

**IS THE REGIONALIZATION OF TECHNICAL RESCUE SERVICES AN AVAILABLE  
AND FISCALLY BENEFICIAL OPTION FOR THE TOWN OF HAMDEN (CT)?**

In Partial Fulfillment  
of the Requirements for the  
Executive Fire Officer Program

by

Richard G. Lennon, M.S.  
Captain  
Hamden Fire Department (CT)

National Fire Academy

March 1, 2023

## **Abstract**

This qualitative study aims to assess the possibilities of regionalizing technical rescue services provided by the Hamden Fire Department by combining technical rescue services with one or more neighboring towns. This study's primary purpose was to investigate whether or not the regionalization of the Hamden Fire Department's technical rescue services could provide a more effective service to the residents and stakeholders of the Town of Hamden while reducing the overall costs associated with said services. While the Town of Hamden and the Hamden Fire Department will be the primary focus of this study, it is hoped that any regionalization efforts could also benefit the other communities in New Haven County. After this research project, it was evident that a regional technical rescue team is not only feasible but also supported by area fire departments. The formation of a regional team will undoubtedly be a successful venture for Hamden and the area fire departments.

### **Acknowledgments**

This research project is dedicated to my family. None of this would be possible without their unwavering support in all my career and educational endeavors. Thank you, Taylor, Hudson, and Hannah, for your support and sacrifices that allowed me to accomplish this lifelong goal. I would also like to thank the Hamden Fire Department and its members, who greatly supported me throughout this journey.

My affiliation with the Hamden Fire Department is provided as biographical information. No official sponsorship or endorsement of this dissertation by the Hamden Fire Department was provided or should be inferred.

The views expressed in this dissertation are the views of the author and participants alone and do not represent the official views of the U.S. Government or any fire department. Certain commercial entities, equipment, or materials may be identified in order to describe a concept or experimental procedure adequately. Use of company names or devices does not imply recommendation or endorsement by the Hamden Fire Department, nor is it intended to imply that the entities, materials, or equipment are the best available for the purpose.

## Contents

CHAPTER 1: INTRODUCTION.....	6
Background and Significance of the Research.....	6
Problem Statement.....	10
Purpose of the Study.....	10
Research Questions.....	10
CHAPTER 2: LITERATURE REVIEW .....	12
Introduction.....	12
Existing Literature .....	12
Synthesis of the Existing Literature.....	20
Summary.....	21
CHAPTER 3: METHODOLOGY .....	22
Research Design.....	22
Population and Sample Size.....	22
Instrument(s).....	25
Research Process.....	26
Ethical Considerations .....	27
Summary.....	27
CHAPTER 4: STUDY RESULTS.....	29
Introduction – Demographics of the Participants .....	29
Research Results .....	31
Summary.....	36
CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS.....	37

Summary of the Results .....	37
Conclusions Based Upon Your Results .....	39
Limitations .....	40
Implications and Recommendations to the Field.....	41
Recommendations for Future Research .....	42
Conclusion .....	42
REFERENCES .....	44
APPENDICES .....	48

## CHAPTER 1: INTRODUCTION

### Background and Significance of The Research

Fire departments across the country struggle to provide quality emergency services amidst shrinking operating budgets and a dwindling workforce compounded by a limited pool of qualified candidates to replace said workforce. Unfortunately, Hamden is no exception to this national trend, and the Hamden Fire Department is expected to provide more with less. These financial and staffing struggles have forced the Hamden Fire Department to get creative, which is why a regional approach to technical rescue services is being researched and considered.

The Town of Hamden is located in south-central Connecticut and is situated directly north of New Haven. The town has just over 60,000 residents living in just over 33 square miles, with a daytime population that swells to over 80,000 due to workers, students, and visitors commuting into Hamden. The town is primarily residential on the northern end, while the southern side consists mainly of commercial, light-industrial, and multi-family buildings. Significant target hazards located in the town, as identified by the fire department, are the Merritt Parkway (CT-Rte. 15), Quinnipiac University, Sleeping Giant State Park, Southern Connecticut State University North Campus, the petroleum tank farm located off Welton Street, and the numerous commuter and freight rail lines located along the entire eastern border of the town. In addition to these significant target hazards, eleven skilled nursing and extended care facilities are spread equally throughout the town with over 1,000 combined beds.

The Hamden Fire Department has an operating budget of over \$14.8 million. Approximately 5% of the total budget is for operations, while the remaining 95% of the total operating budget addresses contractual labor obligations. As first responders, we feel the squeeze

of a weakened economy as our municipality struggles to balance a budget with significant revenue shortfalls.

Approximately 97% of Hamden's budget revenue is derived from property taxes paid by homeowners, and business revenue has been severely delayed or reduced due to constituents' COVID-related fiscal troubles. The rest of the budget comprises income from the State of Connecticut, which is also unguaranteed. Business closings and bank foreclosures have placed a substantial financial burden on our community stakeholders.

Although the Fire Department has requested additional funding from town and state leadership, both entities have been unable to provide any additional funds because the State of Connecticut has significantly cut back on the financial aid it has historically provided to local municipalities. Statewide, businesses and homeowners are finding it increasingly difficult to fulfill their taxpaying obligations, which has resulted in a reduction of funds available through State and local tax revenue.

Hamden's annual median household income is \$67,771; however, 46.6% of our population lives below this financial level. State aid earmarked for Hamden, that is used to offset the town's budget, has been drastically reduced even as essential emergency services costs continue to rise. The fiscal authority for Hamden has been forced to make tough financial decisions to balance the town's budget. Over 55% of the town's budget goes to schools and the Board of Education. The fire department receives approximately 6% of the remaining general funds, of which 95% goes directly to workforce salary and compensation, leaving very little for operating expenditures.

\$300 million in unfunded pension liabilities and a predicted \$6 million operating budget deficit have caused the town's bond rating to be downgraded to one step above junk bond status,

making it more challenging to sell municipal bonds to fund additional projects. Hamden's administration was forced to make deep cuts in all town department budgets to address financial shortfalls. Our fire prevention safety and investigation budgets have been decimated directly related to this process. The town's administration has negotiated additional cost savings through union contract concessions in the Fire Department, reducing the risk of firefighter layoffs. Other town departments have also been forced to reduce employee staffing levels because open positions are left unfunded. Regardless of all the personnel and budget line-item cuts made, our residents will still see a mill rate increase in their property taxes this fiscal year. These financial cuts are making it more and more challenging to ensure that an adequate number of firefighters are available and capable of responding to emergencies daily.

The Hamden Fire Department responds to all fires, hazardous materials, emergency medical, and technical rescue calls within the town. We are a combination fire department consisting of 102 career personnel: 92 line personnel divided into four shifts of 23, a fire marshal's office consisting of four personnel, a repair division comprised of two certified emergency vehicle mechanics and one fire hydrant maintainer, one fire training and EMS officer, the fire chief, one assistant fire chief, and one secretary. Our career personnel is augmented by 15 to 20 active volunteer members that operate out of three volunteer stations.

The department answers over 10,700 calls annually, or an average of 29.3 calls daily, with 74% of these calls being EMS (Emergency Medical Service) related. The department operates a 23-member shift deploying career members out of five fire stations staffing four engine companies, one ladder company, one squad company (rescue engine), two non-transport paramedic units, and one battalion chief (shift commander). The career members currently work a 24/72-hour rotating work schedule. In addition to fire rescue-related services, the Hamden Fire

Department also provides ALS (Advanced Life Support) and BLS (Basic Life Support) non-transport emergency medical services. Depending on the severity of the incident, the department will usually send between two and five members to EMS-related incidents. Fire department call volume has increased approximately 144 % over the last 20 years without increasing vehicles, apparatus, or staffing. In addition, since 2000, there have been 950 new addresses added to the grand list, of which 75% are in multi-family or apartment-style homes, directly increasing the fire department's call volume.

The Hamden Fire Department continuously analyzes NFIRS data. The department leadership has observed that the fire department consistently experiences two or more simultaneous calls 47% of the time, this causes longer response and travel times because emergency units from other areas of the town are needed to respond to mitigate these incidents appropriately. Often, much closer units are available; however, they are not from Hamden but from other communities.

Since the elimination of county governments in 1960, Connecticut counties have held/administered no government functions and have served only as geographical references (Pinho & Bansa, 2013). In place of county government-administered agencies, in 2007, the State of Connecticut Division of Emergency Management and Homeland Security (DEMHS) created and divided the state into five (5) separate operational regions. The Town of Hamden is currently assigned to DEMHS Region 2.

DEMHS Region 2 is comprised of thirty (30) towns and cities located in the south-central portion of the State of Connecticut; it consists of urban, suburban, and rural communities located on the shoreline and within the Connecticut River Estuary. New Haven, the largest city in this region, has a large commercial and industrial economy, with many of the surrounding towns

comprising the southern terminus of the New Haven-Hartford-Springfield Knowledge Corridor. (State of Connecticut, 2021)

Throughout the United States, county fire departments serve as primary or secondary responders in many communities; however, in Connecticut, the lack of county government makes this type of fire department not an option.

### **Problem Statement**

The problem is that shrinking budgets and increased call volume hamper the Hamden Fire Department's ability to provide high-level technical rescue services consistently and effectively to the Hamden community. This problem is compounded by Connecticut's lack of county governments, which adversely impacts the adequate deployment of fire services and any provisions for fire service-related funding throughout the state, specifically the Town of Hamden and surrounding communities.

### **Purpose of Study**

This qualitative study aims to assess the possibilities of regionalizing technical rescue services provided by the Hamden Fire Department by combining technical rescue services with one or more neighboring towns. The primary purpose of this study will be to investigate and examine whether or not the regionalization of the Hamden Fire Department's technical rescue services could provide a more effective service to the residents and stakeholders of the Town of Hamden while also reducing the overall costs associated with said services. While the Town of Hamden and the Hamden Fire Department will be the primary focus of this study, it is hoped that any regionalization efforts could also benefit the other communities in New Haven County.

### **Research Questions**

**Q1.** How do New Haven County fire departments define technical rescue incidents?

- Q2.** What are the technical rescue capabilities of all communities located in New Haven County?
- Q3.** What legal obstacles must the department overcome to form and operate a successful regional technical rescue team?
- Q4.** What are funding resources available to support a regionalized technical rescue services team in New Haven County?

## **CHAPTER 2: LITERATURE REVIEW**

### **Introduction**

The topic of regionalization is nothing new in the fire service; however, it is often overlooked in the northeast, especially in Connecticut. A formal literature review was conducted to help identify and review the process that local and national organizations have used to facilitate the regionalization of services. The literature review should help identify federal or state laws and mandates that could positively and negatively affect the regionalization of technical rescue services in Connecticut, specifically the Town of Hamden and surrounding communities. Other areas of literature reviewed and considered addressed the human factor associated with regionalizing, consolidating, or sharing technical rescue services in Hamden and the surrounding area.

### **Existing Literature**

One of Connecticut's biggest obstacles that affects regional or cooperative sharing of services is the lack of county government within the state. To effectively determine if regionalization of technical rescue services is viable for Hamden, it is prudent to research the history of Connecticut's county governments. More specifically, why was county government eliminated in Connecticut, and is there any opportunity for county governments to resurface in Connecticut and jeopardize any existing or future regionalization efforts?

The first counties in Connecticut were established in 1666, while Connecticut was still a colony under British rule (Durgin, 2021). When initially established, county governments in Connecticut were responsible for operating homes for neglected and abandoned children, administering widow's aid, collecting fees, building bridges over waterways that separate towns, constructing and maintaining roads located within the county, and overseeing county court

operations (Watson, 1998). Connecticut's tax structure for these counties was also unique. Instead of taxing the residents of these counties, which was and is a common practice in other states, Connecticut's county tax was imposed on each municipality based on a percentage of municipal tax collected, usually around 1 percent. Unlike counties in other states that generally tax county residents, Connecticut's counties imposed a tax on municipalities. Each county annually sets its tax rate at its annual budget meeting. The amount of the tax was based on a percentage of municipal property tax collections and generally amounted to about 1% of a municipality's total expenditures (Pinho, 2015). Over the years, as the State of Connecticut and the Nation grew, so did the level and amount of services they offered citizens. Many services provided at the county level were also duplicated by either the State of Connecticut or another federal entity; therefore, to prevent duplication of services and help lower operating costs within the state, the Connecticut General Assembly voted in 1959 to eliminate county governments (Watson, 1998). The State of Connecticut recently formed cooperative planning groups, which as of January 2022, are being used to track census data instead of county statistics (State of Connecticut, 2022).

The concept of regional emergency and disaster responses started to develop in 1992 following the devastation that Hurricane Andrew caused to Florida. The Southern Governors' Association recognized how this event overwhelmed both state and federal resources, so in 1993 they, along with Virginia's Department of Emergency Services, developed and formally adopted a state-to-state mutual agreement called the Southern Regional Emergency Management Assistance Compact (SREMAC) (Emergency Management Assistance Compact, 2022). Since the 1993 SREMAC, a national network of resource sharing was created by the Federal Emergency Management Agency (FEMA), called EMAC. EMAC stands for Emergency

Management Assistance Compact. The purpose of EMAC is to "offer assistance during governor-declared states of emergency or disaster through a responsive, straightforward system that allows states to send personnel, equipment, and commodities to assist with response and recovery efforts in other states" (Emergency Management Assistance Compact, 2022). So, the question arises, if systems are in place to address regional responses at the state and federal levels, why haven't they been adopted locally in Connecticut?

Regionalization is a concept regularly introduced and implemented throughout the country; however, it is a very underutilized option in Connecticut. Lawmakers in Connecticut recognized that Connecticut's county governments were ineffective for the most part. Hence, the state legislature passed a law in 1947 that allowed any contiguous towns to form a Regional Planning Authority (RPA) to prepare and plan for the region's development within its jurisdiction while being represented equally by each jurisdiction defined. Less than 10 years later, the contiguous wording was eliminated from the law (Duffy & McAloon, 2007). There was selective use of RPAs over the years until 1972 when the State of Connecticut formally established 15 regional planning groups, many of which are still in use today.

The purpose of these regional planning groups is to focus on responsible growth in keeping with similar efforts occurring nationally. In recent years, there has been growing interest in a concept called Smart Growth. While the term can be defined in a variety of ways, the broad elements usually include recognition of the connection between development and quality of life, the value of mixed uses (i.e., jobs, housing, and retail within proximity of each other), preservation of open space, and correspondingly, a desire to restore city centers and older suburbs whenever possible; the importance of pedestrian-oriented communities that have access to public transportation; and the existence of a development plan, based on a thoughtful process

that considers the future needs and existing resources of a region" (Duffy & McAloon, 2007). Also, during this same period, the State of Connecticut changed language in the law, allowing these same planning groups to form regional governments should they see fit.

The Town of Hamden actively participates in the South Central Regional Council of Governments (SCRCOG), established in 1985. The SCRCOG's primary purpose is to provide a platform for inter-municipal coordination, cooperation, and decision-making. The SCRCOG comprises fifteen municipalities: Bethany, Branford, East Haven, Guilford, Hamden, Madison, Meriden, Milford, New Haven, North Branford, North Haven, Orange, Wallingford, West Haven, and Woodbridge. The SCRCOG region covers approximately 570,000 people or 1/6th of the state's population. (South Central Regional Council of Governments, n.d.). Planning is the primary purpose of SCRCOG; however, in the summer of 2002, a regional hazardous response team was created called the New Haven Area Special Hazards Team (NHASH). The New Haven Area Special Hazards Team (NHASH) was established to aid and assist Member Town Fire Departments and other public safety agencies within their jurisdiction areas to handle any Hazardous Materials Incidents. This NHASH team is funded in a variety of ways. The NHASH team receives federal and state funding as a component of the State of Connecticut's emergency response framework, specifically ESF-10. ESF 10's primary function is oil and hazardous materials response. If SCRCOG already has a hazardous materials response team, why not provide all technical rescue services? The main problem, unfortunately, is funding, both the state and federal government, significantly support hazardous material response as a component of the National Response Framework. Unfortunately, other technical rescue facets are not supported.

Many benefits can be associated with regionalizing/consolidating technical rescue services (Governor's Fire and Rescue Shared Services Task Force, 2010). One significant factor

often overlooked when regionalizing/reducing resources is the innovation potential that may gain from such a merger; however, in corporate America, it is one of the fundamental driving forces of mergers. During a study conducted by Deutsche Bank and Bankers Trust, it was determined there was sometimes a value to having redundancy by operating the same departments at both companies if both were functioning successfully. It was determined that these successful departments could learn from one another, helping to increase profits and productivity (Appelbaum et al., 2013).

A Blueprint for Shared Services outlines problems associated with merging or consolidating emergency resources and services. Some issues to anticipate include organizational culture, service expectations, politics, and labor management issues, were a few items that organizations should consider when entering agreements to share or consolidate services (2010). Webster's Dictionary (2022) defined culture as a particular form of civilization; beliefs, customs, arts, and institutions of society at a given time; a refinement in intellectual and artistic taste; and the art of developing intellectual faculties through education. When fire department leaders develop a strategic plan for their organization, culture is often a driving force when making many decisions. Pride and culture are often synonymous when you think about the fire service. Many departments and their members fear mergers or consolidation because there is concern that an organization's culture and individuality may be lost if a merger or consolidation occurs. Pride and culture are not solely unique to the fire service. When companies merge, organizational culture is often one of the main focuses in corporate America. "It is important to understand that the cultural fit of two companies can be either too close to realize synergetic improvements or too far apart to integrate without drastically negatively impacting the integrated firm's performance and the level of employee performance/satisfaction overall" (Appelbaum et al.,

2013, p.37). As for politics and labor management agreements, hopefully, there is potential for this type of team to mimic similar agreements between law enforcement teams that are already established, such as the South Central Regional SWAT Team. The last big thing to thoroughly consider is leadership, specifically who is in charge. Battalion Chief Steven LaRosa (Ret.) identified through research that when discussing the potential consolidation of fire departments within the City of Middletown (Connecticut), leadership selection will and should be one of the most impactful decisions made during a consolidation process and should be based upon existing and potential leadership abilities, and not decided by who is from the larger agency (2013). This is certainly something that should be considered when regionalizing; just because an agency is more prominent in size, it does not necessarily mean they are better at any or all types of service delivery.

Literature associated with the successful regionalization of any fire department or emergency service agency should also be thoroughly considered when determining its feasibility. The formation of North Shore Fire Rescue, located in Milwaukee County, Wisconsin was a key source of literature reviewed for this project. North Shore Fire Rescue was formed between 1992 and 1994 by consolidating Milwaukee County's seven North Shore municipalities (Bayside, Brown Deer, Fox Point, Glendale, River Hills, Shorewood, and Whitefish Bay) into one fire department (North Shore Fire and Rescue, 2022). The driving force behind North Shore consolidation was that multiple studies identified fiscal waste through duplication of services, to the point that it was identified as an example of extreme fiscal waste. Before North Shore Fire Rescue's formation, there were three separate career fire departments, two separate combination career/paid-on-call, and two individual volunteer departments, all operating in a total area of less than 25 square miles, serving a population of just over 65,000 people (Henken et al., 2015). One

of the most compelling pieces of supportive data published in the Come Together: An analysis of fire department consolidation in Milwaukee County's North Shore report, was the amount of financial savings most of the municipalities experienced. According to the report, four of the seven municipalities are paying less for fire and EMS services than they would have paid if consolidation had not occurred, and their 1993 expenditures had increased at the rate of inflation. When we adjusted expenditure amounts to also reflect a level of service for each municipality that is associated with a full-time, fully professional fire department, we found that each of the North Shore municipalities is experiencing operating savings and that for five of the seven, the savings are exceeding \$250,000 annually (Henken et al., 2015, p.4).

The Come Together report demonstrates that the regionalization of North Shore Fire Departments in Milwaukee County, Wisconsin, was and is currently an example of a regionalization success story. The report identified how the regionalization of fire departments or other emergency-related services can improve efficiency and service delivery by reducing duplication of services, which as a result, financially benefits multiple communities.

Drivers and barriers were identified during the literature review as areas to consider when determining the feasibility of regionalizing fire departments or specific services provided by multiple fire departments. The driving force behind fire department consolidation is often based on public administration performance metric that focuses on efficiency, economy, and effectiveness (Herrmann & Deslatte, 2017). This performance metric is just one example of why a regional technical rescue service should be considered a viable option for Hamden and surrounding communities. Some examples of barriers experienced during fire department consolidation case studies include internal opposition, change in the organizational direction associated with leadership change, fear of losing organizational autonomy, and lack of

stakeholder involvement (Herrmann & Deslatte, 2017). Herrmann and Deslatte (2017) recommend that fire departments attempting to merge completely or just individual services should consider building on the drivers and be willing to address the barriers as they go into the process. To address barriers, they recommend following a four-step process.

First, consolidating with the hope of improving service can be built on existing mutual-aid agreements or training arrangements that neighboring departments already have in place. Next, fire departments need to be data-driven. Performance information should be more widely utilized to ascertain whether consolidation enhances key metrics of public administration, including effectiveness, efficiency, economy, and equity. Finally, thorough stakeholder analysis must be a part of any consolidation effort. Identifying the mutual interests of all affected stakeholder groups, effectively communicating benefits, and answering questions can assist in building coalitions necessary to support the lengthy consolidation process (Herrmann & Deslatte, 2017).

Literature involving South Metro Fire Rescue in Colorado is another example of a successful fire department regionalization project. South Metro Fire Rescue initially began as the Castlewood Fire Protection District in 1951 and, throughout 48 years, merged with three other local fire departments that officially adopted the modern South Metro Fire Rescue name in 1999 (South Metro Fire Rescue, 2022). Since its inception, South Metro Fire Rescue has grown to include 12 communities covering 285 square miles, serving a population of roughly 540,000 people (South Metro Fire Rescue, 2022). These are details and facts that help bolster support for regionalization. Another thing to consider is that the fire department mergers involving South Metro Fire Rescue are not old news; South Metro Fire Rescue has continued mergers throughout the years, the most recent being when they merged with Littleton Fire Rescue in 2019 (South

Metro Fire Rescue, 2022). South Metro Fire Rescue's recent continued growth is a clear example that when regionalization of services is appropriately organized, implemented, and administered; it is a viable option that should be considered to increase efficiency and reduce overall operating costs.

Routson (2017) evaluated a regional approach to technical rescue in Urbandale, Iowa, providing promising information because Urbandale appeared to provide technical rescue services similar to how Hamden Fire Department currently operates. One of the similarities shared between the Hamden Fire and the Urbandale Fire Department is that both organizations own a sufficient cache of the technical rescue equipment necessary for our members to gain operational and technical proficiency in some technical rescue disciplines. These technical rescue disciplines include ice rescue, motor vehicle extrication, and low-angle and high-angle rope services, all available disciplines in which the department could improve proficiency with little to no additional equipment costs. Also, like Urbandale, Hamden relies upon mutual aid from local and state agencies to respond to technical rescue incidents outside the Hamden Fire Department's capabilities. Routson recommends adopting the Standard Operating Procedures of mutual aid departments to reduce the duplication of efforts when multiple departments respond to technical rescues; this additionally would help streamline regionalization should it become a viable option.

### **Synthesis of Existing Literature**

The literature review produced several examples of regionalized or merged fire departments to consider when determining the feasibility of regionalizing technical rescue services in Hamden and the surrounding communities. Much of the literature reviewed detailed large-scale mergers or consolidations, so it will be necessary to thoroughly consider costs

compared to funding when determining the feasibility of a regional technical rescue team. Another common trend identified in the literature was identifying barriers so they can be correctly anticipated and planned for. To improve the chances of forming a successful regional partnership among fire departments, all of these recently discussed items must be thoroughly reviewed and evaluated at the ground level during the initial formation of a regional technical rescue team.

### **Summary**

The literature reviewed helped solidify that forming a regional technical rescue team should be considered a viable option for the Town of Hamden and surrounding communities. Information obtained from the literature review and findings contained in the methodology and results sections should assist in providing accurate recommendations for whether or not to form a regionalized technical rescue service delivery method in Hamden and the surrounding communities should be considered.

## **CHAPTER 3: METHODOLOGY**

### **Research Design**

Generic qualitative is the research design chosen for this project. To understand how the research for this project was conducted, you must first understand the true definition of qualitative research.

Qualitative research is a means for exploring and understanding the meaning individuals or groups ascribe to a social or human problem. The process of research involves emerging questions and procedures; collecting data in the participants' setting; analyzing the data inductively, building from particulars to general themes; and making interpretations of the meaning of the data. The final written report has a flexible writing structure. (Creswell & Creswell, 2018, p.250)

A combination of surveys, questionnaires, interviews, document reviews, and observations will all be used to conduct the research for this project.

### **Population and Sample Size**

As discussed earlier in this research project, the Town of Hamden actively participates in the South Central Regional Council of Governments (SCRCOG), which is comprised of fifteen municipalities which, include: Bethany, Branford, East Haven, Guilford, Hamden, Madison, Meriden, Milford, New Haven, North Branford, North Haven, Orange, Wallingford, West Haven, and Woodbridge. The SCRCOG demonstrates that these communities are already willing to work with one another on other projects, which is one of the reasons specific departments were chosen. In contrast, others were excluded from this research project. As Creswell & Creswell (2018) recommended, the fire departments chosen were purposely selected based on geography, existing mutual agreements, or because of a consistent history of mutual aid

responses between the selected department and the Town of Hamden. The following communities were selected, Branford, East Haven, Guilford, Meriden, New Haven, North Branford, and Wallingford.

By definition, the "purpose of sampling is to approximate a larger population on characteristics relevant to the research question, to be representative so that researchers can make inferences about the larger population" (Kelley et al., 2003). For this reason, the primary objective of this study was to sample two focus groups from each agency. The first group was comprised of the executive or administrative-level officers, specifically individuals that are not assigned to an operational shift. The second group was comprised of individuals assigned to an operational role on a shift, and it was preferred that these individuals did not hold a rank above battalion chief. A minimum of one participant from each group per department was preferred; however, there were no participation cutoff numbers.

The Branford Fire Department is a combination fire department that staffs ten firefighters per shift, supported by volunteer firefighters, all of whom operate out of five fire stations. The Branford Fire Department protects a population of 28,176 people living in a 21.84 square mile area (United States Census Bureau, 2021). The Town of Branford is situated fifteen miles to the southeast of Hamden.

The East Haven Fire Department is a combination fire department that staffs eleven firefighters per shift, which are augmented by volunteer firefighters, all of whom operate out of four fire stations. The East Haven Fire Department protects a population of 27,804 people living in a 13.4 square mile area (United States Census Bureau, 2021). The Town of East Haven is situated twelve miles to the southeast of Hamden.

The Guilford Fire Department is a combination fire department that staffs ten firefighters per shift, which are augmented by volunteer firefighters, all of whom operate out of five fire stations. The Guilford Fire Department protects a population of 22,081 people living in a 47.08 square mile area (United States Census Bureau, 2021). The Town of Guilford is situated twenty-one miles east of Hamden.

The Meriden Fire Department is a combination fire department that staffs twenty-two firefighters per shift, augmented by volunteer firefighters, all of whom operate out of four fire stations. The Meriden Fire Department protects a population of 60,517 people living in a 23.73 square mile area (United States Census Bureau, 2021). The City of Meriden is located thirteen miles to the northeast of Hamden.

The New Haven Fire Department is an all-career fire department that protects a population of 135,081 across an area of 20.14 square miles (United States Census Bureau, 2021). The department operates out of ten fire stations, with a daily staffing level of seventy-three firefighters per shift. New Haven occupies Hamden's entire southern border.

The North Branford Fire Department is an all-volunteer fire department comprised of around 130 firefighters who operate out of three fire stations. The North Branford Fire Department protects a population of 13,498 people living in a 24.76 square mile area (United States Census Bureau, 2021). North Branford is situated seven miles to the east of Hamden.

The Wallingford Fire Department is a combination fire department that staffs sixteen firefighters per shift, which are augmented by volunteer firefighters, all of whom operate out of four fire stations. The Wallingford Fire Department protects a population of 44,194 people living in a 39.16 square mile area (United States Census Bureau, 2021). The Town of Wallingford occupies a portion of Hamden's northern border.

## **Instruments**

A combination of instruments will be used to conduct research for this project. The tools used for this project consisted of a survey with a questionnaire, an interview, a document review, and observation.

An introductory survey was used to initiate contact with the selected department. The survey contains a basic description of the research project and asks questions about whether the department is willing to participate in the study and who were the two people they were designating as their representatives. Additionally contained in the survey are fundamental questions to determine the current level of technical rescue services that each department currently provides. Suppose they do not offer a specific service whom they would call to mitigate an emergency involving a technical rescue discipline. See Appendix B as an example of the initial survey used.

Interviews were conducted based on the results of the surveys, which were initially sent out to solicit participation in this research project. The preferred interview method was an in-person meeting; however, a phone or video conference was used as a substitute when a formal in-person interview could not be facilitated. See appendices C and D as examples of the questions and how the interviews would be formatted.

During this research project, an essential document review occurred. Documents reviewed specifically related to the annual and capital budgets of the participating fire departments and existing agreements between agencies currently participating in the SCRCOG. The purpose of reviewing SCRCOG agreements is to determine if any existing laws would help or hinder the formation of a regional technical rescue team.

General operational observations throughout the research will be considered and thoroughly documented. Examples would include current tech rescue training initiatives facilitated through the state fire academy or changes to mutual aid agreements.

### **Research Process**

The surveys were initially created to develop a base of information about each agency's technical rescue capabilities, their willingness to participate in the study, and who would represent them. These surveys were sent out electronically to department leaders via survey monkey, and once returned, the results were transferred to a PDF file and attached to this submitted research project.

To determine the credibility and dependability of the survey questions, each survey was field tested by experts in the field not affiliated with this study or any of the departments that participated in this study. The experts reviewed the survey and interview questions to ensure they portrayed the key concepts being studied and whether or not the questions made sense while also helping to ensure that questions were not awkwardly phrased or leading (Northcentral University, 2018). The experts who participated in field testing are listed in Appendix A.

Interviewees were selected using purposive methods because they worked for a fire department or agency being researched as part of this project. Additionally, interview participants were selected by their department leadership to represent their department in this study based on the initial survey (Appendix B) sent to each agency.

Documents selected for the research project comprised the last five years of operating and capital budgets from each participating fire department. The budgets were reviewed to identify money allocated to purchase technical rescue equipment or conduct training related to technical rescues. These documents were chosen to help determine the average amount of money

each agency spends annually to maintain whatever technical rescue services they offer their community.

### **Ethical Considerations**

Two ethical issues needed to be considered while conducting research for this project. The two ethical issues to consider were conflicts of interest and participation permission. Webster's Dictionary (2022) defines a conflict between the private interests and the official responsibilities of a person in a position of trust. Research validity is always a concern when politics or personal motives affect how someone participates in a study. Since the individuals being interviewed for this project are all public safety professionals, as a researcher, you have to hope that the interviewees share the same core values so that they participate honestly throughout the interview process. Participation permission concerns should be alleviated using the initial agency survey sent to department heads. The department head will provide the names and contact information of the individuals participating in the study on behalf of their department; therefore, this would be considered consent for them to participate and represent their respective agencies. In addition to leadership consent to participate in this study, each participant was required to complete an interview consent form provided by the National Fire Academy. See Appendix E as a reference.

### **Summary**

To summarize the methodology of this research project, a generic qualitative research design was chosen for this project that consisted of a combination of surveys, questionnaires, interviews, document reviews, and observations used to conduct the research for this project. The method of research, accompanied by the information obtained, will support the hypothesis that a

regional technical rescue team approach will improve service delivery while maintaining a fiscally responsible posture.

## **CHAPTER 4: STUDY RESULTS**

### **Introduction**

This qualitative study aimed to assess the possibilities of regionalizing technical rescue services provided by the Hamden Fire Department by combining technical rescue services with one or more neighboring towns. The primary purpose of this study will be to investigate and examine whether or not the regionalization of the Hamden Fire Department's technical rescue services could provide a more effective and efficient service to the residents and stakeholders of the Town of Hamden while also reducing costs associated with said services. While the Town of Hamden and the Hamden Fire Department will be the primary focus of this study, it is anticipated that any regionalization efforts could also benefit the other communities in New Haven County.

Four core research questions were used to guide the researcher in developing research questions, interview processes, and the study:

- Q1.** How do New Haven County fire departments define technical rescue incidents?
- Q2.** What are the technical rescue capabilities of all communities located in New Haven County?
- Q3.** What legal obstacles must the department overcome to form and operate a successful regional technical rescue team?
- Q4.** What are funding resources available to support a regionalized technical rescue services team in New Haven County?

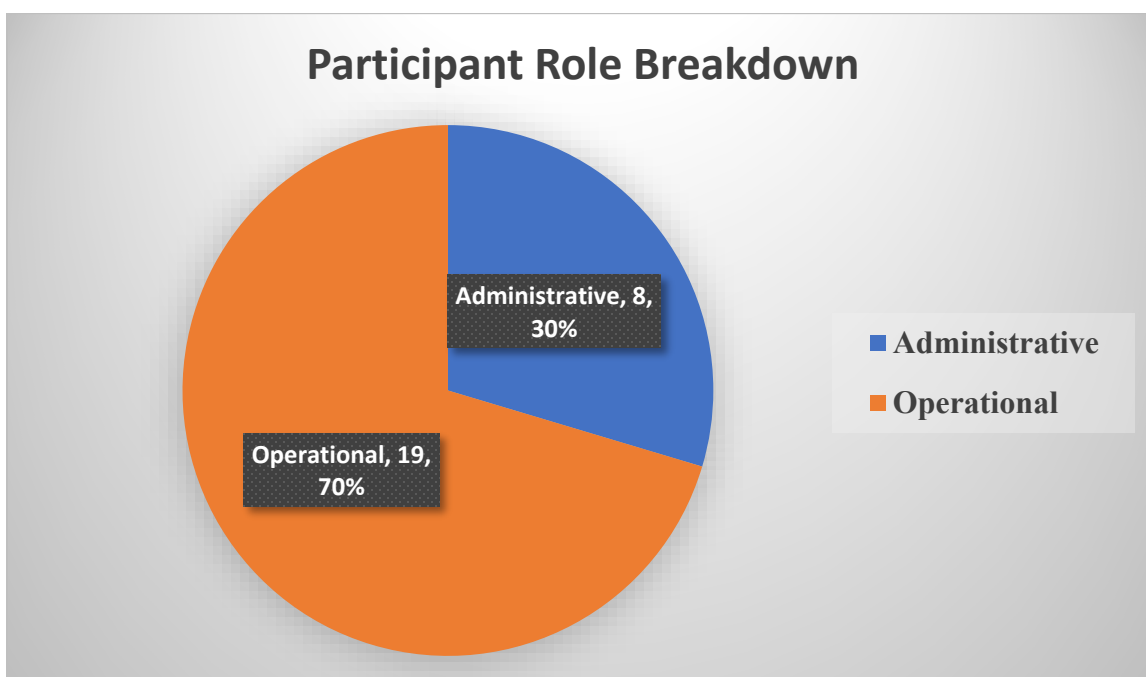
### **Demographics of the Participants**

The researcher contacted executives from each participating agency to determine if they wanted to pick whom from their agency participated in this research or if they were comfortable leaving it up to the researcher to select the participants. All the agencies allowed this researcher

to choose the participants independently, which was done randomly. Some executives suggested certain members from their departments because they felt their experience and knowledge related to technical rescue might be of increased value to the research conducted. The researcher interviewed a total of 27 members from the participating departments. Of the 27 members interviewed and surveyed, eight held administrative roles, and 19 held operational positions within their respective departments. No specific rank, training, or minimum years of service requirements were needed to participate in the surveys or interviews. The organizational level and years of experience varied for each participant. Participant ranks ranged from firefighter to assistant chief, and their years of fire service experience varied from 5 to 51 years of experience, see Appendix F.

Figure 1

*Participant Role Breakdown*



## Research Results

To ensure the credibility and dependability of the questions and surveys being used to conduct this research, they were all field tested by experts who are not currently associated with this research project. The selected field testers were invited to review each of the surveys and additional research questions to assess whether they believed them to be understandable to participants while assessing their overall pertinence related to the research that was being conducted.

Interviews were conducted both in person and via telephone. The first component of the interview consisted of basic surveys to learn a little about the participants and their respective agencies before focusing the interview on the four main questions of this research project.

**Research Question 1: How do New Haven County fire departments define technical rescue incidents?** The first question inquired how fire departments in New Haven County, specifically the departments participating in this research project, classify technical rescues. The answers varied among the participants; however, there were two common themes among participants.

*Theme 1: A significant number of participants defined a technical rescue as any incident that exceeds the capability of their department.* This theme coincides with the "book" definition of technical rescue incidents. According to NFPA (2021), a technical rescue incident is a "complex search and/or rescue incident requiring specialized training of personnel and special equipment to complete the mission." Participants 1, 17, 19, 21, 26, and 27 all stated that they consider a technical rescue to be anytime the complexity of an incident is greater than the training and equipment provided by their department.

*Theme 2: Participants classified technical rescues based on the technical rescue training classes the Connecticut Fire Academy offered.* The Connecticut Fire Academy (CFA) is the AHJ in Connecticut related to firefighter training and certification testing. The CFA currently only provides the following technical rescue training classes: rope technician, confined space technician, vehicle technician, and trench technician. There are times when the CFA offers other technical rescue disciplines, but the four disciplines previously listed are the only ones where yearly training offerings for these programs occur consistently. Participants considered 2, 4, 7, 10, 12, 13, and 25 believed that the CFA's technical rescue courses dictate what is or is not considered a technical rescue within the State of Connecticut.

**Research Question 2: What are the technical rescue capabilities of all communities located in New Haven County?** The second question focused on identifying the technical capabilities of all the fire departments in New Haven County; however, to ensure accurate results, this question was modified to focus only on the technical rescue capabilities of the nine fire departments participating in this research project. The nine participating fire departments all provide at least one technical rescue service to their community, and multiple departments provided all the technical services being researched.

*Theme 1: Participants state that their departments provide some level of wilderness rescue, but none of them believed that their departments operate at the technician level.* Most participants acknowledge that their departments offer search and rescue services; however, what services they offer the participants believed would not be classified as technician-level. All the participants reported providing search and rescue for people lost or injured in the woods; however, most did not consider woods or forested areas in their community significant enough to be classified as wilderness. Participants 1-4 and 20-27 stated that their department responds to

lost or injured hikers all the time in the summertime, but it is nothing that lasts more than a few hours. Participant 26 stated, "compared to the stuff you see out west where it takes them days to reach their victims, what we do is minor. I would definitely not consider what we do as wilderness rescue. We are not out for days on end; we don't have to camp or carry multiple days' worth of food. It's pretty straightforward what we do".

*Theme 2: Trench rescue was a service multiple departments provided; however, participants from these fire departments felt that trench rescue was a service they felt their department should no longer provide.* Most participants believed that they did not have the staffing or appropriate equipment necessary to successfully mitigate most emergency trench rescue incidents. Participants 10-15, 20, 22, and 27 felt that most agencies lacked the manpower, training, and equipment to mitigate a trench collapse successfully. These participants all reported that their respective departments had some equipment, and some department members possessed the necessary training, but as a whole, they believed they were ill-prepared to mitigate this type of emergency. Participant 27 stated:

Depending on who is working really determines if we can handle a trench call.

Realistically, I think we have just enough equipment to get ourselves into trouble. If we had a more robust cache of equipment and more certified personnel, I think I'd be a little more comfortable responding to this type of emergency. I mean, do I think we can handle a trench emergency? Yes, but I'd certainly want to ensure we had mutual aid coming in case things became complicated.

*Theme 3: Participants acknowledge that extrication is a technician-level skill; however, most believe their agencies would not classify it as a technical rescue incident.* All the participants thought that although vehicle and machine extrication are unique, they have both

developed and integrated into the core of daily operations in the fire service, and many would consider that most extrications do not meet the criteria of technician level; therefore, for the most part, they would not consider them to be technical rescue incidents. Participant 17 explained why he did consider extrications as technical rescues:

Although extrications can be unique and complicated, I really consider them as a core service that we provide, similar to firefighting. Everyone provides extrication! Advances in extrication equipment and training, accompanied by the increased availability of the equipment we carry, make it less unique and more like a service we provide daily.

**Research Question 3: What legal obstacles must the department overcome to form and operate a successful regional technical rescue team?** Many participants hesitated and pondered this question for a few seconds. The common answer given was "none" because many of the participants believed that a regional technical rescue would be considered to be similar to mutual aid, which most of the participating fire departments already had in place with one another. Another topic discussed were limitations that may be caused because of existing union contracts.

*Theme 1: Who's in charge, this was the main statement/question stated by participants.*

Participants believe one of the biggest legal obstacles when forming a successful regional technical rescue team would be the legal paperwork and necessary agreements needed to formally establish a team. Participants 2, 4, 15, and 22 all referenced local and regional teams that area law enforcement agencies have formed. Participant 2 stated:

We really need to look at our law enforcement partners; they've got this type of thing ironed out. If you look at the regional SWAT or accident reconstruction team formed in our area, you'll see they have all the legal paperwork squared away. Their agreement

outlines command structure, fiscal responsibility, workers' compensation, resource deployment, and all the things you'd need in writing to ensure a regional team's successful formation and operation.

**Research Question 4: What funding resources are available to support a regionalized technical rescue services team in New Haven County?** Participants had multiple answers to this question; however, very few answers were supported by any specific information, and most appeared to be more like suggestions from the participants.

*Theme 1: Participants believe Assistance to Firefighters Grants (AFG) is one of the best funding sources to help cover some of the costs associated with a regional technical rescue team.* Most participants identified AFG as a primary source to obtain funding for equipment and training. It was suggested that a regional grant could be applied for to obtain the funding necessary to properly train and purchase the necessary equipment needed to initially start the team. Once the team is operating, grants such as AFG can be used for large-scale equipment purchases and further personnel training.

*Theme 2: Self-funding was the other source of funding that many of the participants stated as a means of funding a regional technical rescue team.* Each participating fire department contributing a pre-established cost share was the main suggestion mentioned by participants. Participants 1, 8, 15, 15, and 25-27 referenced the NHASH team and suggested that funding for a regional technical rescue team should mimic how the NHASH team is funded.

**Additional Question: Do you feel regional technical rescue would be successful or not?** This was asked to determine the level of buy-in amongst all levels of participants.

*Theme 1: It depends.* It depends was a common answer amongst the majority of the participants; however, their reason for this answer varied. Participants 4,18, 25, and 26 were

concerned with the command structure and worried that their department and its members would be "pushed around" by the larger departments when operating at significant incidents that required a large-scale response. Consistency was another area of concern. Participants 4, 18, 25-27 were skeptical that all the participating agencies would agree to the same equipment, SOPs, and training requirements.

As mentioned earlier in another answer, participants 2 and 27 referenced the written agreements the local police departments have in place for the different regional teams, such as accident reconstruction or SWAT. These participants believed that if a regional technical rescue team was formed using a similar agreement, the team would be successful.

### **Summary**

A qualitative study was conducted using internal and external fire officers and firefighters to gain a perspective on the viability of the Hamden Fire Department regionalizing technical rescue services with other area fire departments. The answers given by the participants have created a substantial amount of data that will be used to determine if there is an opportunity to form a successful regional technical rescue team and the process necessary to establish a regional team should the data determine this project should move forward.

## **CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS**

### **Introduction**

This chapter presents conclusions and recommendations developed from the interview and survey findings identified in the previous chapter. This study aimed to determine whether or not the regionalization of the Hamden Fire Department's technical rescue services could provide a more effective service to the residents and stakeholders of the Town of Hamden while also reducing the overall costs associated with said services. The four core research questions below were used to guide the researcher in developing research questions, interview processes, and the study:

- Q1.** How do New Haven County fire departments define technical rescue incidents?
- Q2.** What are the technical rescue capabilities of all communities located in New Haven County?
- Q3.** What legal obstacles must the department overcome to form and operate a successful regional technical rescue team?
- Q4.** What are funding resources available to support a regionalized technical rescue services team in New Haven County?

The research sought to explore the feasibility of forming and operating a regional technical rescue amongst Hamden and area fire departments using a combination of surveys and semi-structured interviews of participants from nine area fire departments.

### **Summary of the Results**

Throughout this research project, a few themes were identified for each core research question, and an additional supporting research question was also added as a result of the data being obtained. The global question is whether the Town of Hamden should consider forming a regional technical rescue team with area fire departments.

The first question, research question 1, asked the participants to explain how they believe New Haven County fire departments define technical rescue incidents. The answers varied among the participants; however, there were two common themes among participants; both were two completely different answers for what they believed New Haven County fire departments thought classified an incident as a technical rescue.

Research question 2, asked the participants to name the technical rescue capabilities of fire departments located in New Haven County, specifically the fire department they are a member of. The overall answers from the participants coincided with the department informational survey that each participating agency completed. Multiple themes were identified where participants believed there were some technical rescue services their community provided that they thought they should no longer offer because of the lack of training, equipment, and qualified personnel on duty in some situations. This was a theme voiced by multiple participants, with trench rescue being one of those services they felt should no longer be provided.

Research question 3 sought to determine what legal obstacles the department would have to overcome to form and operate a successful regional technical rescue team. No specific legal barriers were identified; however, there were suggestions made of non-fire service-related teams that should be further researched to learn how these teams were formed and operated and what components help to make these regional teams successful.

Research question 4 aimed to learn what funding resources might be available to support a regionalized technical rescue services team in New Haven County. There were two main themes identified, both of which were not unique. AFG funding for initial training and equipment and self-funding from all participating agencies.

## Conclusions Based Upon Your Results

Based on the results, this researcher concludes that a regional technical rescue team is feasible and can positively affect a total population of 392,274 people residing in the communities where fire departments participated in this research project. The research conducted was to determine if there was any buy-in to pursue a regional technical rescue team and, if so, how. Every fire department that participated in the research showed interest in all levels of their departments. Below are the conclusions that were developed for each of the core research questions:

**Question 1**, how do New Haven County fire departments define technical rescue incidents? It was concluded that the definition was agency specific. Most agencies had a combined approach to answering this question. If an incident was complex and outside their capabilities, they considered it a technical rescue. The agencies also thought something to be a technical rescue if it was one of the technical rescue disciplines taught at the CFA, minus vehicle extrication, which was considered to be a core service by many participating departments.

**Question 2**, what are the technical rescue capabilities of all communities located in New Haven County? This was supposed to be a straightforward question; however, the answer for this varied depending on the participant. Most participants identified all the technical rescue services their department provides their communities; however, some felt that they should no longer provide them because of limited training, equipment, and qualified personnel. Each participating department should perform a risk assessment of their technical rescue programs and determine if they should still operate at their current level or reassess their service delivery.

**Question 3**, what legal obstacles must the department overcome to form and operate a successful regional technical rescue team? It was determined that there aren't any specific laws or

standards that would impede the formation of a regional team; however, there also aren't any in place that would support the formation of a regional team where financing, command structure, and workers' compensation are clearly written out similar to law enforcement teams.

**Question 4**, what are funding resources available to support a regionalized technical rescue services team in New Haven County? The answer to question 4 coincides with question 3. Legal compacts must be formed to ensure the team is consistently and adequately funded to ensure fiscal responsibility is clearly addressed. As discussed earlier in this project, AFG funds could be used for initial training and equipment purchases.

The results of this research have the opportunity to positively affect the fire departments involved in this study by creating dialogue amongst these participating agencies. This positive dialogue has brought this project one step closer to fruition.

### **Limitations**

There were multiple limitations noted during this research project. Initially the scope, this researcher intended to research the feasibility of a regional technical rescue team by interviewing members from every fire department located in New Haven County, which would have been 28. Due to the timeline associated with this research project, accompanied by limited resources, it was determined that the research would be conducted using eight area fire departments that are within relatively close proximity to Hamden. Limiting the number of departments involved assured that this research project would be completed on time; however, it did leave a large area of New Haven County unresearched regarding this topic.

A second area of limitation is the participant pool. The participants were chosen at random but also based on availability. There is no guarantee that this research project would yield the same results if recreated because it would be unlikely that all the same participants would be involved.

The third area of limitation is department involvement. The current leadership of each fire department involved in this research supported and encouraged this research project. In the instance that leadership in these same departments may change, there is no guarantee that they would be willing to allow members from their department to participate if they do not believe a regional technical rescue is a viable option for their community.

### **Implications and Recommendations to the Field**

The research findings and implications related to the four questions and correlating literature are discussed below.

**Research Question 1:** How do New Haven County fire departments define technical rescue incidents? Throughout this research, there were multiple answers to how fire departments in New Haven County define technical rescue incidents, most of which were subjective to the agency or participant. The recommendation to this question is that all participating agencies formally adopt the NFPA definition when determining what constitutes a technical rescue in their service area.

**Research Question 2:** What are the technical rescue capabilities of all communities located in New Haven County? The only formal recommendation regarding this question is to have all the participating fire departments formally provide an updated list of their technical rescue services. The updated information would allow other area departments to know if a specific resource was needed and who of the area departments they could contact to help them.

**Research Question 3:** What legal obstacles must the department overcome to form and operate a successful regional technical rescue team? Further involvement of leaders needs to be involved to either rewrite or create new statutes from scratch that would allow fire departments the opportunity to form and operate regional teams similar to their law enforcement counterparts.

**Research Question 4:** What are funding resources available to support a regionalized technical rescue services team in New Haven County? To adequately fund and structure a regional technical rescue team, it would be necessary to operate under or create a statute similar to Connecticut General Statute (CGS), Section 7-277a. CGS authorizes municipalities the ability to enter into compacts to share police services. These compacts are written to outline the fiscal responsibility of each agency. This structure could be adopted whether or not agencies are self-funding or operating under state or federal grants.

### **Recommendations for Future Research**

Increased department leadership involvement is undoubtedly the key to progressing this research further. The initial study was conducted as a proof of concept and mainly to determine if there was enough buy-in for a regional technical team to move forward. Roundtable discussions amongst key leaders would help to identify individual and group concerns, which would enable the researcher opportunity to address said concerns better.

State leader involvement is another area future researchers should focus on. As learned during the research for the project, there are already general statutes in place in Connecticut that legally allow police departments specifically the ability to form regional teams or partnerships; however, there are no statutes on the books that specifically address the fire service. It would be of great value if future researchers could determine the path necessary to create similar statutes allowing fire departments to operate similarly to law enforcement agencies in Connecticut regarding this matter.

### **Conclusion**

The purpose of this chapter was to present conclusions and recommendations developed from the interview and survey findings identified in the previous chapter. This study aimed to

determine whether or not the regionalization of the Hamden Fire Department's technical rescue services could provide a more effective service to the residents and stakeholders of the Town of Hamden while also reducing the overall costs associated with said services. The four core research questions below were used to guide the researcher in developing research questions, interview processes, and the study:

- Q1.** How do New Haven County fire departments define technical rescue incidents?
- Q2.** What are the technical rescue capabilities of all communities located in New Haven County?
- Q3.** What legal obstacles must the department overcome to form and operate a successful regional technical rescue team?
- Q4.** What are funding resources available to support a regionalized technical rescue services team in New Haven County?

The research sought to explore the feasibility of forming and operating a regional technical rescue amongst Hamden and area fire departments using a combination of surveys and semi-structured interviews of participants from nine area fire departments. It is believed that the results obtained in this study prove that a regional technical rescue team is feasible. The research conducted may not have any effect globally on the fire service. Still, if formed, this research has the opportunity to positively affect a total population of 392,274 people encompassing an area of 222.76 square miles.

## REFERENCES

- Appelbaum, S. H., Roberts, J., & Shapiro, B. T. (2013). Cultural Strategies in M&As: Investigating Ten Case Studies. *Journal of Executive Education*, 8(1), 33–58.
- Bisson, S. R. (2011). *Homegrown Regionalization: Developing Model Procedures to Enhance the Safety and Coordination of the Fairfield County Hazardous Incident Response Team* (thesis). National Fire Academy, Emmitsburg.
- Blanchard, L. (1989). Regional consolidation: why don't more fire departments in America merge? (Unpublished master's thesis, 1989). Emmitsburg, MD: National Fire Academy.
- Creswell, J. W., & Creswell, J. D. (2018). *Research design: Qualitative, Quantitative, and Mixed Methods Approaches*. SAGE Publications.
- Department of Emergency Services and Public Protection. (2019, July). Connecticut State Response Framework. Retrieved from [https://portal.ct.gov/-/media/DEMHS/\\_docs/Plans-and-Publications/EHSP0025-SRFV41pdf.pdf](https://portal.ct.gov/-/media/DEMHS/_docs/Plans-and-Publications/EHSP0025-SRFV41pdf.pdf)
- Duffy, M., & McAloon, A. E. (2007, September 18). Connecticut's Regional Planning Organizations Briefing Report. Retrieved from [https://www.cga.ct.gov/2007/pridata/Studies/RPO\\_Briefing.htm#P55\\_6515](https://www.cga.ct.gov/2007/pridata/Studies/RPO_Briefing.htm#P55_6515)
- Durgin, P. (2021, September 27). *Site Lines: Monuments to Connecticut's Lost County Government*. ConnecticutHistory.org. Retrieved from <https://connecticuthistory.org/site-lines-monuments-to-connecticuts-lost-county-government/>
- Emergency Management Assistance Compact. (2022). Retrieved from <https://www.emacweb.org/>

- Governor's Fire and Rescue Shared Services Task Force. (2010). *A Blueprint for Shared Services*. Retrieved from <https://www.leg.mn.gov/docs/2010/other/100973.pdf>
- Henken, R., Amenta, D., & Gavin, M. (2015, October). *Come Together: An analysis of fire department consolidation in Milwaukee County's North Shore*. Wisconsin Policy Forum. Retrieved from <https://wispolicyforum.org/research/come-together-an-analysis-of-fire-department-consolidation-in-milwaukee-countys-north-shore/>
- Herrmann, R., & Deslatte, A. (2017). Understanding the Drivers and Barriers to Fire Department Consolidation in Illinois. *Illinois Municipal Policy Journal*, 2(1), 1–15.
- Joubert, T. P. (2019). *The Impacts of Consolidation* (thesis). National Fire Academy, Emmitsburg.
- Kelley, K., Clark, B., Brown, V., & Sitzia, J. (2003). Good Practice in the Conduct and Reporting of Survey Research. *International Journal for Quality in Health Care*, 15(3), 261–266. <https://doi.org/10.1093/intqhc/mzg031>
- LaRosa, S. J. (2013). *Consolidating the City of Middletown Fire Districts* (thesis). National Fire Academy, Emmitsburg.
- Merriam-Webster. (2022). Merriam-Webster. Retrieved from <https://www.merriam-webster.com/>
- National Fire Protection Association. (2021). *NFPA 1006 Standard for Technical Rescue Personnel Professional Qualifications*. Retrieved from <https://link.nfpa.org/free-access/publications/1006/2021>
- Northcentral University. (2018). *Pilot Studies and Field Tests*. Retrieved from <https://commons.ncu.edu/sites/default/files/entity/paragraph/2019/Pilot%20Studies%20and%20Field%20Tests%2004092019.pdf>

- North Shore Fire and Rescue, WI. (2022). Retrieved from <https://www.nsfire.org/>
- O'Day, A. (2015). Regional Emergency Medical Response: Developing an Implementation framework for the CFA. Retrieved from <https://nfa.usfa.fema.gov/pdf/efop/efo49316.pdf>
- Pinho, R. (2015). COUNTY GOVERNMENT IN CONNECTICUT. Connecticut General Assembly. Retrieved from <https://www.cga.ct.gov/2015/rpt/2015-R-0274.htm#:~:text=Since%201960%2C%20counties%20in%20Connecticut,county%20governments%20had%20limited%20functions>
- Pinho, R., & Bansa, J. S. (2013). County Government in Connecticut. Retrieved from <https://www.cga.ct.gov/2015/rpt/2015-R-0274.htm>
- Reynolds, E. (2014). Implementation of Regional Training Agreements with Oklahoma Fire Departments. Retrieved from <https://nfa.usfa.fema.gov/pdf/efop/efo48806.pdf>
- Ross, M. B. (2009). Utilizing Regional Resources to Staff an Incident Management Team. Retrieved from <https://nfa.usfa.fema.gov/pdf/efop/efo43780.pdf>
- Routson, L. (2017). *Evaluating a Regional Approach to Technical Rescue in Urbandale, Iowa* (thesis). National Fire Academy, Emmitsburg.
- South Central Regional Council of Governments. (n.d.). Retrieved from <https://scrcog.org/>
- South Metro Fire Rescue. (2022). Retrieved from <https://www.southmetro.org/>
- State of Connecticut. (2022, June 6). *Governor Lamont announces U.S. Census Bureau approves proposal for Connecticut's planning regions to become county equivalents*. The Office of Governor Ned Lamont. Retrieved from <https://portal.ct.gov/Office-of-the-Governor/News/Press-Releases/2022/06-2022/Governor-Lamont-Announces-Census-Bureau-Approves-Proposal-for-Planning-Regions>

State of Connecticut. (2021). Region 2 - Middletown. Retrieved from

<https://portal.ct.gov/DEMHS/Emergency-Management/Resources-For-Officials/Regional-Offices/Region-2>

United States Census Bureau. (2021). *U.S. Census Bureau QuickFacts: United States*. United

States Census Bureau. Retrieved from <https://www.census.gov>

Watson, J. A. (1998, January 30). *County Government Abolishment*. Connecticut General

Assembly. Retrieved from <https://www.cga.ct.gov/PS98/rpt%5Colr%5Chtm/98-R-0086>

### **Appendix A: Field Testing of Questions**

The following individuals were solicited to assist in field testing the questions for the proposed focus groups and individual interviews, and all given permission to have their names published in this document:

Scott Martus  
University of New Haven  
Master of Science- Emergency Management  
Yale Center for EMS

Josh Raeben, MO  
George Washington University  
Master of Science- Crisis, Emergency, and Risk Management

Assistant Chief Charles Lubowicki Jr.  
University of New Haven  
Master of Science- Emergency Management  
Assistant Fire Chief- Greenwich Fire Department (CT)

The researcher appreciates the time and effort of the field testers in assisting in the development of the interview and focus group questions.

## Appendix B: Survey Questions

PROJECT: This research aims to determine if a regionalized technical rescue is supported and financially feasible. Your participation will help the area fire department and community leaders determine if this project is worth pursuing in the region. This survey aims to determine if your agency is willing to participate in this research project while also answering some basic knowledge questions about your agency.

1. What is the name of your agency?

2. Are you willing to have your agency participate in this research project?

Yes                      No

If the answer to question 2 is no, are you willing to explain why?

3. Listed below are seven technical rescue disciplines. Please indicate which disciplines your department provides for your department. If you do not provide a specific discipline, please indicate whom you would request to mitigate an incident involving said discipline.

1) Structural Collapse

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

2) Rope Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

3) Confined Space Search and Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

4) Vehicle and Machinery Search and Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

5) Water Search and Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

6) Wilderness Search and Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

7) Trench Evacuation Search and Rescue

Yes                      No

If no, what agency would you request for assistance: \_\_\_\_\_

4. Please provide a minimum of two individuals that may represent your department for future questions and potential interviews

Individual 1: Executive or Administrative level Officer

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

Individual 2: Operational level Officer or Senior Firefighter

Name: \_\_\_\_\_

Email: \_\_\_\_\_

Phone: \_\_\_\_\_

### Appendix C: Interview Questions- Administrative

PROJECT: This research aims to determine if a regionalized technical rescue is supported and financially feasible. Your participation will help the area fire department and community leaders determine if this project is worth pursuing in the region. This face-to-face interview will take one hour, but if you (the interviewee) wish to continue longer, and at the interviewer's discretion (Richard Lennon), the interview will continue. Any further questions arising from the initial questions will remain within the research framework.

START TIME OF INTERVIEW:

END TIME OF INTERVIEW:

LENGTH OF INTERVIEW:

DATE:

PLACE:

INTERVIEWER: Richard Lennon

INTERVIEWEE:

QUESTIONS: For executive-level officers

1. Please briefly introduce yourself by rank, length of time you have been in the fire service, where you are currently stationed, and your primary job role.
2. Please tell me about what technical rescue specialties you are trained/certified in.
3. What technical rescue specialties does your department provide for the community? Is there an annual cost associated with these services?
4. How many technical rescues does your agency respond to a year? Can you give some examples?
5. Do you require your members to be certified in specific technical rescue disciplines? If so, which?
6. Is there a specific technical rescue specialty in which your department excels? Why?
7. Is there a specific technical rescue specialty your department offers that you feel they should no longer provide? Why?

8. Does your department train annually for technical rescue? If so, what is the annual cost associated with this training?
9. Does your department budget for technical rescue equipment annually? If so, how much? Can you please give an example of the types of equipment you budget for?
10. Do you feel regional technical rescue would be successful or not? Please explain.
11. Is there anything else you would like to share or discuss regarding technical rescues?

## Appendix D: Interview Questions- Operational

**PROJECT:** This research aims to determine if a regionalized technical rescue is supported and financially feasible. Your participation will help the area fire department and community leaders determine if this project is worth pursuing in the region. This face-to-face interview will take one hour, but if you (the interviewee) wish to continue longer, and at the interviewer's discretion (Richard Lennon), the interview will continue. Any further questions arising from the initial questions will remain within the research framework.

**START TIME OF INTERVIEW:**

**END TIME OF INTERVIEW:**

**LENGTH OF INTERVIEW:**

**DATE:**

**PLACE:**

**INTERVIEWER:** Richard Lennon

**INTERVIEWEE:**

**QUESTIONS:** For operational-level officers or firefighters

1. Please briefly introduce yourself by rank, length of time you have been in the fire service, where you are currently stationed, and your primary job role.
2. Please tell me about what technical rescue specialties you are trained/certified in.
3. What technical rescue specialties does your department provide the community?
4. Does your agency require you to be certified in specific technical rescue disciplines?
5. Is there a specific technical rescue specialty in which your department excels? Why?
6. Is there a specific technical rescue specialty your department offers that you feel they should no longer provide? Why?
7. Does your department train annually for technical rescue emergencies? If so, how is the training delivered?
8. Do you feel regional technical rescue would be successful or not successful? Please explain.
9. Is there anything else you would like to share or discuss regarding technical rescues?

## Appendix E: Interview Consent Form

### Interview Consent Form

#### Identification of Investigators & Purpose of Study

You are being asked to participate in a research study conducted by **Richard Lennon** from the National Fire Academy (NFA). The purpose of this study is to develop a better understanding of a critical issue in the fire and emergency services. This study will contribute to the researcher's completion of their final project.

#### Research Procedures

Should you decide to participate in this research study, you will be asked to sign this consent form once all your questions have been answered to your satisfaction. This study consists of an interview that will be administered to individual participants. You will be asked to provide answers to a series of questions related to your experience within a particular community. **An [audio/video] recording of the interview [will/will not] be taken for transcription purposes. The [audio/video] file will be deleted at the conclusion of the study and will not be shared with anyone other than the researcher.** You may turn off your camera if you do not wish to be filmed.

#### Time Required

Participation in this study will require approximately [**60 minutes**] of your time.

#### Risks

The investigator does not perceive more than minimal risks from your involvement in this study (that is, no risks beyond the risks associated with everyday life).

The NFA and its contractors take no responsibility for the actions or outcomes of the research study.

#### Benefits

**There are no direct benefits to the participant; however, information from this study may benefit your and other communities in the future.**

#### Incentives

**There are no incentives (financial or otherwise) associated with participation in this study.**

#### Confidentiality

The results of this research will be presented to NFA program faculty and students. The results of this project will be coded in such a way that the respondent's identity will not be attached to the final form of this study. The researcher retains the right to use and publish non-identifiable data. While individual responses are confidential, aggregate data will be presented, representing averages or generalizations about the responses as a whole. All data will be stored in a secure location accessible only to the researcher. Upon completion of the study, all information that matches up individual respondents with their answers (**including audio and/or video recordings**) will be destroyed. Final aggregate results will be made available to participants upon request.

#### Participation & Withdrawal

Your participation is entirely voluntary. You are free to choose not to participate. Should you choose to participate, you can withdraw at any time without consequences of any kind.

### Questions about the Study

If you have questions or concerns during the time of your participation in this study, or after its completion, or you would like to receive a copy of the final aggregate results of this study, please contact:

**Richard G. Lennon**  
Student  
National Fire Academy  
rlennon@hamden.com

**Christine Spangler**  
Instructor  
National Fire Academy  
christine.spangler@fema.dhs.gov

### Giving of Consent

I have read this consent form, and I understand what is being requested of me as a participant in this study. I freely consent to participate. I have received satisfactory answers to my questions. The investigator provided me with a copy of this form. I certify that I am at least 18 years of age.

- I give consent to be filmed and audio recorded during my interview. \_\_\_\_\_ (interviewee initials)
- I give consent to be audio recorded during my interview. \_\_\_\_\_ (interviewee initials)

<b>Interviewer Signature</b>		<b>Date:</b>	
------------------------------	--	--------------	--

<b>Interviewee Signature</b>		<b>Date:</b>	
<b>Interviewee Signature</b>		<b>Date:</b>	

### Appendix F: Participant Breakdown

	<b>Rank</b>	<b>Total Years in the Fire Service</b>	<b>Number of Technical Rescue Certifications</b>
Participant 1	Training Officer	25	0
Participant 2	Assistant Chief	21	5
Participant 3	Deputy Chief	51	0
Participant 4	Deputy Chief	25	4
Participant 5	Lieutenant	19	0
Participant 6	Assistant Chief	21	3
Participant 7	Assistant Chief	27	0
Participant 8	Deputy Chief	38	6
Participant 9	Assistant Chief	19	5
Participant 10	Captain	20	4
Participant 11	Battalion Chief	31	0
Participant 12	Lieutenant	15	0
Participant 13	Firefighter	17	0
Participant 14	Lieutenant	11	3
Participant 15	Captain	26	3
Participant 16	Battalion Chief	21	2
Participant 17	Firefighter	35	0
Participant 18	Firefighter	12	1
Participant 19	Firefighter	18	3
Participant 20	Lieutenant	25	0
Participant 21	Battalion Chief	33	0
Participant 22	Assistant Chief	27	4
Participant 23	Lieutenant	9	0
Participant 24	Firefighter	13	3
Participant 25	Firefighter	6	0
Participant 26	Lieutenant	27	0
Participant 27	Captain	15	3