incorporates the existing education training plans and enhances them per this guidance by infusing YTTM into the expectations. This layout provides the participants with a list of TOs to meet based on experience and rank expectations implicit within the USAF deployment job codes. Using this guide, a training manager could advise a lieutenant on studying to be a more effective planner at the 6- to 7-year mark of their career. This can potentially be developed into a DOD or federal procurement standard.

5. Continue improving the AFICC SharePoint's disaster section.

Throughout the year of researching this project, the SharePoint site has improved for user navigation. Moving forward, AFICC should consider including two additional sources of information on the AFICC Expeditionary Operations Cell's SharePoint. The first source of information is a comprehensive list of potential external stakeholders such as USNORTHCOM and FEMA. As disasters continue to increase in frequency (see Chapter II), the military's budget will be further strained. An effective way of improving the effective use of a budget is to realize economies of scale through networking larger contracts with mission partners. Additionally, contracting has historically been relied upon to support the government's overall objectives in lieu of increasing the government's manpower. By improving our networking throughout federal agencies, we can leverage the federal government's full power instead of "just a base."

The second source of information we recommend incorporating is an easy-to-access AAR repository and a template for the minimum information for those AARs. We

found that the strengths and weaknesses were readily apparent in the USAF AARs we read; however, a PIIN log of purchases with contract type, dollar amount, brief description, and so on would be precious in identifying trends within the agency. We could also compare those PIIN logs to the FPDS–NG database to validate those databases' accuracy for disaster strategic sourcing purposes.

C. AREAS FOR FUTURE RESEARCH

The authors believe the following future research topics will be useful in improving the suggested TTX design. The areas include improving and analyzing the initial CFETP synthesis provided in Appendix A, improving disaster spend analysis, and interviewing leadership that are involved with CONUS HADR planning and/or individuals who have provided AARs for CONUS HADR disaster.

1. Refinement of the Suggested CFETP Synthesis

Currently, USAF contracting leadership has identified gaps in the training standards of the career field. Additional research areas that could greatly benefit the realms of disaster management within contracting would be the addition of executive level (i.e., YTTM's third tier) task and subject level knowledge.

2. Disaster Database Research (FPDS–NG)

GSA currently maintains a treasure trove of disaster data within the FPDS–NG database. Trend analysis identifying methods of award and competition, procurement acquisition lead time (PALT), and Departement of Defense Activity Address Code (DoDAAC) management could potentially provide invaluable insight into how the DOD has managed spend in disasters, and additional strength, weakness, opportunity, and threat (SWOT) analysis could give excellent insight into successful and unsuccessful DOD methods.

3. Interviews of Leadership in USNORTHCOM and FEMA

King and McKay (2006) interviewed FEMA's acquisition lead, which provided an exciting insight into the successes and failures of Hurricane Katrina. Additional interviews to capture Hurricane Michael lessons from the USAF perspective or FEMA's leadership

perspectives moving forward in federally declared disasters should provide further insight into not only how but why the federal government has acted in specific ways. NPS should investigate creating a similar interview or reporting schedule to the GAO's annual disaster report. NPS captures executive-level insight into a SWOT-type analysis to improve further the DOD's ability to prepare, mitigate, and potentially prevent disasters.

D. SUMMARY

This project provided a TTX exercise design for a CONUS HADR event for the USAF in Appendix E. More importantly, it incorporated the DOD's methodology with FEMA to create an adaptable framework that reduces confusion between the lead agency (FEMA) and the subordinate agency (DOD) in a CONUS disaster. It also provides a trend analysis from 104 AARs on disasters and lessons learned to inform the exercise. Although this exercise may not be the perfect solution, the authors hope that it improves the USAF's contracting personnel's capability to plan before a disaster to mitigate and reduce the impact of future disasters. Finally, the authors hope that FEMA and the DOD take note of the significant increase in disasters within our country and team together to optimize their ability to meet future threats.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX A. SYNTHESIZED USAF CONTRACTING CFETP FOR A CONUS HADR EVENT

Table 11. Sample Synthesized USAF Contracting CFETP for a CONUS HADR Event. Adapted from Applegate (2017), Bennett (2019), Conger (2016), and Yoder (2004).

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCI	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	1. FEDERAL ACQUISITION REGULATIONS SYSTEM (FAR) TR: FAR PART 1, DOD FMR 7000.14-R, AFI 65- 601, Fiscal Law Overview Ethics Counselor's Deskbook						
1.1	Fiscal Law	1.1	47	535 - 544	B	C	D
1.1.1	Anti-Deficiency Act	1.2	47.1	535	B	C	C
1.1.2	Bona-fide Need Rule	1.2	47.2	536	B	C	C
1.1.3	Describe appropriations in terms of time, purpose, and amount	1.2	47.3, 47.10, 68.2, 68.3	537	C	C	C
1.2	Contract Law	1.2	8.1	211-218	B	C	C
1.2.2	Economy Act	1.2	8.3	213	B	C	C
1.3	Research Federal Acquisition Regulation (FAR) and Supplements	1.3	6.2	191	C	D	D
1.3.1	Identify the general policy for authorizing deviations from the FAR	1.3	6.5	192	c	d	d
1.4	Contracting Officer Authority	1.4	3.1	195	B*	D	D
1.4.1	Describe chain of command, command authority, base authority, and contracting officer authority	1.4	47	196	b	d	d
1.5	Contracting Officer Responsibilities	1.5	9	220-221	B	C	D
1.5.1	Describe how to anticipate and respond to customer expectations	1.5	9.5	224	b	c	d
1.5.2	Identify the areas that require customer education	1.5	9.6	225	B	C	D
1.6	Unauthorized Commitments and Ratifications	1.6	3.2	197	b	c	d
1.9	Contract Action Reviews	1.9	3.3, 6.7-6.9	201-203	b	c	d
1.9.1	Legal Review	1.9.1	3.3	201	b	c	d
1.9.2	Business Clearance	1.9.2	6.7 - 6.9	203	a	c	d
1.9.3	Contract Clearance	1.9.3	6.7 - 6.9	203	a	c	d

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCE	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	2. DEFINITIONS TR: FAR PART 2						
2.1	Thresholds for GPC, SAP, Commercial, etc	2	24.2, 25.1	335, 343	B	C	D
	3. IMPROPER BUSINESS PRACTICES AND PERSONAL CONFLICTS OF INTEREST TR: FAR PART 3						
3.1	Contracting Standards of Conduct	3.1	2.1	179	C	D	D
3.2	Improper Business Practices	3.4	2.3, 10.1, 10.3	180	B	C	D
3.2.1	Recognize actions to avoid fraud, waste, and abuse	3.4	10.1	228	C	D	D
3.2.2	Identify fraud indicators	3.4	10.3	230	c	d	d
	4. ADMINISTRATIVE MATTERS TR: FAR PART 4, AFH 33-337, AFCC, Air Force Contracting						
4.1	Contract Action Report (CAR)	4.2	15.1	249	b	c	d
4.2	Identify the required codes used in an acquisition	4.2	15.2	250	b	c	d
4.3	Contents of Government Contract Files	4.4	13.1	239-240	b	c	d
4.4	Closeout Contract Files	4.5	14.1-14.4	244-247	c	c	d
4.5	Unique Procurement Instrument Identifiers	4.6	61.1	656	b	c	c
4.6	Write Memorandum For Record (MFR)	4.7	13.4	242	b	c	d
	5. PUBLICIZING CONTRACT ACTIONS TR: FAR PART 5						
5.1	Identify the policies and procedures pertaining to the dissemination of information	5.1	16.1	253-257	B	C	D
5.2	Identify the policies and procedures pertaining to the solicitation and receipt of proposals and information	5.3	16.3	254	B	C	D
5.3	Publicize a Contract Action	5.4	16.5	257	b	c	d

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCI	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	6. COMPETITION REQUIREMENTS TR: FAR PART 6, AFCC						
6.1	Full and Open Competition	6.1	17.1	229	B	C	D
6.2	Full and Open Competition After Exclusion of Sources	6.2	17.3	261	B	C	D
6.3	Other Than Full and Open Competition	6.3	17.4	262	B	C	D
	7. ACQUISITION PLANNING TR: FAR PART 7, AFCC						
7.1	Acquisition Plan	7.1	18.1	273-274	B	C	D
7.2	Establish Competition Strategy	7.2	18.2	273-274	B	C	D
7.3	Lease vs. Purchase	7.4	18.10	285	A	C	D
	8. GOVERNMENT SOURCES TR: FAR PART 8, AFCC						
8.1	Priority for Use of Mandatory Sources	8.1	21.4	290-291	B	D	D
8.2	Execute General Services Administration (GSA) Federal Supply Schedule (FSS) Delivery Order/Task Order	8.4, 8.5, 8.6	19.1, 19.2	294	c	d	d
	9. CONTRACTOR RESPONSIBILITY TR: FAR PART 9, AFCC, FAR SUBPART 4.11						
9.1	Contractor Responsibility Policy and Standards	9.1	20.1	297	B	C	D
9.2	Verify Status of Contractor in System for Award	9.2	20.6	303	c	c	d
9.3	Document Federal Awardee Performance & Integrity Information System (FAPIIS)/Contractor Responsibility Above the Simplified Acquisition	9.3	20.3, 20.4	300	c	d	d
	10. MARKET RESEARCH TR: FAR PART 10, AFCC						
10.1	Conduct and Document Market Research	10.1	21.1, 21.2	161	c	c	d

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCE	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	11. DESCRIBING AGENCY NEEDS **TR: FAR PART 11**						
11.1	Evaluate Purchase Requests	11.1	22.2	168	b	c	d
11.1.1	Review Military Interdepartmental Purchase Requests		22.7	170	b	c	d
11.2	Statement of Work (SOW)	11.2	22.4	172	B	C	D
11.3	Performance Work Statement (PWS)	11.3	22.4	173	B	C	D
11.4	Prepare Liquidated Damages Determination and		51.8	177	a	c	d
	12. COMMERCIAL ACQUISITIONS (COMMODITIES & SERVICES) **TR: FAR Part 12, FAR 52-M**						
12.1	Commercial Acquisition Policy and Applicability	12.1	23.1	179	B	C	D
12.2	Commercial Contract Format	12.2	60.1	503	B	B	B
12.3	Select Provisions and Clauses for Commercial	12.4	60.2	191	c	d	D
12.4	Termination for Cause/Default	12.6	49.4	497	b	c	d
12.5	Termination for Convenience	12.7	49.3	496	b	c	d
	13. SIMPLIFIED ACQUISITIONS						
13.1	Simplified Acquisition Procedures (SAP)	13.1	24.1, 24.2	184	B	C	D
13.2	Evaluate Quotations	13.4	24.4	185	c	c	c
13.3	Prepare Price Fair and Reasonableness	13.5	24.4	190	c	c	d
13.4.1	Blanket Purchase Agreement (BPA)	13.6	39.11	328-329	B	C	D
13.4.2	Establish Blanket Purchase Agreement (BPA)	13.6.1	39.12	328	b	c	d
13.4.3	Place Blanket Purchase Agreement (BPA) Call	13.6.2	39.13	329	b	c	d
13.4.4	Administer Blanket Purchase Agreement (BPA)	13.6.3	---	---	b	c	d
13.5	Government Purchase Card (GPC) Utilization	13.7	24.2, 25.1, 25.3, 25.5	384	c	d	D
13.6	Sole Source Justification Under Simplified Acquisition Procedures	13.9	24.3	115, 117	b	c	D

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	15. CONTRACTING BY NEGOTIATIONS						
15.1	Contracting by Negotiations	15.1	31	248	B	C	D
15.2	Source Selection Processes and Techniques	15.3	30	221	A	C	D
15.3	Prepare Request for Proposal (RFP) for C Type	15.4	31.3-31.6	250	b	c	D
15.4	Prepare Request for Proposal (RFP) for D Type	15.5	31.3-31.6	250	b	c	D
15.5	Evaluate Past Performance	15.8.1	30.15	235	b	c	d
15.6	Review Technical Evaluation	15.8.2	30.14	234	b	c	d
15.7	Evaluate Price	15.8.3	30.14	234	b	c	d
15.8	Prepare Price Negotiation Memorandum	15.14.1	33.13	278	a	c	c
15.9	Prepare Source Selection Evaluation Board	15.14.2	30.6	226	a	c	c
15.10.	Prepare Award Decision Document	15.14.3	30.26	246	a	c	c
15.11	Prepare Notice to Unsuccessful Offerors	15.14.4	28.2	211	a	c	c
15.12	Debrief Unsuccessful Offerors	15.15	29	211	a	c	c
	16. CONTRACT TYPES TR: FAR PART 16, AFCC						
16.1	Firm Fixed-Price Contracts	16.1	36.3, 37.2	307	B	C	D
16.2	Indefinite Delivery Contracts	16.2	39.1, 39.2, [illegible]	306, 316	B	C	D
16.3	Prepare Single Award IDIQ	16.3	39.5	321	b	c	d
16.4	Prepare Multiple Award IDIQ	16.4	39.6	316	b	c	d
16.5	Justification for an Exception to Fair Opportunity	16.5	39.7	323	B	C	D
	17. SPECIAL CONTRACTING METHODS TR: FAR PART 17,						
17.1	Contract Options	17.1	39.14, 39.15, [illegible]	332,333	C	C	D
	18. EMERGENCY CONTRACTING ACTIONS TR: FAR PART 18						
18.1	Stafford Act	1.2	8, 47	385	B	C	D
18.2.1	Identify the policies and procedures pertaining to time-and-materials (T&M), labor-hour (LH), and letter contracts (elements, approval, definitization)	18	39.8	324	B	C	D
18.2.2	Understand when Determination and Findings (D&F) are required when using time-and-materials (T&M), labor- hour (LH), and letter contracts TR: DFARS 216.601 and AFFARS 5316.601(d)	18	39.9	324	b	c	d
18.2.3	Identify the policies and procedures for undefinitized contract actions (UCAs) or letter contracts	18	39.10	326	c	d	d
18.3	Identify available acquisition flexibilities	18	39.16	334	c	c	d
18.4	Identify emergency acquisition flexibilities	18	39.17	335	c	c	d

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	22. LABOR LAWS						
22.1	Incorporate Wage Determination	22.1	41.1	350	a	b	c
22.2	Conduct Labor Interviews	22.2	41.1	350	a	b	c
22.3	Validate Payrolls	22.3	41.1	350	a	b	c
	26. SOCIOECONOMIC						
26.1	Identify the policies and procedures pertaining to other socioeconomic programs (FAR 26)	26	45.1	371	B	C	D
	28. BONDS AND INSURANCE TR: FAR PART 28, AFCC						
28.1	Bonds	28.1	51.7	421	B	-	
28.2	Insurance	28.2	51.7	421	B	-	
	32. FINANCIAL MATTERS						
32.1	Process Invoice	32.1	46.5, 70.1	378, 379	b	c	d
32.2	Payment Methods	32.2	46.2, 46.4	375	B	C	D
32.3	Contract Financing	32.3	46.3, 46.6	377	B	C	D
32.4	Funding Documents	32.4	47	374	B	C	D
32.5	Contract Actions in Advance of Funding	32.5	47	385	B	C	D
32.6	Understand when the Limitation of Government's Obligation clause	32	47.6	392	B	C	D
32.6.1	Understand when the Limitation of Cost clause (FAR 52.232-20) is	32	47.7	393	B	C	C
32.6.2	Understand when the Limitation of Funds clause (FAR 52.232-22) is	32	47.8	394	B	C	C
32.6.3	Understand when the Availability of Funds clause (FAR 52.232-18) is	32	47.9	395	B	C	C
32.6.4	Identify the policies and procedures for obtaining financial protection	32	51.2	421	B	C	D
	33. PROTESTS AND CLAIMS TR: FAR PART 33, AFCC						
33.1	Protests	33.1	49.1-49.4	408	B	C	D
33.2	Claims	33.2	48.1-48.9	397-405	B	C	D

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	36. CONSTRUCTION						
36.1	Pre Award Construction Actions	36.1	51.1-51.4	415-418		-	
36.1.1	Special Aspects of Contracts for Construction	36.1.1	51	414	B	-	
36.1.2	Select Provisions and Clauses for Construction	36.1.2	51	414	b	c	
36.1.3	Conduct Site Visit for Pre-award	36.1.3	51.6	420	b	c	d
36.2	Post Award Construction Actions	36.2					
36.2.1	Issue Notice to Proceed (NTP)	36.2.1	51	414	a	-	
36.2.2	Conduct Preconstruction Orientation and Post Award Site Visits	36.2.2	51.6	420	a	c	d
36.2.3	Process Material Submittal Approval	36.2.3	51.5	419	a	-	
36.2.4	Monitor Contractor Progress	36.2.4	51.10	423	a	c	d
36.3	Architect - Engineer Services	36.3	51.11	425	A	B	
36.3.1	Identify basic facts and terms about Simplified Acquisition of Base Engineering Requirements (SABER) TR: AFFARS 5336.91		51.12	426	B	C	D
36.3.2	Identify basic facts and terms about Multiple Award Construction Contracts (MACC)		51.13	427	B	C	D
	37. SERVICE CONTRACTS						
37.1	Service Contracts	37.1	52	431	B	C	D
37.2	Requirement Approval Document (RAD)	37.3	52.3	435	B	C	D
	42. CONTRACT ADMINISTRATION						
42.1	Contract Administration Functions	42.1	53.5	444	B	C	C
42.2	Plan for contract administration regarding delegating administrative functions; designating, training and managing CORs; and formally establishing all contract administration responsibilities	-	53.5	444	B	C	D
	43. CONTRACT MODIFICATIONS						
43.1	Contract Modifications	43.1	55.2-55.4	472, 474, 475	B	C	D
	46. QUALITY ASSURANCE						
46.1	Designate Contracting Officer's Representative (COR)	46.1	53.5	444	B	C	D
46.2	Perform Annual Review of Contracting Officer's Representative Files	46.2	53.5	445-446	b	c	d
46.3	Quality Assurance Surveillance Plan (QASP)	46.3	53.6	447	b	c	d

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	49. TERMINATION TR: FAR PART 49						
49.1	Termination for Convenience	49.3	59.2	496	B	C	D
49.2	Termination for Default	49.4	59.3	497	B	C	D
49.3	Understand the general principles relating to the termination of contracts	49	59.1	495	C	D	D
	STRATEGIC SOURCING TR: AFICC Launch Pad						
50.1	Introduction to Strategic Sourcing	50.1	62.1	508	B	C	D
50.2	Research Strategic Sourcing Solutions	50.2	62.3	511	b	c	d
50.3	Describe what a supply chain is	-	62.2	510	-	B	C
50.4	Identify where to access strategic sourcing contract vehicles and their guides for use	-	-	512	b	c	d
	GENERAL TOPICS						
51.1	Contracting Mission	51.1	5.5	35	B	C	D
51.2	DoD Mission	51.4	4.3	35	B	C	D
51.3	Contracting Organizational Structure	51.3	9.1	70	B	C	D
51.4	Mission Partners	51.4	5.1,4.2, 5.5	-	B	C	D
51.5	Describe chain of command, command authority, base authority, and contracting officer authority	1.4	3.1	47	B	C	D
51.6	Identify the roles and responsibilities of the DoD Staff, Air Force	51.1	4.2	47	B	C	D
51.7	Describe the contracting office's interface and collaboration with the civil engineering office	51.4	51.2	416	B	C	D
51.8	Interact with Mission Partners	51.5	7.1, 7.5	75	b	c	d
51.9	Navigate Contract Writing System	51.6	69.5	543	b	c	d
51.10.	Describe the interfaces between the contract writing system and other systems (i.e., ABSS, EDA, FPDS, and WAWF)	-	69.5	548	b	c	D
51.11	Identify private and public sectors and the differences between the two	-	4.5	37	B	C	D
51.12	Identify buyer and seller motivations	-	32.5	263	B	C	D

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
	52. CONTINGENCY CONTRACTING						
52.1	Operational Contract Support (OCS)	52.1	73.3, 73.6, 73.9	555	A	B	C
52.1.1	Understand what JCASO is and their role in OSC		73.3	558	A	B	C
52.1.2	Understand the roles of the Operational Contract Support Integration		73.6	561	A	B	C
52.1.3	Understand plans and planning (OPORDS, PLANORDS, CONOPS,		73.9	564	A	B	C
52.1.4	Understand what the Joint Acquisition Review Board (JARB) does and their role in OSC		73.15	570	A	B	C
52.1.5	Operational Contract Support Across Operational Phases	52.3	73.2	557	A	B	C
52.2	Contract Support Integration (CSI)	52.4	73.2	557	A	B	C
52.2.1	Contingency Planning	52.4.1	73.9	564	A	B	C
52.2.2	Contracting Readiness	52.4.3	73	557	A	B	C
52.2.3	Conduct Contingency Contracting Mission Brief	52.4.4	73	557	-	c	d
52.2.4	Contingency Requirements Process	52.4.5	73	570	-	B	C
52.2.5	Legal Status of Contractors	52.4.6	73	557	-	B	C
52.3	Contracting Support	52.5	73.2	557			
52.3.1	Types of Contract Support	52.5.1	73	557	-	A	B
52.3.2	Contingency Contracting Authority	52.5.2	73	557	A	C	D
52.3.3	Contingency Contracting Organizational Structures	52.5.3	73	557	-	B	C
52.3.4	Contingency Funding Considerations	52.5.4	73	557	A	B	C
52.3.5	Expedited Contracting Procedures	52.5.7	39.17	335	A	B	C
52.4	Explain other methods of procurement that can be used if SAP is not		24.5	335		C	D
52.5	Manage Field Ordering Officer (FOO) Program	52.5.8	-	-	-	c	d
52.6	Execute Manual Contract Instruments	52.5.9	-	-	-	b	d
52.6.1	Execute Micro-Purchase Using SF44	52.5.10	24.2	-	c	d	d
52.7	Contractor Management	52.6	72.1	557	-	B	C
52.8	Humanitarian Assistance/Disaster Response (HADR)	52.7.3	73.9	557	-	B	C
52.9	Exercise Support	52.7.4	73.18	557	-	B	C

Cont'd on next page

Cont'd from previous page

PROFICIENCY CODE KEY		
	SCALE VALUE	
*TASK KNOWLEDGE LEVELS	a	Can name parts, tools, and simple facts about the task. (NOMENCLATURE)
	b	Can determine step by step procedures for doing the task. (PROCEDURES)
	c	Can identify why and when the task must be done and why each step is needed. (OPERATING PRINCIPLES)
	d	Can predict, isolate, and resolve problems about the task. (ADVANCED THEORY)
SUBJECT KNOWLEDGE LEVELS	A	Can identify basic facts and terms about the subject. (FACTS)
	B	Can identify relationship of basic facts and state general principles about the subject. (PRINCIPLES)
	C	Can analyze facts and principles and draw conclusions about the subject. (ANALYSIS)
	D	Can evaluate conditions and make proper decisions about the subject. (EVALUATION)

Reference #	TASKS, KNOWLEDGE, AND TECHNICAL REFERENCES	6C CFETP	64P CFETP	1102 CFETP	Tier 1	Tier 2	Tier 3
52.10.	Local Emergencies	52.7.5	39.17	557	-	B	C
52.11	Learn how to write Master Scenario Event List (MSEL) and how to write injects	-	73.10	565	-	B	D
52.12	Adjudicate contract support among Service components when planning and conducting active operations to ensure a fair share of available contracting capability	-	73.13	568	-	B	D
52.13	Maintain the common operating picture of contracting activity within the staff, component, interagency, international organization, and non-governmental organization areas of	-	73.16	571	-	B	D
52.14	Engage with JCASO for additional technical and operational support to potentially stand up the JTSCC or lead Service for contracting	-	73.20	575	-	B	D
52.15	Understand, and in some cases coordinate, the use of acquisition cross-Service agreements as an alternative to contracting	-	73.23	578	-	B	D
52.16	Understand military campaign planning and execution as it passes through progressive stages of operations	-	73.26	581	-	B	D

APPENDIX B. SYNTHESIZED USAF UJTL FOR A CONUS HADR EVENT

Task Title	Task Description	Measures	Task Numbers*	References
1. Provide supplies, services, and construction	This task may include requirements determination, contracting, procurement, distribution, cataloging, overhaul, and disposal of logistics material.	1.1. Do individuals understand the rules, regulations, policies, and guidance that apply and can be deviated during a HADR. 1.2. Does the training manager have a manpower document with: 1.2.1 The number of trained and warranted CCOs that are currently available? 1.2.2 The number of trained and qualified operational contract support (OCS) personnel for an OCS Integration Cell (OCSIC). 1.3 Does the unit have a plan to have deployed/TDY contracting personnel to take over if local CONS is unavailable? 1.4 Has the unit performed operational contract support (OCS) analysis of the operational environment data collection requirements during pre-disaster activities? Example include reviewing historical data from FPDS-NG for similar disasters, market research of local disaster vendors, and identification of advance contracts available for use. 1.5 Has the unit addressed how the HADR will effect determinations of price fair and reasonable on commercial market costs?	• SN 4.11 • SN 4.6 • SN 4.6.1.2 • SN 4.6.1.3.1 • SN 4.6.1.3.2 • SN 6.1.5 • SN 4.11 • ST 4.8	• CJCSI 4310.01D • CJCSI 5123.01H • CJCSI 6130.01G • CJCSM 3130.03A • DLM 4000.25-1 • DOD 7730.65 • DODD 5105.22 • DODD 5105.64 • DODD 5134.01 • DODI 3020.41 • DODI 3020.50 • JP 4-0 (primary) • JP 4-08 • JP 4-09 • JP 4-10 (primary) • FAR 2, 5, 12, 13,15, 18 • JP 1 • JP 3-35

Note. Measurers are adapted from the UTDT, the task numbers are pulled directly from UTDT, and the references are identified directly in UTDT.

Task Title	Task Description	Measures	Task Numbers*	References
1. Provide supplies, services, and construction	This task may include requirements determination, contracting, procurement, distribution, cataloging, overhaul, and disposal of logistics material.	1.6 Does the local OPLAN: 1.6.1. Include operational contract support (OCS) equities addressed and incorporated throughout the Base Plan and/or Annexes and Appendices where required? 1.6.2. Include operational contract support (OCS) tasks included for region or base plans for pre-disaster activities (i.e. OPLANS and exercises)? 1.6.3. Establish who and where the operational contract support (OCS) board, bureau, center, cell or working group on the commands battle rhythm, examples are the Joint Requirements Review Board (JRRB), Joint Contracting Support Board (JCSB), and the OCSIC. 1.6.4. Identify FEMA and NORTHCOM tasks in OPLANS and in pre-disaster planning. Who is the most likely Lead Service for Contracting Coordination (LSCC), Lead Service for Contracting (LSC) or Joint Theater Support Contracting Command (JTSCC) to perform during each phase: pre-, during, and post-disaster. 1.6.5. Address how to pause current service and construction contracts. This includes who to contact, which squadrons will be affected, and which service/construction contracts are highest priority to continue upon sufficient recovery. Address how to account for terminations for convenience and default.	• SN 4.11 • SN 4.6 • SN 4.6.1.2 • SN 4.6.1.3.1 • SN 4.6.1.3.2 • SN 6.1.5 • SN 4.11 • ST 4.8	• CJCSI 4310.01D • CJCSI 5123.01H • CJCSI 6130.01G • CJCSM 3130.03A • DLM 4000.25-1 • DOD 7730.65 • DODD 5105.22 • DODD 5105.64 • DODD 5134.01 • DODI 3020.41 • DODI 3020.50 • JP 4-0 (primary) • JP 4-08 • JP 4-09 • JP 4-10 (primary) • FAR 2, 5, 12, 13, 15, 18 • JP 1 • JP 3-35

Task Title	Task Description	Measures	Task Numbers*	References
2. Provide Base Support	Provide base support of wholesale logistics and administrative support (AFCAP/LOGCAP vs internal capabilities). This includes utilizing GWACs and advance contracts created by FEMA and NORTHCOM.	2.1. Understand how to place AFCAP/LOGCAP task orders. 2.2. Understand how to locate advance contracts that apply to a HADR environment. 2.2.1. Provide a formalized document with the advance contracts points of contact, location, and policies and procedures. 2.2.1.1. Runway repair or setup for appropriate aircraft 2.2.1.2. Runway support (air traffic control, weather, airfield management, etc.) 2.2.1.3. Admin support (contracting, logistics, etc.) 2.2.1.4. Communications 2.2.1.5. Transportation 2.2.1.6. Generators and Power generation 2.2.1.7. CONEX boxes (refrigerated, office set-up, etc.) 2.2.1.8. Disaster Support 2.2.2. Understand how to analyze the gaps in the advance contracts' capability versus potential needs. Can the advance contracts address current capability gaps or future capability gaps? 2.3. Has the unit identified and listed what Government supply inventory is available for an emergency and where it is located? If unavailable, is the process to obtain this information formalized and documented? 2.4. What is the base's current planned manpower available versus reality? 2.5. Has the unit identified the proper POCs in FEMA and NORTHCOM to minimize government stakeholders are not competing for supplies within the advance contract environment?	• SN 4.2 • SN 4.5.1 • SN 6.1.5 • ST 4.2.1.1 • ST 4.2.1.2 • ST 8.3.3	• JP 1 • JP 3-28 • JP 3-35 • JP 4-0 • JP 4-1 • JP 4-10 • JP 1-06 (primary), • CJCSI 6510.01 • DOD 1400.25-M • DOD 7000.14R • DODD 4715.1E • DODI 5010.40 • DODI 6490.03 • DOD 7730.65 • DODI 8500.01 • DODD 4180.01 • DoD Operational Energy Implementation Plan • DoD Strategy Energy for the Warfighter

Task Title	Task Description	Measures	Task Numbers*	References
3. Integrate Best Business Practices	Provide integrated mission focused business leadership practices by resourcing trained and equipped personnel and an appropriate force structure. • Appropriate collation of information and intel. • Plan, coordinate, synchronize, and execute contract support. This task typically occurs in a designated operational area and is a vital function within the operational contract support (OCS) process that involves OCS planning, validating and prioritizing requirements, collaboration in boards, bureaus, centers, cells and working groups (B2C2WGs), sharing information via web portals and maintaining an OCS common operational picture (COP) that will keep the command informed of the OCS mission support status. The operational contract support Integration Cell (OCSIC) and senior contracting officer (SCO) (if appointed) should maintain a COP.	3.1. Has the unit identified the senior contracting officer (SCO) and their point of contact(s) in the Operational Contract Support Integration Cell (OCSIC)? Is there a formalized method of maintaining a common operating picture? 3.2. Has the unit addressed how competing priorities (related requirements for FEMA, NORTHCOM, local CONS, other competing interests) will be accurately identified and grouped for comparison? 3.2.1. Are operational contract support (OCS) aspects of operational environment (OE) data collaborated with other staff for a holistic view of the OE? 3.3. Are the Operational Contract Support (OCS) contractor management requirements coordinated during planning? 3.4. Did the operational contract support integration cell (OCSIC) estimate contract support requirements? 3.5. Are operational contract support (OCS) aspects of operational environment data reporting requirements identified and officially published? 3.6. Does a process exist to collect and share operational contract support (OCS) aspects of operational environment data? Is it formalized with acceptance from multiple stakeholders to include but not limited to civil engineering, logistics readiness squadron, comptroller squadron, NORTHCOM, and potentially FEMA? 3.7. Is there a formalized list of assumptions operational contract support (OCS) assumptions?	• SN 4.2.13 • ST 2.3.2 • ST 4.5.1	• JP 2-01 • JP 2-0 • JP 4-0 • JP 4-09 • JP 4-10

Task Title	Task Description	Measures	Task Numbers*	References
3. Integrate Best Business Practices	Provide integrated mission focused business leadership practices by resourcing trained and equipped personnel and an appropriate force structure. • Appropriate collation of information and intel. • Plan, coordinate, synchronize, and execute contract support. This task typically occurs in a designated operational area and is a vital function within the operational contract support (OCS) process that involves OCS planning, validating and prioritizing requirements, collaboration in boards, bureaus, centers, cells and working groups (B2C2WGs), sharing information via web portals and maintaining an OCS common operational picture (COP) that will keep the command informed of the OCS mission support status. The operational contract support Integration Cell (OCSIC) and senior contracting officer (SCO) (if appointed) should maintain a COP.	3.8. Does the operational contract support (OCS) estimate provide impacts to planning course of action (COAs)? 3.9. Have the operational contract support (OCS) minimum data elements of a common operational picture been determined? Was a requirements flow process established that explained how requirements flow from the requiring activity through a Joint Requirements Review Board (JRRB)? Is there a formalized document? 3.10. Has the risk to the mission been identified if the operational contract support integration cell (OCSIC) is not staffed to support the required tasks? The JRRB? 3.11. Have contract support requirements been planned to support shortfalls in organic, host nation, or acquisition cross service agreements?	• SN 4.2.13 • ST 2.3.2 • ST 4.5.1	• JP 2-01 • JP 2-0 • JP 4-0 • JP 4-09 • JP 4-10
4. Contracting Officer Representative Management	This task includes developing and planning the contracting officer representative (COR) and contracting officer technical representative (COTR) program.	4.1. Is there a personnel list of the CORs on current contracts on the base? 4.2. Is there a personnel list of available CORs in case of a disaster? Does it include training records? 4.3. Is there a balanced scorecard, personnel readiness issue, or shortfall list addressing capability to accomplish the mission-essential tasks (MET)?	• SN 4.6.1.3.3	• JP 4-10 • DODD 5105.22 • DODD 5105.64 • FAR Title 48

Task Title	Task Description	Measures	Task Numbers*	References
4. Contracting Officer Representative Management	This task includes developing and planning the contracting officer representative (COR) and contracting officer technical representative (COTR) program.	4.4. Have the potential stakeholders to include commanders been integrated into the process (i.e. Force Support Squadron, Civil Engineering Squadron, etc)? 4.5. What does the team need to look like versus current inventory? Is there a plan to augment the COR team?	• SN 4.6.1.3.3	• JP 4-10 • DODD 5105.22 • DODD 5105.64 • FAR Title 48
5. Perform Contract Admin and management	Provide oversight and facilitate the integration of contractor personnel and associated equipment. This task may require the operational contract support integration cell (OCSIC) to coordinate with their Service Components and joint force command staff sections to ensure accountability of contractors deployed in support of the commands mission. The OCSIC should be able to determine the capability contractors are providing, and coordinate their government furnished support requirements. This task may require support/planning for contractor personnel services. This includes setting up the contract management liaison and ability to inform the LSC/CC and JTF/CC in order to make course of action (COA) decisions on contingency support.	5.1. Has the unit formalized how they will track and coordinate contractors? 5.1.1. Addressed how to accurately account, track, and communicate with all stakeholders (contractors, CORs, COs, etc) from Reception, Staging, Onward Movement, and Integration (RSOI) of the AOR within an integrated framework. Review potential use of Synchronized Pre-Deployment Operational Tracker (SPOT) and Joint Asset Management Movement System (JAMMS) to support contractor accountability. 5.1.2. Establish guidance and oversight procedures (i.e. AFICC OCS sharepoint) for Government Furnished Support and Government Furnished Equipment. Coordinate GFE and GFS across staff sections and with operating facility managers (from FEMA to NORTHCOM down to local bases). 5.1.3. Has Security Forces Squadron been consulted?	• ST 4.5.2 • ST 5.4.3.1.1	• JP 4-10 (primary), DODI 3020.41, DODI 3020.50, CJCSM 3130.03A • JP 3-34, JP 4-10 (primary), DODD 5105.64

Task Title	Task Description	Measures	Task Numbers*	References
5. Perform Contract Admin and management	Provide oversight and facilitate the integration of contractor personnel and associated equipment. This task may require the operational contract support integration cell (OCSIC) to coordinate with their Service Components and joint force command staff sections to ensure accountability of contractors deployed in support of the commands mission. The OCSIC should be able to determine the capability contractors are providing, and coordinate their government furnished support requirements. This task may require support/planning for contractor personnel services. This includes setting up the contract management liaison and ability to inform the LSC/CC and JTF/CC in order to make course of action (COA) decisions on contingency support.	5.3. What GFS can be provided vs needed: medical/dental care, costs, emergency care, primary care, quarantine/restrictions of movement, and evacuations, mortuary affairs, subsistence, signal support, personnel recovery, exchange/commissary/MWR, religious support, mail, legal, clothing/PPE? 5.4. Systems integration and use from pre-disaster through post-disaster: TPFDD, UTC, SPOT, JAMMS. Validate contractor flow in the time-phased force and deployment data (TPFDD) with the contract statement of requirements. To synchronize contracting command and control organizations with the flow of contracted support requirements. To select an appropriate Unit Type Code (UTC) for contractor personnel. 5.5. Is there a formal repository of existing policy/guidance? When was it updated last? 5.6. Does the theater contractor management policy follow Department of Defense (DoD) policy? Conduct legal review of contractor management policy. Specify minimum training procedures for contractors prior to entering the disaster environment. Understand limitations of US laws and/or US Government Regulations for Contractors in a disaster environment.	• ST 4.5.2 • ST 5.4.3.1.1	• JP 4-10 (primary), DODI 3020.41, DODI 3020.50, CJCSM 3130.03A • JP 3-34, JP 4-10 (primary), DODD 5105.64
6. Customer Management	Provide Program Support and Customer Relations	6.1. Who are your potential customers? 6.2. Are there formalized agreements (i.e. OPLAN) created delineating contractor support and integration? 6.3. Is there a formalized customer education?	• SN 4.6.1.4 • SN 6.1.5	• None provided

Task Title	Task Description	Measures	Task Numbers*	References
7. Perform Contract Admin and management	Provide oversight and facilitate the integration of contractor personnel and associated equipment. This task may require the operational contract support integration cell (OCSIC) to coordinate with their Service Components and joint force command staff sections to ensure accountability of contractors deployed in support of the commands mission. The OCSIC should be able to determine the capability contractors are providing, and coordinate their government furnished support requirements.	7.1. Does the theater contractor management policy follow Department of Defense (DoD) policy? Conduct legal review of contractor management policy. Specify minimum training procedures for contractors prior to entering the disaster environment. Understand limitations of US laws and/or US Government Regulations for Contractors in a disaster environment. 7.2. This includes setting up the contract management liaison and ability to inform the LSC/CC and JTF/CC in order to make course of action (COA) decisions on contingency support.	• ST 4.5.2 • ST 5.4.3.1.1	• JP 4-10 (primary), DODI 3020.41, DODI 3020.50, CJCSM 3130.03A • JP 3-34, JP 4-10 (primary), DODD 5105.64
8. Customer Management	Provide Program Support and Customer Relations	8.1. Who are your potential customers? 8.2. Are there formalized agreements (i.e. OPLAN) created delineating contractor support and integration? 8.3. Is there a formalized customer education?	• SN 4.6.1.4 • SN 6.1.5	• None provided
9. Direct Stabilization Efforts	Stabilization efforts are an essential component of achieving strategic results made possible by military activities. This task may require language proficiency and/or regional expertise and cultural knowledge. Proper planning of Operational Contract Support (OCS) can help achieve the desired end state.	9.1. Was a comprehensive approach (e.g., nongovernmental organizations [NGOs], other government agencies) considered to conduct stability operations in support of stability, security, transition and reconstruction (SSTR)? 9.2. Has contract closeout been addressed? 9.3. Has definitization of time and materials and UCA's been planned for? 9.4. Have preliminary transition plans for any support been addressed? Have all stakeholders signed an agreement on preliminary plans? (i.e. transitioning reserve materiel warehoused on base back to local government)	• SN 8.1.3	• JP 3-0 • JP 3-07 • JP 3-08 • JP 3-57 • JP 4-10 • CJCSI 3210.06

APPENDIX C. FEMA, DOD, AFMAN 10–2502 BRIDGE

Unfortunately, each of FEMA's emergency support function (ESF) annexes are located in separate documents. The purpose of this Appendix is a potential way to help organize which organizations should be working together in order to meet the intent of each ESF as well as what the overall intent of each ESF is. This Appendix was referenced in Chapter IV Section C.

ESF #	FEMA	DOD	AFMAN 10–2502	FEMA's Coordinator and Primary Agency	Additional Federal Agency Support for FEMA
1	2	3	4	5	6

1. Insert the Emergency Support Function (ESF) number. The titles are identical with the exception of ESF 5, which is Information and Planning for FEMA and Emergency Management for the USAF; ESF 7, which is Logistics for FEMA and Resource Support for the USAF; and ESF 14, which is Cross-Sector Business and Infrastructure for FEMA and Long-Term Community Recovery and Mitigation Responsibilities for the USAF.
2. FEMA provides the scope of the ESF in the scope section of each annex.
3. Each ESF provides potential missions for all of the potential stakeholders within its umbrella. This column should provide the DOD's responsibilities as well as its subordinate agencies (i.e. USACE, DLA, USTRANSCOM, etc.). The DOD's responsibilities normally lie within the support agencies section of each annex. ESF 3 and ESF 9, the DOD has responsibilities listed under the primary agency section as well as under the support agency section.

4. AFMAN 10–2502, Attachment 2 provides the squadron and the multiple missions that fall underneath the EOC's primary.

5. Under the FEMA ESF annexes' first section are the coordinators and primary agency identifiers.

6. Under the FEMA ESF annexes' first section are the support agencies.

7. For both 5 and 6, FEMA's regional office should be able to provide points of contact in each support agency.

APPENDIX D. HURRICANE MICHAEL FPDS–NG AWARD AND MODIFICATION TIME LINE

Table 12. Total Number of Signed DOD Contract Actions Per Day. Adapted from GSA (2020).

Date	Number of stand-alone awards	Number of task orders	Number of modifications
11-Oct-18	0	1	0
12-Oct-18	0	3	0
13-Oct-18	0	1	0
14-Oct-18	2	0	1
15-Oct-18	1	2	0
16-Oct-18	4	0	4
17-Oct-18	0	1	1
18-Oct-18	0	1	0
19-Oct-18	0	1	0
20-Oct-18	0	0	2
21-Oct-18	0	0	0
22-Oct-18	0	0	0
23-Oct-18	2	1	2
24-Oct-18	1	1	3
25-Oct-18	2	1	2
26-Oct-18	2	0	1
27-Oct-18	0	0	0
28-Oct-18	0	2	0
29-Oct-18	0	4	2
30-Oct-18	0	2	0
31-Oct-18	0	0	0
1-Nov-18	0	4	1
2-Nov-18	0	0	0
3-Nov-18	0	0	1
4-Nov-18	0	0	0
5-Nov-18	0	0	0
6-Nov-18	0	0	1
7-Nov-18	1	0	2
8-Nov-18	0	0	0
9-Nov-18	0	1	3
10-Nov-18	1	1	0
11-Nov-18	0	0	1
12-Nov-18	0	0	1
13-Nov-18	0	0	3
14-Nov-18	1	1	5

Date	Number of stand-alone awards	Number of task orders	Number of modifications
15-Nov-18	1	0	0
16-Nov-18	0	0	2
17-Nov-18	0	0	0
18-Nov-18	0	0	0
19-Nov-18	0	1	2
20-Nov-18	0	0	0
21-Nov-18	0	0	1
22-Nov-18	0	0	0
23-Nov-18	0	0	1
24-Nov-18	0	0	0
25-Nov-18	0	0	1
26-Nov-18	0	0	0
27-Nov-18	2	0	3
28-Nov-18	1	0	2
29-Nov-18	0	0	6
30-Nov-18	1	0	4

Table 13. Total Number of Signed DOD Contract Actions per Month During Hurricane Michael. Adapted from GSA (2020).

Month	Total New Awards	Total Task Orders	Total Modifications
Oct-18 Total	14	21	18
Nov-18 Total	8	8	40
Dec-18 Total	3	10	21
Jan-19 Total	2	6	15
Feb-19 Total	1	3	27
Mar-19 Total	2	7	21
Apr-19 Total	0	3	3

Note. The first DOD contract action attributed to Hurricane Michael took place October 11, 2018. Take note that the majority of contract actions are in the post-award phase of contracting. After the first month, the new awards drops off significantly while the modifications are still occurring at a steadier rate.

Table 14. Hurricane Michael Time Line. Adapted from Berg et al. (2019) and National Oceanic and Atmospheric Administration (2019).

6 Oct 2020	• Tropical storm warning issued for Cuba. • Tropical storm watch issued for Mexico.
7 Oct 2020	• Tropical storm warning issued for Mexico upgraded from storm watch.
8 Oct 2020	• Tropical storm watch issued for Florida, Alabama, Mississippi. • Tropical storm warning issued for Alabama (upgraded from watch same day). • Hurricane watch issued to Florida (same time as tropical storm watch) and Alabama (same time as tropical storm warning). • Hurricane warning issued to Cuba (upgraded from tropical storm warning) and Florida (upgraded from hurricane watch same day).
9 Oct 2020	• Tropical storm watch issued for Georgia, North Carolina, and South Carolina. • Tropical storm warning issued for Cuba (downgraded from hurricane warning), Georgia (upgraded from storm watch), North Carolina (upgraded from storm watch), and South Carolina (upgraded from storm watch). • Tropical storm warning ended for Cuba and Mexico. • Hurricane watch ended for Alabama.
10 Oct 2020	• Tropical storm watch ended for Mississippi and areas of Florida. • Tropical storm warning ended for Alabama and areas of Florida. • Hurricane watch issued to Florida (same time as tropical storm watch) and Alabama (same time as tropical storm warning). • Hurricane warnings ended for specific areas of Florida. • Hurricane Michael makes landfall in Florida as a Category 5 hurricane.
11 Oct 2020	• Tropical storm warning ended for Georgia, North Carolina, and South Carolina. • Hurricane warning ended for Florida.
12 Oct 2020	• All warnings and watches ended.

THIS PAGE INTENTIONALLY LEFT BLANK

APPENDIX E. USAF CONUS HADR TTX DESIGN FOR CONTRACTING

This appendix provides a simple TTX design geared towards USAF contracting; however, it should apply to any contracting office within the DOD with the exceptions of any AFIs which would be the sister service (i.e. Navy, Army, Marine, or Coast Guard equivalent). Additionally, there is a supplemental power point file that provides the accompanying slides for this suggested design.

A. DESIGN

The following section breaks down a sample design for a TTX that provides initial background and discussions that frame the problem of a disaster environment, which leads into a review of the current concept of operations that is maintained by the emergency management flight per AFI 10–2501 *Emergency Management Program* (2020). This can be further refined into a TTX that simulates the disaster from notification (Day 0) through disaster end and recovery start. As discussed before, it is broken out into pre-disaster, disaster, and post-disaster phases. The supplemental file CONUS HADR TTX DESIGN provides the pre-disaster format.

1. Pre-Disaster

This stage of the TTX should provide the users with initial instructions, the commander's intent, an informed set of objectives and expected capabilities, an estimated schedule, and a method to potentially achieve success. Upon providing the users these documents, the following sections will help build towards running an actual HADR exercise. The purpose of this TTX is to ensure that the CONS is as best prepared as it can be to meet its base's requirements while taking into consideration the impact of procurement on other federal organizations and the local community's ability to recover.

a. Commander's Intent and Introduction (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 0 – Introduction)

The commander's intent should be derived from the base's local concept of support. The intent should be first to reasonably mitigate dangers to the Airmen and families and, after disaster occurrence, to ensure their safety. The secondary goals should fall in line with each ESF's priorities. Hopefully, the intent includes preparation to support the local community as well as any tasks delegated from USNORTHCOM and FEMA. The authors do recommend using an existing commanders intent from any recent hurricane event that impacted a USAF base.

b. METL (See Section B)

The METL is derived from Chapter IV's analysis, as well as the Synthesized CFETP (Appendix A) and the Synthesized UJTL. The Module 1 – Block 6 Gap Analysis also will provide an end result of a list of potential requirements tied to the mission sets of each stakeholder. This can be used in order to create an excellent METL for the disaster and post-disaster phases of a TTX.

c. Exercise Schedule (See Section C)

The sample schedule provided in Section C is designed to take roughly 40 hours (1 workweek) to complete. It is relatively simple to break apart and split over a year. Hopefully, it is built such that it can be paired with local base exercises in order to maximize its usefulness and impact. Depending on the base, these base exercises may be occurring on an annual basis, which contracting can coordinate with the emergency management flight to improve the TTX's usefulness and realism. The heaviest portion of work is done during the pre-disaster phase in order to better mitigate and prepare for the chaos of the disaster.

d. Stakeholder Analysis (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 1 – Stakeholder Analysis)

The purpose of this section is to expand the contracting personnel's mindset of the Air Force wing or base as the sole focus and to start including the other interests at play

during a disaster. We recommend using the AFMAN 10–2501 along with the FEMA NRF's ESF Annexes 1–15 to help identify the multiple federal agencies that may be involved with recovery in order to minimize duplicative efforts and de-conflict supply chains. This will become more apparent throughout the market research and trend analysis topics that identify how these stakeholders may influence the base's procurement strategies moving forward. Furthermore, by filtering up to FEMA, which is the lead agency, the USAF contracting personnel can attempt to align their procurement strategies with the lead federal agency.

e. Mission Analysis (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 2 – Mission Analysis)

The purpose of this section is to push the "Mission Focus Business Leader" mindset espoused by the new USAF procurement leadership (Holt, 2019). The contracting participants will review each ESF's mission sets, along with the potential participants within each, which is informed by the stakeholder analysis. Additionally, reviewing the FPDS–NG recent disaster databases that provide detailed purchase logs of federal spend can help support those anticipated requirements through data.

f. Market Research (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 3 – Market Research & Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 4 – Advance Contracts)

The purpose of this section is to inform the gap analysis that takes place at the end of the pre-disaster phase. First, we recommend identifying the CONS's current contract portfolio for disaster readiness, which includes reviewing key disaster contracts, such as construction, and communication-centric contracts. The review should identify whether the contracts are built to function during a disaster, and—if not—whether they can be modified to function or whether a new contract or agreement will need to be established. Second, we recommend identifying available advance contracts throughout the federal government including GSA Advantage, Acquisition Gateway, AFICC SharePoint, and FEMA's online advance contract listing. This attempts to resolve the misuse of advance contracts identified in our analysis. Last, we recommend reviewing the FPDS–NG databases for recent

disasters in order to identify utilized IDIQs and contracting methods and to identify whether the contracts were locally sourced or not.

g. Contract Authority, Funding, and Legal Review (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 5 – Finance, Thresholds, Laws)

The purpose of this section is to review the applicable laws, funding streams, and authorities and to assess how decision thresholds, such as the simplified acquisition threshold, change. For many, this will be a quick review; however, it is important that everyone knows where to find the information as these rules do change over time.

h. Trend Analysis

The purpose of this section is to identify problem areas that may be mitigated through the TTX process. For example, knowing that communications are a consistent problem and that communication can mitigate further issues, reviewing LMR familiarity or other alternative communication standards can only help in the long run. This section should take a significant amount of time, as the consolidation of the many different resources and the subsequent review is a slow process. Fortunately, we already reviewed 104 relatively recent AARs; however, this does not mean that additional qualitative reviews will not be required as more disasters occur.

i. Gap Analysis (Supplemental File CONUS HADR TTX DESIGN – Module 1 – Block 6 – Gap Analysis)

The conclusion of this pre-disaster section is the gap analysis. It takes all of the previous sections and synthesizes the data to determine what the team believes they are capable of accomplishing if the disaster were to occur that day—versus what the team believes they need to be capable of accomplishing. Furthermore, it identifies the many stakeholders and how to contact them. It is unlikely that all problems can be resolved at this stage, and risk mitigation steps should be utilized to the maximum extent practical. An example is identifying that funds are not available for recovery of the airfield today, but the squadron could create a BPA for asphalt delivery during a disaster through companies

that are registered in the VOAD database. The majority of the analysis of this MBA project informed the trend analysis and gap analysis.

j. Review

A key component of our recommended TTX design is the built-in AARs that will be sent to the appropriate office at AFICC. The AAR should capture the strengths and weaknesses of the TTX to teach and prepare the participants. The AAR should reference CFETP and UJTL expectations when describing participant abilities. The AAR should also review whether the lessons captured the intent described in each introduction. Last, the AAR should provide ample area for suggestions on improvement in regards to additional information or already covered material.

2. Disaster (Day 0–Day 6)

The 6-day estimate is based on Hurricane Michael's time line, which is provided in Table 14 in Appendix D. This section focuses primarily on reviewing the current local base's plan, which could be performed by running through the Module 1 – Block 6 – Gap Analysis a second time with all relevant plans—including internal plans, such as the local base continuity of operations (CONOPS), or external plans, such as OPLANs of the USNORTHCOM SCO. Last, this phase should also review the CCO kits, including the physical kits and deployable personnel.

a. Concept of Support and/or CONOPS Review (Supplemental File CONUS HADR TTX DESIGN – Module 2 – Block 1 – CONOPS & Supplemental File CONUS HADR TTX DESIGN – Module 2 – Block 2 – CCO Kits)

The participants would be required to review the current base's CONOPS and continuity of support (CONSUP) in order to ascertain two primary objectives:

- Is contracting support integrated into the plan per the JP 4-10 guidance?
- What objectives may be required to prepare for and recover from a disaster?

b. Potential External Requests for Support Review (USNORTHCOM)

After reviewing the base's concept of support, it is important to reach out to the external stakeholders identified in the pre-disaster section in order to appropriately prepare for potential support. These stakeholders include the local governor and their EOC as well as USNORTHCOM. Our findings indicate that due to poor communication habits, there are multiple doubled efforts as well as conflicting priorities all in the same area. Reviewing the stakeholders within the ESFs, the contracting personnel can begin to recognize the potential scope of responsibility beyond that of the base.

c. Review

The purpose of this section is to capture information in regards to potential additional or superfluous CONOPS and CONSUP lessons and to anticipate potential misunderstandings from external stakeholders. This includes assumptions of level of support, who the key points of contact are, and unavailable networks despite the ESF descriptions.

3. Post-Disaster (Recovery Begins)

This section is focused on which priorities the base has and how the CONS can meet those priorities. In our recommendations for further research, we encourage a review of the FPDS–NG disaster database in order to build a more accurate list of common purchases and how they have been awarded historically. The gap analysis from the pre-disaster phase, along with the review of the CONSUP, can inform how quickly responses can be achieved. During this TTX, if appropriate mitigation steps are not taken in order to address the trend analysis, the training manager can incorporate those trends into the injects. The first sample inject that comes to mind is based on whether the contracting team has created and briefed how purchase requests are handled. Based on our analysis, doubled purchases were a common problem. Therefore, injects that mimic doubled purchases and partially completed purchase requests can simulate the disorganization inherent with a disaster.

B. MISSION ESSENTIAL TASK LIST (HSEEP MASTER SCENARIO EVENTS LIST)

The training team should utilize the synthesized UJTL in Appendix B and the synthesized CFETP in Appendix A to create a list of appropriate tasks to validate their participants' abilities to fulfill their potential contracting force packages (i.e., XFFK1, XFFK3, etc.). Furthermore, if the training team wants to incorporate the FEMA and/or DHS into their TTX, they should know to state this creation as an MSEL instead of their acronym, METL. Last, the gap analysis within the sample exercise in the supplemental section can provide ample examples of potential requirements.

C. EXERCISE SCHEDULE SAMPLE

The purpose of this exercise schedule is to allow appropriate scheduling and planning in order to fit this exercise into the overall training schedule. The times are based on the author's best estimates and may vary greatly due to experience of the team. Additionally, the timing may need to be shifted if the local contracting squadron is able to convince outside organizations to be involved.

Table 15. Sample Exercise Schedule

Hours	Cumulative time	Phase	Topic of discussion
1	1 hour	Pre-Disaster	Introduction
4	5 hours	Pre-Disaster	Stakeholder Analysis
3	8 hours	Pre-Disaster	Mission Analysis
5	13 hours	Pre-Disaster	Market Research
4	17 hours	Pre-Disaster	Advance Contract Identification
1	18 hours	Pre-Disaster	Disaster Law and policy review
5	23 hours	Pre-Disaster	Gap Analysis
1	24 hours	Pre-Disaster	AAR
7	31 hours	Disaster	CONSUP review
1	32 hours	Disaster	AAR
5	37 hours	Post-Disaster	Injects
3	40 hours	Post-Disaster	AAR

D. TTX SUGGESTED DOCUMENT LIST

This table provides the suggested documents for the TTX. This MBA project provides rough drafts of the AAR, Exercise Schedule, Gap Analysis Tool, Mission Essential task List, MRAC tool, and the SLA Tool. The CONOPS and OPLAN should be provided by the local Emergency Management flight or the parent agency.

Table 16. TTX Suggested Document List

Document name	Description
After Action Report (AAR)	A sample is provided in the supplemental files labeled as After Action Report Sample. The parent organization should attempt to standardize the format and keep a database of the lessons learned and feedback.
Continuity of Operations (CONOPS)	The local base's CONOPS should be used or, if not available, a sample from the parent agency. If there is not an available CONOPS at the local base, this is an excellent time to develop one.
Exercise Schedule	A sample is provided in Section C in this Appendix.
Gap Analysis Tool	A sample is provided in the supplemental files labeled as Gap Analysis Tool (Block 6) Excel file. This file is designed for use with Module 1 – Block 6.
Mission Essential Task List	See Appendix E Section B for suggestions on creation.
Market Research Advance Contract (MRAC) Tool	A sample is provided in the supplemental files labeled as MRAC Tool (Block 3,4) Excel file. This file is designed for use with Module 1 – Block 3 – Market Research and Block 4 – Advance Contract.
OPLANs	The parent agencies, along with the local base, may have additional operational plans in case of a disaster. The more plans that can be incorporated throughout the TTX, the better the chance of success for each plan upon enaction. The OPLANs are especially important in the Block 6 – Gap Analysis section and in any disaster or post-disaster sections.

Document Name	Description
Stakeholder List Assessment (SLA) Tool	Sample provided in the supplemental files in the SLA Tool Excel file. This file is designed for use with Module 1 – Block 1 – Stakeholder Analysis and Block 2 – Mission Analysis.

SUPPLEMENTALS

The section provides the supplemental files along with descriptions for each file. The supplemental files are referenced throughout Appendix E with Supplemental File B: CONUS HADR TTX Design PowerPoint File being the actual suggested pre-disaster portion of the exercise. The additional supplemental files are designed to complement the PowePoint, as described in Appendix E.

A. CONUS HADR TTX DESIGN POWERPOINT FILE

This PowerPoint file contains the pre-disaster layout based on the suggestions from this MBA project. The other supplemental files are designed to augment the PowerPoint's functionality through worksheets such as the Gap Analysis Tool, the MRAC Tool, and the SLA Tool, while the sample synthesized HADR CFETP Excel file and Appendix B are provided to help inform the TTX's objectives to align the requirements.

B. STAKEHOLDER LIST ASSESSMENT (BLOCK 1, 2) TOOL EXCEL FILE

The SLA tool is designed to be used with the CONUS HADR TTX Design PowerPoint file. This provides a worksheet to fill out during the Block 1 – Stakeholder Analysis and Block 2 – Mission Analysis of Module 1. The output of this tool is used to help identify the internal base stakeholders and their missions along with additional federal agencies and external mission partners with their missions. The purpose is to understand the disaster environment in terms of potentially competing and/or collaborative mission sets in order to maximize the utility of every federal dollar spent.

C. MARKET RESEARCH ADVANCE CONTRACT (MRAC) TOOL (BLOCK 3, 4) EXCEL FILE

This tool is designed to be used with the CONUS HADR TTX Design PowerPoint file. This provides a worksheet to fill out during Block 3 – Market Research and Block 4 – Advance Contract of Module 1. The output of this tool can be printed into an easy-to-use binder for the home squadron as well as any incoming deployers.

D. GAP ANALYSIS TOOL (BLOCK 6) EXCEL FILE

This tool is designed to be used with the CONUS HADR TTX Design PowerPoint file. This provides a worksheet to fill out during the Block 6 – Gap Analysis. Upon completion, the output from this file provides invaluable insight into the abilities of the CCO team, the abilities of the squadron to meet current plans, and the gaps in those capabilities to meet potential demands.

E. AFTER ACTION REPORT SAMPLE WORD DOCUMENT

This document provides a sample AAR for use by the agencies to ensure a consistent format. It mimics the layout of the supplemental CONUS HADR TTX Design PowerPoint file. This document is designed to provide the lead agency with a feedback loop in order to improve the TTX and to identify trends in strengths and deficiencies in order to improve training focuses in the future.

F. SAMPLE SYNTHESIZED HADR CFETP EXCEL FILE

This supplemental file provides the user with an easy-to-use and sortable Excel file that can be updated as new CFETPs are released. The main purpose of providing a sample is to give the agency guidance on how to minimize the confusion for local training managers and co-workers when identifying the required knowledge sets to meet the intent of ordering officers, leveraging officers, and integrated planners per YTTM. This design also provides a deliberate growth from year 0 to senior levels in line with General Holt's (2019) line of effort 1, objective 2, "reimagine training and culture from initial skills through executive level" (Holt, 2019, p. 10).

LIST OF REFERENCES

AFFARS 5318.201, Contingency Operations (2020). https://www.acquisition.gov/affars/emergency-acquisitions

Air Force Civil Engineer Center. (2013, March 13). *Air Force Incident Management guidance for major accidents and natural disasters* (AFMAN 10–2504). Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a4/publication/afman10-2504/afman10-2504.pdf

Air Force Civil Engineer Center. (2018, September 13). *Air Force Incident Management System (AFIMS) standards and procedures* (AFMAN 10–2502). Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a4/publication/afman10-2502/afman10-2502.pdf

Air Force Civil Engineer Center. (2020, March 10). *Emergency management program* (AFI 10–2501). Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a4/publication/afi10-2501/afi10-2501.pdf

Air Force Installation Contracting Center. (2020, September 30). *AFICA OCS portal.* https://intelshare.intelink.gov/sites/afica-ocs-portal/_layouts/15/start.aspx#/

Air Force Medical Operations Agency. (2019, January 4). *Health services* (AFMAN 41–209). Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_sg/publication/afman41-209/afman41-209.pdf

Air Force Office of Public Affairs. (2017, June 23). *Public affairs* (AFI 35–105). Department of the Air Force. https://static.e-publishing.af.mil/production/1/saf_pa/publication/afi35-105/afi35-105.pdf

Alabama Emergency Management Agency. (2014). *AEMA hurricane exercise 5.22.14: Hurricane Romeo* [After action report]. https://www.hsdl.org/?view&did=757592

Allen, D., Morris, V., & Plys, J. (2010). *Analysis of contemporary contingency contracting educational resources* (NPS-CM-10-169). Naval Postgraduate School. http://hdl.handle.net/10945/55276

Allen, G. (2019, February 12). *Tyndall Air Force Base to be rebuilt as "air base of the future."* NPR. https://www.npr.org/2019/02/12/693549647/tyndall-air-force-base-to-be-rebuilt-as-air-base-of-the-future

Applegate, M. (2017, October 1). *AFSC 64PX contracting career field education and training plan* [Memorandum]. Department of the Air Force. https://static.e-publishing.af.mil/production/1/saf_aq/publication/cfetp64pxc1/cfetp64pxc1.pdf

Apte, A., & Yoder, E. (2011). *When disaster strikes: Is logistics and contracting support ready?* (NPS-LM-11-185). Naval Postgraduate School. https://doi.org/10.21236/ADA544202

Apte, A., & Yoho, K. (2015). *United States Navy Humanitarian Assistance and Disaster Relief (HADR) costs: A preliminary study* (NPS-LM-15-123). Naval Postgraduate School. http://www.dtic.mil/docs/citations/AD1014652

Axelrod, J. (2019, May 30). Wright-Patterson begins recovery efforts after tornado. *Air Force Times.* https://www.airforcetimes.com/news/your-military/2019/05/30/wright-patterson-begins-recovery-efforts-after-devastating-tornado/

Avila, L.A., Berg, R., Hagen, A.B., & Stewart, S.R. (2019) *Tropical cyclone report: Hurricane Dorian* (AL05201). National Hurricane Center. https://www.nhc.noaa.gov/data/tcr/AL052019_Dorian.pdf

Bartel, R., Hagen, S. C., & Gangai, J. (2011). An overview of a FEMA coastal inundation study of the Big Bend region of Florida. *Florida Watershed Journal*, *4*(2), 21–30. http://www.champs.cecs.ucf.edu/Publications/Refereed/Gangaietal.pdf

Bennett, R. (2019, May 1). *Series 1102 contracting career field education and training plan* [Memorandum]. Department of the Air Force. https://static.e-publishing.af.mil/production/1/saf_aq/publication/cfetp1102c1/cfetp1102c1.pdf

Berg, R., Beven, J. L., & Hagen, A. (2019). *Tropical cyclone report: Hurricane Michael* (AL142018). National Hurricane Center. https://www.nhc.noaa.gov/data/tcr/AL142018_Michael.pdf

Berg, R., Cangialosi, J.P., & Latto, A.S. (2018) *Tropical cyclone report: Hurricane Irma* (AL112017) National Hurricane Center. https://www.nhc.noaa.gov/data/tcr/AL112017_Irma.pdf

Berrick, C. A. (2009). *Homeland security: DHS's progress and challenges in key areas of maritime, aviation, and cybersecurity* (GAO-10-106). Government Accountability Office. https://www.gao.gov/assets/90/82400.pdf

Besser, R. (2006). *Hurricane Katrina after action review* [After action report]. Centers for Disease Control and Prevention. https://www.hsdl.org/?view&did=31248

Bumgardner, D., Powell, T., Young, E., Vega, A., Needham, M., & Patel, P. (2011). *FEMA's contracting officer's technical representative program* (OIG-11-106). U.S. Department of Homeland Security, Office of Inspector General. https://www.oig.dhs.gov/assets/Mgmt/OIG_11-106_Sep11.pdf

Burkle, F. M., Canyon, D. V., & Ryan, B. J. (2017). Military provision of humanitarian assistance and disaster relief in non-conflict crises. *Journal of Homeland Security and Emergency Management*, *14*(3). https://doi.org/10.1515/jhsem-2017-0045

Campbell, R.J. (2018). *The smart grid: Status and outlook.* (CRS-R45156). Congressional Research Service. https://fas.org/sgp/crs/misc/R45156.pdf

Chen, K., Chien-Chih, C., & Tzong-Luen, W. (2002). Comparisons of efficiencies in recognition of hospital emergency incident command system by tabletop drill and real exercise. *Annals of Disaster Medicine*, *1*(1), 29–35. http://www.disaster.org.tw/english/annals/HEICS.pdf

Christopher, D., Conover, K., Donnellan, W., Sakara, A., & Singer, S. (2005). *After action report: DMAT PA-1 strike team, Hurricane Katrina* [After action report]. Homeland Security Digital Library. https://www.hsdl.org/?view&did=765701

City of Marco Island. (2018, January). *Hurricane Irma after action report* [After action report]. https://www.cityofmarcoisland.com/sites/default/files/fileattachments/emergency_management/page/59910/cmi_after_action_report_.pdf

Civil Air Patrol. (n.d.). *Who we are.* United States Air Force Auxiliary. Retrieved June 7, 2020, from https://www.gocivilairpatrol.com/about/who-we-are

Civil Air Patrol. (2012, December 26). *Operations: Cap emergency services training and operational missions* (CAPR 60–3). United States Air Force Auxiliary. https://www.gocivilairpatrol.com/media/cms/R060_003_075A4369FBA8E.pdf

Cohen, S. & Eimicke, W. (2008). *The responsible contract manager.* Georgetown University Press.

Committee on Homeland Security and Governmental Affairs. (2018). *Government oversight: Failures in FEMA contracting for emergency tarps & sheeting during the 2017 hurricane season.* https://www.hsgac.senate.gov/imo/media/doc/Government%20Oversight%20-%20Failures%20in%20FEMA%20Contracting%20for%20Emergency%20Tarps%20and%20Sheeting%20During%20the%202017%20Hurricane%20Season.pdf

Conger, L. S. (2016, January 15). *Career field education and training plan* [Memorandum]. Department of the Air Force. https://static.e-publishing.af.mil/production/1/saf_aq/publication/cfetp6c0x1/cfetp6c0x1.pdf

Conover, K. (2008). *Disaster medical assistant team PA-1 strike teams, Hurricanes Gustav and Ike* [After action report]. Homeland Security Digital Library. https://www.hsdl.org/?view&did=766324

Creighton, D., Walker, A., & Mundt, G. (2014). *Contingency contracting in support of CONUS disasters: A case study of the 1994 Northridge Earthquake, 2005 Hurricane Katrina and 2012 Hurricane Sandy* [Joint applied project, Naval Postgraduate School]. NPS Archive: Calhoun. http://hdl.handle.net/10945/42603

Cuffari, J. (2020). *FEMA needs to effectively designate volunteers and manage the surge capacity force* (OIG-20-32). U.S. Department of Homeland Security, Office of Inspector General. https://www.oig.dhs.gov/sites/default/files/assets/2020-05/OIG-20-32-May20.pdf

Curda, E. (2019). *Disaster assistance: FEMA action needed to better support individuals who are older or have disabilities* (GAO-19-318). Government Accountability Office. https://www.gao.gov/assets/700/699061.pdf

Currie, C. (2015). *Resilience in Hurricane Sandy recovery* (GAO-15-515). Government Accountability Office. https://www.gao.gov/assets/680/671796.pdf

Currie, C. P. (2015). *Emergency preparedness: Opportunities exist to strengthen interagency assessments and accountability for closing capability gaps* (GAO-15-20). Government Accountability Office. https://www.gao.gov/assets/670/667300.pdf

Currie, C. P. (2016a). *Disaster response: FEMA has made progress implementing key programs, but opportunities for improvement exist* (GAO-16-87). Government Accountability Office. https://www.gao.gov/assets/680/674986.pdf

Currie, C. P. (2016b). *Federal disaster assistance: Federal departments and agencies obligated at least $277.6 billion during Fiscal Years 2005 through 2014* (GAO-16-797). Government Accountability Office. https://www.gao.gov/assets/680/679977.pdf

Currie, C. P. (2018a). *2017 hurricanes and wildfires: Initial observations on the federal response and key recovery challenges* (GAO-18-472). Government Accountability Office. https://www.gao.gov/assets/700/694231.pdf

Currie, C. P. (2018b). *Disaster assistance: Opportunities to enhance implementation of the redesigned public assistance grant program* (GAO-18-30). Government Accountability Office. https://www.gao.gov/assets/690/688213.pdf

Currie, C. P. (2018c). *Federal disaster assistance: Individual assistance requests often granted, but FEMA could better document factors considered* (GAO-18-366). Government Accountability Office. https://www.gao.gov/assets/700/692197.pdf

Currie, C. P. (2018d). Homeland security grant program: Additional actions could further enhance FEMA's risk-based grant assessment model (GAO-18-354). Government Accountability Office. https://www.gao.gov/assets/700/694342.pdf

Currie, C. P. (2019a). *Emergency management: FEMA has made progress, but challenges and future risks highlight imperative for further improvements* (GAO-19-594). Government Accountability Office. https://www.gao.gov/assets/700/699743.pdf

Currie, C. P. (2019b). *Emergency management: FEMA has made progress, but challenges and future risks highlight imperative for further improvements* (GAO-19-617T). Government Accountability Office. https://www.gao.gov/assets/700/699957.pdf

Currie, C. P. (2019c). *Emergency management: FEMA's disaster recovery efforts in Puerto Rico and the U.S. Virgin Islands* (GAO-19-662T). Government Accountability Office. https://www.gao.gov/assets/700/699957.pdf

Currie, C. P. (2019d). *Puerto Rico hurricanes: Status of FEMA funding, oversight, and recovery challenges* (GAO-19-261). Government Accountability Office. https://www.gao.gov/assets/700/698051.pdf

Currie, C.P. (2019e). *U.S. Virgin Islands recovery: Status of FEMA public assistance funding and implementation* (GAO-19-253). Government Accountability Office. https://www.gao.gov/assets/700/697059.pdf

Currie, C. P. (2020a). *Disaster recovery: Recent disasters highlight progress and challenges* (GAO 20–183T). Government Accountability Office. https://www.gao.gov/assets/710/702173.pdf

Currie, C. P. (2020b). *FEMA disaster workforce actions needed to address deployment and staff development challenges* (GAO-20-360). Government Accountability Office. https://www.gao.gov/assets/710/706619.pdf

Currie, C. P. (2020c). *National preparedness: Additional actions needed to address gaps in the nation's emergency management capabilities* (GAO-20-297). Government Accountability Office. https://www.gao.gov/assets/710/706612.pdf

Dausey, D. J., Buehler, J. W., & Lurie, N. (2007, May 29). Designing and conducting tabletop exercises to assess public health preparedness for manmade and naturally occurring biological threats. *BMC Public Health*, *7*(92), 1–9. http://www.biomedcentral.com/1471-2458/7/92

Davis, B. H. (2019a). *2017 disaster relief oversight: Strategy needed to ensure agencies' internal control plans provide sufficient information* (GAO-19-479). Government Accountability Office. https://www.gao.gov/reports/GAO-19-479/

Davis, B. H. (2019b). *Financial audit: Bureau of the fiscal service's Fiscal Year 2018 schedules of the general fund* (GAO-19-185U). Government Accountability Office. https://www.gao.gov/assets/700/699137.pdf

Denigan-Macauley, M. (2020). *Disaster response: HHS should address deficiencies highlighted by recent hurricanes in the U.S. Virgin Islands and Puerto Rico* (GAO-19-592). Government Accountability Office. https://www.gao.gov/assets/710/701551.pdf

Department of Defense. (2017). *Defense contingency contracting handbook*. https://www.acq.osd.mil/dpap/ccap/cc/jcchb/DCC_Handbook_v.5_April2017.pdf

Department of Energy. (2005). *Florida State's energy emergency response to the 2004 hurricanes*. https://www.oe.netl.doe.gov//docs/fl2004energy.pdf

Department of Homeland Security. (2011). *National incident management system: Guideline for the credentialing of personnel*. Federal Emergency Management Agency. https://www.fema.gov/pdf/emergency/nims/nims_cred_guidelines_report.pdf

Department of Homeland Security. (2016a). *National disaster recovery framework* (2nd ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1466014998123-4bec8550930f774269e0c5968b120ba2/National_Disaster_Recovery_Framework2nd.pdf

Department of Homeland Security. (2016b). *National incident management system*. Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1508151197225-ced8c60378c3936adb92c1a3ee6f6564/FINAL_NIMS_2017.pdf

Department of Homeland Security. (2016c). *National mitigation framework* (2nd ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1466014166147-11a14dee807e1ebc67cd9b74c6c64bb3/National_Mitigation_Framework2nd.pdf

Department of Homeland Security. (2016d). *National planning system*. Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1454504745569-c5234d4556a00eb7b86342c869531ea0/National_Planning_System_20151029.pdf

Department of Homeland Security. (2016e). *National prevention framework* (2nd ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1466014998123-4bec8550930f774269e0c5968b120ba2/National_Disaster_Recovery_Framework2nd.pdf

Department of Homeland Security. (2016f). *National protection framework* (2nd ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1466017309052-85051ed62fe595d4ad026edf4d85541e/National_Protection_Framework2nd.pdf

Department of Homeland Security. (2017, October). *National incident management system* (3rd ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1508151197225-ced8c60378c3936adb92c1a3ee6f6564/FINAL_NIMS_2017.pdf

Department of Homeland Security. (2019a). *National emergency communication plan*. Federal Emergency Management Agency. https://www.cisa.gov/sites/default/files/publications/19_0924_CISA_ECD-NECP-2019_0.pdf

Department of Homeland Security. (2019b). *National response framework* (4th ed.). Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1582825590194-2f000855d442fc3c9f18547d1468990d/NRF_FINALApproved_508_2011028v1040.pdf

Department of Homeland Security. (2020a). *Disaster declaration summaries, Version 2* [Data set]. Federal Emergency Management Agency. https://www.fema.gov/openfema-dataset-disaster-declarations-summaries-v2

Department of Homeland Security. (2020b). *Emergency support function #1: Transportation annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_1_Transportation.pdf

Department of Homeland Security. (2020c). *Emergency support function #2: Communications annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_2_Communications.pdf

Department of Homeland Security. (2020d). *Emergency support function #3: Public works and engineering annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_3_Public-Works-Engineering.pdf

Department of Homeland Security. (2020e). *Emergency support function #4: Firefighting annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_4_Firefighting.pdf

Department of Homeland Security. (2020f). *Emergency support function #5: Information planning annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_5_Information-Planning.pdf

Department of Homeland Security. (2020g). *Emergency support function #6: Mass care, emergency assistance, temporary housing, and human services annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_6_Mass-Care.pdf

Department of Homeland Security. (2020h). *Emergency support function #7: Logistics annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_7_Logistics.pdf

Department of Homeland Security. (2020i). *Emergency support function #8: Public health and medical services annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_8_Public-Health-Medical.pdf

Department of Homeland Security. (2020j). *Emergency support function #9: Search and rescue annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_9_Search-Rescue.pdf

Department of Homeland Security. (2020k). *Emergency support function #10: Oil and hazardous materials response annex.* Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_10_Oil-Hazardous-Materials.pdf

Department of Homeland Security. (2020l). *Emergency support function #11: Agriculture and natural resources annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_11_Ag-Natural-Resources.pdf

Department of Homeland Security. (2020m). *Emergency support function #12: Energy annex.* Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_12_Energy-Annex.pdf

Department of Homeland Security. (2020n). *Emergency support function #13: Public safety and security annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_13_Public-Safety-Security.pdf

Department of Homeland Security. (2020o). *Emergency support function #14: Cross-sector business and infrastructure annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_14_Business-Infrastructure.pdf

Department of Homeland Security. (2020p). *Emergency support function #15: External affairs annex*. Federal Emergency Management Agency. https://www.fema.gov/sites/default/files/2020-07/fema_ESF_14_Business-Infrastructure.pdf

Department of Homeland Security. (2020q). *National planning frameworks.* Federal Emergency Management Agency. https://www.fema.gov/emergency-managers/national-preparedness/frameworks

Department of Homeland Security. (2020r). *Next generation first responder case study*. Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1590780128292-1b9354f643dce4e083929be2f2151177/Planning_Considerations_Disaster_Housing_May_2020.pdf

Department of Homeland Security. (2020s). *Planning considerations: Disaster housing*. Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1590780128292-1b9354f643dce4e083929be2f2151177/Planning_Considerations_Disaster_Housing_May_2020.pdf

Department of Homeland Security. (2020t, March 10). *FEMA regional contacts.* Federal Emergency Management Agency. https://www.fema.gov/fema-regional-contact

DFARS 218.201, Contingency Operation (2020). https://www.acquisition.gov/dfars/218.201-contingency-operation.

Disaster recovery: Federal contracting in the aftermath of Hurricanes Katrina and Rita, 112th Cong. (2011). https://www.sbc.senate.gov/public/_cache/files/d/e/de23fa62-3d49-47c2-b329-cbaf3de01160/74AB646BF78B4010919018807826A15A.testimony--woods.pdf

Dodaro, G. L. (2011). *Opportunities to reduce potential duplication in government programs, save tax dollars, and enhance revenue* (GAO-11-318SP). Government Accountability Office. https://www.gao.gov/new.items/d11318sp.pdf

Dodaro, G. L. (2015). *High-risk series: An update* (GAO-15-290). Government Accountability Office. https://www.gao.gov/assets/670/668415.pdf

Economy Act, 31 U.S.C. § 1535 (2020). https://www.law.cornell.edu/uscode/text/31/1535/

Elsea, J.K., (2018). *The Posse Comitatus Act and related matters: The use of the military to execute civilian law.* (CRS Report No. R42659). Congressional Research Service. https://fas.org/sgp/crs/natsec/R42659.pdf

FAR 1, Federal Acquisition Regulation System (2020). https://www.acquisition.gov/far/part-1

FAR 2.101, Definitions (2020). https://acquisition.gov/content/part-2-definitions-words-and-terms

FAR 6.302-2, Unusual and Compelling Urgency (2020). https://www.acquisition.gov/far/6.302-2

FAR 8.004 Use of other sources (2020). https://www.acquisition.gov/far/part-8#FAR_8_004

FAR 7.5, Inherently Governmental Functions (2020). https://www.acquisition.gov/far/subpart-7.5

FAR 10, Market Research (2020). https://www.acquisition.gov/far/part-10

FAR 13.500, General (2020). https://www.acquisition.gov/far/13.500

FAR 17.502-2, The Economy Act (2020). https://www.acquisition.gov/far/17.502-2

Federal Emergency Management Agency. (n.d.). *Glossary*. Retrieved November 17, 2020, from https://training.fema.gov/programs/emischool/el361toolkit/glossary.htm#T

Federal Emergency Management Agency. (2005). *Summary report on building performance: 2004 hurricane season* [After action report]. https://www.fema.gov/media-library-data/20130726-1445-20490-5343/fema490.pdf

Federal Emergency Management Agency. (2012). *Notes from the field: Hurricane Sandy: Deployment procedures* [After action report]. https://www.hsdl.org/?view&did=784727

Federal Emergency Management Agency. (2013a). *Hurricane Sandy FEMA after-action report* [After action report]. https://www.fema.gov/media-library-data/20130726-1923-25045-7442/sandy_fema_aar.pdf

Federal Emergency Management Agency. (2013b). *Hurricane Sandy response: After-action report & recommendations* [After action report]. https://www.hsdl.org/?view&did=785369

Federal Emergency Management Agency. (2013c). *Notes from the field: Hurricane Sandy and disaster networks: Key observations, good practices, and challenges* [After action report]. https://www.hsdl.org/?view&did=769815

Federal Emergency Management Agency. (2015). *Critical mass 2015: National mass care exercise* [After action report]. http://www.nationalmasscarestrategy.org/wp-content/uploads/2015/07/After-Action-2015-Texas-Critical-Mass-FINAL.pdf

Federal Emergency Management Agency. (2017). *Hazus wind after action report: 2017 hurricane season* [After action report]. https://www.fema.gov/media-library-data/1524247113121-05acf4d15fcbdff814798d34352e47da/Hazus_Wind_After_Action_Report_Final_508.pdf

Federal Emergency Management Agency. (2020a). *Advanced contracting for goods and services.* https://www.fema.gov/businesses-organizations/doing-business/advanced-contracts

Federal Emergency Management Agency. (2020b). *Regions.* https://www.fema.gov/about/organization/regions

Federal Emergency Management Agency. (2020c). *Homeland Security Exercise and Evaluation Program (HSEEP).* https://www.fema.gov/sites/default/files/2020-04/Homeland-Security-Exercise-and-Evaluation-Program-Doctrine-2020-Revision-2-2-25.pdf

Federal Emergency Management Agency Emergency Management Institute. (2011, May). *Military resources in emergency management* (IS-75). Federal Emergency Management Agency. https://training.fema.gov/is/coursematerials.aspx?code=IS-75

Federal Emergency Management Agency Emergency Management Institute. (2018, March). *Exercise design and development* (IS-139.A). Federal Emergency Management Agency. https://training.fema.gov/is/courseoverview.aspx?code=IS-139.a

Fedrigo, J. A. (2020, June 25). *Total force development.* Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a1/publication/afi36-2670/afi36-2670.pdf

Fekete, G., Gerhart, S., Hatfield, J., & Narimatsu, J. (2019). *EPA needs to improve its emergency planning to better address air quality concerns during future disasters* (Report No. 20-P-0062). Environmental Protection Agency. https://www.epa.gov/sites/production/files/2019-12/documents/_epaoig_20191216-20-p-0062.pdf

Flagler County Board of County Commissioners. (2017, June). *Hurricane Matthew after-action report 2016* [After action report]. http://www.flaglercounty.org/document_center/BOCC%20administration/Matthew/Flagler%20County%20-%20Hurricane%20Matthew%20After%20Action%20Report%20%20Final%20-%20%20June%2020....pdf

Florida Department of Health. (n.d.). *2004 hurricane season after action report* [After action report].

Fowkes, V., Blossom, H. J., Sandrock, C., Mithcell, B., & Brandstein, K. (2010). Exercises in emergency preparedness for health professionals in community clinics. *Journal of Community Health*, *35*(5), 512–518. https://link.springer.com/content/pdf/10.1007/s10900-010-9221-1.pdf

Galindo, A. A., & Kennedy, J. J. (2019, April 23). *After action report for contingency contracting officers (CCO): Operations in support of Hurricane Michael* [Memorandum]. Air Force Installation Contracting Agency.

Garcia-Diaz, D. (2019). *Disaster recovery: Better monitoring of block grant funds is needed* (GAO-19-232). Government Accountability Office. https://www.gao.gov/assets/700/697827.pdf

Gelfeld, B., McNerney, M., Melliand, M., Schaefer, A., & Schnaubelt, C. (2015). *Improving DOD support to FEMA's all-hazards plans* (Report No. RR1301-OSD). RAND. https://www.rand.org/content/dam/rand/pubs/research_reports/RR1300/RR1301/RAND_RR1301.pdf

General Services Administration. (2020a). GSA Disaster Relief & Pandemic Products Program. https://www.gsaadvantage.gov/advantage/ws/search/special_category_search?cat=ADV.DR

General Services Administration. (2020b). *National interest action/other reports: Hurricane Michael report* [Data set]. https://beta.sam.gov/api/prod/databank/v1/reports/static/download?fileName=SAM_IAE%20Hurricane%20Michael&fileType=xlsx&api_key=null

Gootnick, D. B. (2019). *Foreign assistance: Federal monitoring and evaluation guidelines incorporate most but not all leading practices* (GAO-19-466). Government Accountability Office. https://www.gao.gov/assets/710/700675.pdf

Governor's Office of Homeland Security and Emergency Preparedness. (2012). *Hurricane Isaac after action report & improvement plan* [After action report]. https://www.hsdl.org/?view&did=766076

Greenberger, M., & Spaccarelli, A. (2010). The Posse Comitatus Act and disaster response. In E. B. Abbott & O. J. Hetzel (Eds.), *Homeland security and emergency management: A legal guide for state and local governments* (2nd ed., pp. 42–55). American Bar Association. https://digitalcommons.law.umaryland.edu/cgi/viewcontent.cgi?article=1978&context=fac_pubs

Hayes, P. (2010). A series of firsts: The 3d ESC in Operation Unified Response. *Army Sustainment*, *42*(6), 9–11. http://search.proquest.com/docview/857706154/

Holland, D. M. (2019). Responding to the perfect storm: The U.S. Army Corps of Engineers and disaster response in Puerto Rico, 2017. *Military Review*, *99*(3). https://www.armyupress.army.mil/Journals/Military-Review/English-Edition-Archives/May-June-2019/Holland-Perfect-Storm/

Holt, C. (2019). *Air Force contracting flight plan: Mission focused business leadership* [Memorandum]. Department of the Air Force. https://www.afcontracting.hq.af.mil/LOE/

Imlay, C. (2018, January 22). *2017 hurricane season after-action report* [After action report]. ARRL. http://www.arrl.org/files/file/Public%20Service/ARES/2017%20Hurricane%20Season%20AAR.pdf

Information Collection, Analysis, and Dissemination Team. (2010). *ICAD Chile after action report: Chile earthquake* [After action report]. Homeland Security Digital Library. https://www.hsdl.org/?view&did=719270

Jenkins, W. O., Jr. (2012). Improved criteria needed to assess a jurisdiction's capability to respond and recover on its own (GAO-12-838). Government Accountability Office. https://www.gao.gov/assets/650/648162.pdf

Kurian, G.T. (2013). Johari window. In The AMA dictionary of business and management. AMACOM, Publishing Division of the American Management Association. https://search-credoreference-com.libproxy.nps.edu/content/entry/amadictbm/johari_window/0

Johnson, N. A. (2017, November 9). After action report: Hurricane Maria [Memorandum]. Department of the Air Force.

Johnson, W. (2007). *Active component rapid response force: The answer to the military's issues with efficient and effective support during response to and recovery from incidents of national significance?* [Monograph, Army Command and General Staff College]. R&E Gateway: Defense Technical Information Center Archive. https://apps.dtic.mil/dtic/tr/fulltext/u2/a470695.pdf

Joint Chiefs of Staff. (2015). *Joint training manual for the armed forces of the United States* (CJCSM 3500.03E). https://www.jcs.mil/Portals/36/Documents/Library/Manuals/m350003.pdf?ve

Joint Chiefs of Staff. (2017). *Joint planning* (JP 5-0). https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp5_0_20171606.pdf

Joint Chiefs of Staff. (2018). *Joint operations* (JP 3-0). https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_0ch1.pdf?ver=2018-11-27-160457-910

Joint Chiefs of Staff. (2019a). *Foreign humanitarian assistance* (JP 3-29). https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp3_29.pdf

Joint Chiefs of Staff. (2019b). *Operational contract support* (JP 4-10). https://www.jcs.mil/Portals/36/Documents/Doctrine/pubs/jp4_10.pdf

Jones, D. (2010, February). *Highway 31 Fire: April 22–May 20, 2009: After action report* [After action report]. South Carolina Forestry Commission. https://www.wildfirelessons.net/HigherLogic/System/DownloadDocumentFile.ashx?DocumentFileKey=4dc1dad1-fb12-cb85-2c0f-282b43e15c99&forceDialog=0

Judy, J. L. (2019). *2019 annual report: Additional opportunities to reduce fragmentation, overlap, and duplication and achieve billions in financial benefits* (GAO-19-185SP). Government Accountability Office. https://www.gao.gov/reports/GAO-19-285SP/

Kailes, J. (2008). *Southern California wildfires after action report* [After action report]. Access to Readiness Coalition. http://www.jik.com/CaliforniaWildfires.pdf

King, J., & McKay, J. (2006). *Disaster response contracting in a post-Katrina world: Analyzing current disaster response strategies and exploring alternatives to improve acquisition processes for rapid reaction to large scale disasters within the United States* [MBA professional report, Naval Postgraduate School]. NPS Archive: Calhoun. http://hdl.handle.net/10945/10083

Larin, K. A. (2019). *Disaster response: FEMA and the American Red Cross need to ensure key mass care organizations are included in coordination and planning* (GAO-19-526). Government Accountability Office. https://www.gao.gov/assets/710/701499.pdf

Lawson, S., & Cashwell, J. (2018). *Federal contract planning in support of CONUS disaster response: An analysis and application of DOD contingency tools in the precontract-award environment* [MBA professional report, Naval Postgraduate School]. NPS Archive: Calhoun. https://hdl/handle/10945/61214

Lieberman-Cribbin, W., Liu, B., Schneider, S., Schwartz, R., & Taioli, E. (2017). Self-reported and FEMA flood exposure assessment after Hurricane Sandy: Association with mental health outcomes. *PLoS ONE*, *12*(1). ProQuest.

Liu, W., & Wayne, W. (2019). Tweeting to (selectively) engage: How government agencies target stakeholders on Twitter during Hurricane Harvey. *International Journal of Communication*, *13*(2019), 4917–4939. https://ijoc.org/index.php/ijoc/article/view/11588/2818

Lock, R. (2019). *Hurricane Michael after-action report and improvement plan: January 2019*. Florida State Emergency Response Team. https://portal.floridadisaster.org/SERT/AfterActionReports/Real-World%20AARs/Hurricane%20Michael%20AAR-IP%201-7-19.pdf

Long, B. (2018). *2017 hurricane season FEMA after-action report* [After action report]. Federal Emergency Management Agency. https://www.fema.gov/media-library-data/1533643262195-6d1398339449ca85942538a1249d2ae9/2017FEMAHurricaneAARv20180730.pdf

Losey, S. (2018, October 8). Hurlburt to close as Hurricane Michael bears down on Florida. *Air Force Times.* https://www.airforcetimes.com/news/your-air-force/2018/10/08/florida-air-force-bases-eye-incoming-hurricane-michael/

Losey, S. (2019, March 21). After massive flood, Offutt looks to build a better base. *Air Force Times.* https://www.airforcetimes.com/news/your-air-force/2020/08/07/after-massive-floods-offutt-looks-to-build-a-better-base/

Mak, M. A. (2017). *Disaster contracting: Actions needed to improve the use of post-disaster contracts to support response and recovery* (GAO-19-281). Government Accountability Office. https://www.gao.gov/products/GAO-19-281

Mak, M. A. (2018a). *2017 Disaster contracting: Observations on federal contracting for response and recovery efforts* (GAO-18-335). Government Accountability Office. https://www.gao.gov/assets/700/690425.pdf

Mak, M. A. (2018b). *Disaster contracting: Action needed to better ensure more effective use and management of advance contracts* (GAO-19-93). Government Accountability Office. https://www.gao.gov/assets/700/695829.pdf

Mak, M. A. (2019). *2017 disaster contracting: Actions needed to improve the use of post-disaster contracts to support response and recovery* (GAO-19-281). Government Accountability Office. https://www.gao.gov/assets/700/698676.pdf

Margesson, R., & Sullivan, M. P. (2019). *Bahamas: Response to Hurricane Dorian* (CRS Report No. IN11171). Congressional Research Service. https://crsreports.congress.gov/product/pdf/IN/IN11171

Meyer, L. (2018). *Operational contract support: Where we are and where we go from here* [Independent research project, Air Command and Staff College, Air University]. Defense Technical Information Center Archive. https://apps.dtic.mil/sti/pdfs/AD1055033.pdf

Military Support for Civilian Law Enforcement Agencies, 10 U.S.C. § 101(a)(1) (1956). https://uscode.house.gov/view.xhtml?path=/prelim@title10/subtitleA/part1/chapter15&edition=prelim

Miller, H., Jui, J., & McNamara, J. (2005). *Hurricane Katrina: After action report* (OR-2 DMAT) [After action report]. Department of Homeland Security. https://www.hsdl.org/?view&did=766144

The National Emergency Management Agency. (2015). *Hurricane Joaquin Pathfinders Task Force after action report* [After action report]. https://www.hsdl.org/?view&did=788421

National Emergency Management Association. (2006). *Emergency Management Assistance Compact (EMAC): 2005 hurricane season response after-action report* [After action report]. https://www.emacweb.org/index.php/files/89/2005-Hurricane-Season/83/EMAC-2005-Hurricane-Season-AAR-Final.pdf

National Emergency Management Association. (2018). *Emergency Management Assistance Compact (EMAC) response to the 2017 hurricane season* [After action report]. https://webcache.googleusercontent.com/search?q=cache:QJDIGNsM5gsJ:https://www.emacweb.org/index.php/files/66/2017-Hurricane-Season/1/EMACResponsetothe2017HurricaneSeasonAAR11-5-2018.pdf+&cd=1&hl=en&ct=clnk&gl=us

National Governors Association Center for Best Practices. (2007). *A governor's guide to homeland security.* http://www.npstc.org/documents/070314GovGuideHS.pdf

National Oceanic and Atmospheric Administration. (2019). *Hurricane Michael upgraded to a Category 5 at time of U.S. landfall.* U.S. Department of Commerce. https://www.noaa.gov/media-release/hurricane-michael-upgraded-to-category-5-at-time-of-us-landfall#:~:text=This%20final%20wind%20intensity%20is,Tyndall%20Air%20Force%20Base%2C%20Florida.

National Voluntary Organizations Active in Disaster. (n.d.). *About us.* Retrieved June 7, 2020, from https://www.nvoad.org/about-us/

New Jersey Voluntary Organizations Active in Disaster. (2016, June). *VOAD/COAD manual.* http://www.njvoad.org/wp-content/uploads/2017/02/New-Jersey-VOAD-COAD-Manual.pdf

Nieves, A. J. (2017, November 21). *After action report for Operation Hurricane Relief VIPR* [Memorandum]. Department of the Air Force.

Obayuwana, S., & Lockett, E. (2010). *An analysis of the U.S. Department of Defense contracting and logistics support during the first 100 hours of the 2010 Haitian disaster response operation* [MBA professional project, Naval Postgraduate School]. NPS Archive: Calhoun. http://hdl.handle.net/10945/10502

Office of Military Force Management. (2019, August 29). *Manpower and organization* (AFI 38–101). Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a1/publication/afi38-101/afi38-101.pdf

Pandit, K., & Marmanis, H. (2008). *Spend analysis: The window into strategic sourcing*. J. Ross Pub.

Posse Comitatus Act, 18 U.S.C. § 1385 (1878). https://www.law.cornell.edu/uscode/text/18/1385

Powers, R. (2019, August 14). *Air Force emergency management specialist: AFSC 3E9X.* The Balance Careers. https://www.thebalancecareers.com/air-force-enlisted-job-descriptions-3344334

Robert T. Stafford Disaster Relief and Emergency Assistance Act, 42 U.S.C. § 5121 (2019). https://www.fema.gov/media-library-data/1582133514823-be4368438bd042e3b60f5cec6b377d17/Stafford_June_2019_508.pdf

Roth, J. P. (2018, October 24). *Financial management: Budget guidance and procedures* (AFI 65–601). Department of the Air Force. https://static.e-publishing.af.mil/production/1/saf_fm/publication/afi65-601v1/afi65-601v1.pdf

Rusco, F. (2020). *Puerto Rico electricity grid and recovery: Better information and enhanced coordination is needed to address challenges* (GAO-20-141). Government Accountability Office. https://www.gao.gov/assets/710/701982.pdf

Sager, M. (2016). *Disaster recovery: FEMA needs to assess its effectiveness in implementing the National Disaster Recovery Framework* (GAO-16-476). Government Accountability Office. https://www.gao.gov/assets/680/677511.pdf

Saltzman, B.C. (2018, August 7). *Organization and Function of the Civil Air Patrol.* Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_a3/publication/afi10-2701/afi10-2701.pdf

Savoia, E., Agboola, F., & Biddinger, P. D. (2012). Use of after action reports (AARs) to promote organizational and systems learning in emergency preparedness. *International Journal of Environmental Research and Public Health*, *9*(8), 2949–2963. https://doi.org/10.3390/ijerph9082949

Scott, C., & Watson, B. (2018). *HADR operations in III MEF: Optimizing aviation assets for effective supply distribution in disaster areas* [MBA professional project, Naval Postgraduate School]. NPS Archive: Calhoun. http://hdl.handle.net/10945/61266

Spencer, L. O. (2014, May 8). *Air Force culture: Commander's responsibilities.* Department of the Air Force. https://static.e-publishing.af.mil/production/1/af_cc/publication/afi1-2/afi1-2.pdf

Stewart, S.R. (2017) *Tropical cyclone report: Hurricane Matthew* (AL142016). National Hurricane Center. https://www.nhc.noaa.gov/data/tcr/AL142016_Matthew.pdf

Trevino, A., Greathouse, J., Siefkes, J., & Ting, J. (2019). Leveraging our war-fighting capabilities through the lens of operational contract support. *Air & Space Power Journal*, *33*(3), 4–14. https://search.proquest.com/openview/2528144f26c2a3302eff39d0bf4024d9/1?pq-origsite=gscholar&cbl=26498

Under Secretary of Defense (Comptroller). (2019). *Department of Defense financial management regulation* (DOD FMR 7000.14-R). Department of Defense. https://comptroller.defense.gov/FMR.aspx

United States Army Corps of Engineers. (2010). *May 2010 flood event: Cumberland River Basin* [After action report]. Department of Homeland Security. https://www.hsdl.org/?view&did=21310

United States Northern Command. (2019a, September 23). *The Posse Comitatus Act.* https://www.northcom.mil/Newsroom/Fact-Sheets/Article-View/Article/563993/the-posse-comitatus-act/

United States Northern Command. (2019b, September 26). *About USNORTHCOM.* https://www.northcom.mil/About-USNORTHCOM/#:~:text=USNORTHCOM's%20specific%20mission%3A,partners%2C%20and%20supports%20civil%20authorities.&text=This%20provides%20unity%20of%20command%2C%20which%20is%20critical%20to%20mission%20accomplishment

Urban, D. A. (2017, September 11). *Hurricane Harvey CCO support provided by SSgt Derek Urban* [Memorandum]. Department of the Air Force.

The Weather Channel. (2020a, August 24). *Marco and Laura: Track the storms.* https://weather.com/storms/hurricane/news/2020-08-20-tropical-depression-thirteen-fourteen-laura-marco-tracker

The Weather Channel. (2020b, August 29). *Hurricane Laura the first southwest Louisiana category 4 landfall on record with destructive winds, storm surge.* https://weather.com/storms/hurricane/news/2020-08-28-hurricane-laura-recap-louisiana-category-4-landfall

Weichert, M. (2019). *Category management: Making smarter use of common contract solutions and practices* [Memorandum]. Office of Management and Budget. https://www.whitehouse.gov/wp-content/uploads/2019/03/M-19-13.pdf

White House. (2011). *Presidential policy directive/PPD-8: National preparedness.* https://www.dhs.gov/xlibrary/assets/presidential-policy-directive-8-national-preparedness.pdf

Widmann, R. S. (2017). *After action report for senior contract official (SCO) operations in support of Hurricanes Harvey, Irma, and Maria* [Memorandum]. Air Force Installation Contracting Agency.

Yoakum, B. L. (2017, September 26). *After action report: Hurricane Irma* [Memorandum]. Department of the Air Force.

Yoder, E. (2004). *The Yoder three-tier model for optimal planning and execution of contingency contracting* [Working paper]. Naval Postgraduate School. http://hdl.handle.net/10945/351

Zients, J. (2013). *Improving acquisition through strategic sourcing* [Memorandum]. Office of Management and Budget. https://www.whitehouse.gov/sites/whitehouse.gov/files/omb/memoranda/2013/m-13-02_0.pdf

THIS PAGE INTENTIONALLY LEFT BLANK

INITIAL DISTRIBUTION LIST

1. Defense Technical Information Center
   Ft. Belvoir, Virginia

2. Dudley Knox Library
   Naval Postgraduate School
   Monterey, California