

**Assessing the Staffing Needs of the Winston-Salem Fire Departments Training Branch: a  
study of how to move the department from reactive to proactive.**

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## Abstract

This study investigates the personnel needs, perceived proactivity, and position allocation within the training branch of a fire department, with a special focus on the Winston-Salem Fire Department (WSFD) in North Carolina. Utilizing a qualitative based study, interviews were conducted with other North Carolina fire departments to answer critical questions regarding staffing needs, proactivity, and future responsibilities of the fire service training branch.

The findings revealed a significant disparity in staffing levels across the state, further highlighting the critically low staffing level of the WSFD training branch. Results showed that WSFD had a 196:1 ratio of training staff to employees, more than double that of any other department studied. The findings also illustrated that there were more responsibilities within WSFD than many other departments, primarily overseeing the safety branch. Safety was a completely different branch of the fire department in some cases, and training had no role in those responsibilities.

The proactivity assessment unveiled the fire department's complexities and how comparing departments on a direct parallel becomes challenging. Many departments desired to become proactive but lacked the resources to meet this desire. It was also discovered that the desire for complete proactivity might not be possible due to the dynamic nature of emergency responses.

Recommendations were made to address the staffing crisis faced by the WSFD training branch. Further research is needed to establish what proactivity is within the fire service. This study serves as the groundwork for further research into these areas and opens the door to more constructive research in the future.

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## CHAPTER 1. INTRODUCTION

In public safety and community risk reduction, training is the foundation on which all other functions are built. The Winston-Salem Fire Department (WSFD) is responsible for providing emergency services response to many critical incidents, including fire, emergency medical response, technical rescue, hazardous materials, and any other emergency that might arise. With training being the foundation of the overall delivery of emergency response, the Training Branch is facing a staffing crisis. Currently, the training branch operates with only two dedicated positions, which is inadequate to meet the demands of a modern fire department's need for proactive and safe training.

This situation is compounded by the ripple effect it has on the Fire Department. To meet the mandatory requirements and regulations, the Training Branch must utilize members of the Suppression Branch to meet the minimum standards. The Suppression Branch is also facing a staffing crisis and is operating with minimal staffing regularly. Pulling members from one branch to another creates an endless cycle of staffing shortages. Thus, compromising the overall operational readiness of the Winston-Salem Fire Department.

Historically, the limited staffing within the Training Branch has resulted in reactive training as opposed to proactive training. The fire service has a history of celebrating its heritage while recognizing that services provided have evolved and will continue to experience significant changes over the next 30 years (Center for Public Safety Excellence, 2021). The fire service responsibilities are ever-changing and increasing in responsibilities. Firefighters on the front line deserve the training and skills needed to meet their current and future needs.

This research intends to explore whether the Winston-Salem Fire Department Training Branch is understaffed and in critical need of more positions. This will be done by examining the

current needs of the Training Branch, the impact of an understaffed Training Branch, and the number of positions it will take to become proactive. By examining these questions, this study intends to provide the stakeholders and policymakers with the needed information to invest in new positions within the training branch. This study also intends to educate policymakers on the situation's urgency and provide them with the tools necessary to build an adequate training branch.

## **Background**

The Winston-Salem Fire Department (WSFD) has a history dating back to 1758, with two cities operating separate fire departments. In 1913, the city of Winston and the city of Salem joined together, creating the Winston-Salem Fire Department. During the early years, Winston-Salem was a very progressive fire department with two fire stations and some of the most modern advancements in the industry.

Over the years, the WSFD has grown to twenty fire stations, with the latest being added in 2023. Winston-Salem now has six ladder companies, a dedicated rescue company, and a hazardous materials team. WSFD responds to emergencies for fire, EMS, rescue, hazardous material, and any other emergency that might arise. Along with responding to emergencies, WSFD has a Fire and Life Safety Branch (FLSB) for public education, community engagements, and code enforcement.

One area of concern that has not significantly grown during the last 100 years is the adequate staffing of a Training Branch. WSFD has two assigned positions within the organization to manage and facilitate department training. They are also responsible for maintaining certifications for firefighter certifications, emergency medical technician, Blue Card Incident Command, certified inspector, hazardous material, technical rescue, and new hire recruit

school. Along with managing the certifications, the Training Branch produces courses on the learning management software TargetSolutions, quarterly drill ground training, firefighter physical fitness classes, EMT continuing education, and daily company training.

With the many new requirements, maintaining the current standards with more than 360 employees and 75 fire companies throughout the city has become impossible. The Training Branch works hard to stay above water and meet the minimum required standards. To combat falling further behind, the Training Branch has utilized the help of employees from the suppression Branch to meet the needs. The use of suppression staff compounds the problem due to the Suppression Branch facing its own staffing crisis.

Due to the current staffing crisis, the training branch cannot work towards predicting and solving future problems. The day-to-day functions overwhelm the available hours for work to be completed. There is almost no strategic planning or foresight for the organization's future needs. Likewise, these problems arise without warning, resulting in a reactive, unplanned response and a revolving cycle of reactivity.

### **Significance of the Study**

This study is significant because a substandard training program increases the likelihood of firefighter injury (Pinsky, 2009). It also decreases the skills and abilities of the overall service delivery of the Winston-Salem Fire Department. Training is the foundation on which all fire service operations are built.

The deciding factor for an effective firefighter is based on their training, equipment, and experience. Without proper training, the other two have no significance. If someone provided an untrained citizen with all the modern firefighting equipment and no training, they would still be ineffective. Likewise, if someone has experience but has not learned from those experiences,

they will not be any better than a civilian. The problem in the Winston-Salem Fire Department is that there are not enough staff to complete the required training, much less grow beyond the basics.

Training starts with the organizational statement and should reflect the outcomes desired by the citizens and stakeholders (Pinsky, 2009). The stakeholders in Winston-Salem expect to have an innovative and forward-thinking fire department (Winston-Salem Fire Department, 2023). The risk to the stakeholders is that the WSFD is not upholding its end of the deal. If training and training staff are regarded as an afterthought, the fire department is not meeting the stakeholders' expectations.

The significance of this research is discovering if the Winston-Salem Fire Department needs more staffing in the training branch to become innovative and forward-thinking. Through the assessment of the current needs, the impact of being understaffed, and the actions needed to become proactive, the research intends to employ political/strategic foresight and research-based analytical data to propose, influence, adopt, implement and evaluate public policy (*Executive Fire Officer Handbook*, 2023). This study will lay the groundwork for elected officials and policymakers to budget more positions within the Training Branch.

### **Problem Statement**

The problem is that the Winston-Salem Fire Department training branch is severely understaffed. The department has two assigned training positions within the branch. To complete the mandatory requirements, the training branch must use personnel from the Suppression Branch, who are also understaffed. Limited staffing historically resulted in reactive training, as opposed to proactive training. This research will examine the need for more staff in the training branch of the Winston-Salem Fire Department.

The perpetual state of understaffing can cause significant consequences such as burnout. Burnout refers to the psychological condition caused by a demanding job with the lack of access to resources (Starcher & Stolzenberg, 2020) Job burnout is outlined by its association with various types of unfavorable organizational outcomes, varieties of health problems, and mental health disorders (Lubbadeh, 2020). The detrimental effects of perpetual understaffing extend beyond mere exhaustion; they permeate into organizational efficiency and employee well-being. Addressing this issue is crucial not only for maintaining productivity but also for safeguarding the mental and physical health of the workforce.

### **Purpose Statement**

The purpose of this type of research is to examine the Winston-Salem Fire Department training branch's needs for effective and proactive training. The study will examine fire departments of similar size and geographical location to Winston-Salem. The research will be conducted in Winston-Salem at the Fire Department headquarters.

### **Research Questions**

- 1: How do the current personnel needs of the Winston-Salem Fire Department training branch affect overall efficiency?
- 2: What protocols are needed for the training branch to become proactive and address the future needs of the Winston-Salem Fire Department?
- 3: What new responsibilities will the training branch need to accomplish to become proactive?
- 4: How should the roles and responsibilities of the training branch be divided?

## **Summary**

The Winston-Salem Fire Department is suffering from a major staffing crisis in the training branch, with only two dedicated positions. This shortage requires the training branch to pull staff from the suppression branch who are also facing their own staffing issues, compounding the issues, and making a revolving staffing problem. The staffing shortages have resulted in reactive training as opposed to proactive training.

Although the WSFD has grown significantly, only one dedicated position has been added to training in the last 15 years. These positions have been overwhelmed with managing certification, building training courses, and ensuring the operational readiness of more than 360 firefighters and 75 fire companies. This research is intended to investigate the impact understaffing has on the overall training effectiveness and operational readiness of the Winston-Salem Fire Department.

Chapter 2 will examine the existing literature, and Chapter 3 will explain the methodology. Chapter 4 will detail the results and findings of the research. Chapter 4 will also answer the research questions. Chapter 5 is the results and recommendations to the department and policy makers. Chapter 5 will also summarize the research and address where research should continue in the future.

## CHAPTER 2: LITERATURE REVIEW

### Introduction

A primary pillar of research is understanding and reviewing existing literature about fire service training and how staffing issues relate to the effectiveness of that training. In the context of research focused on the staffing crisis of the Winston-Salem Fire Department training branch, the literature review plays a key role in understanding current knowledge, understanding the current trends, and highlighting potential gaps in available research.

The literature review analyzes information from other fire-based studies, adult learning studies, law enforcement training studies and burnout. Understanding how these fields relate to fire service training is critical to understanding how to analyze the information gained. It is also important to understand how they are different and could create pitfalls in research outcomes. Ultimately, the literature review of relative topics will help better assess how staffing of a training branch correlates with product outcomes.

Adult learning is important because all fire personnel are adults and need to be treated as such. It is plausible to assume that adult learners are different than children. It is also reasonable that the content for adult learners should be tailored to the learning habits and technology of their generation and prior learning experiences. Drawing conclusions from an elementary level would cause pitfalls from training adult learners.

Law enforcement and the fire service share many commonalities. One of the most glaring similarities is their position within the local government system. Both law enforcement and fire departments share similar budgeting issues and the political impacts of elected officials. Law enforcement is most comparable in the government's system due to the high-risk nature of the

profession. Analyzing the parks and recreations division of a municipality would cause pitfalls due to their lack of operating in high-risk environments.

Fire-based research is one of the most important literature sections due to its direct relation to the end goal. It is important to look at what other fire departments are doing and how it affects their outcomes. Drawing conclusions from other fire departments helps from having to reinvent the wheel. If there is a working program or a proven formula, research might not be needed. Likewise, understanding where the current lack of information is can direct this study to see what questions have already been answered and what is still left to be discovered.

Burnout research is also critical to understanding possible outcomes of overworking the training staff. It is important to understand what the implications are for the individuals and the organization. Drawing conclusions from existing research can help the fire department see the common signs of burnout and make corrections before a crisis has arisen. Likewise, existing research can predict problems that may occur if employees become burnt out.

## **Existing Literature**

### **Adult Learning**

When looking at "The Dark Side of Education Quality: A Case Study", the authors seek to determine the disparities in learning education within Asian countries. The study focuses on three major factors that affect the quality of learning; those areas are, inflation, per capita income, and poor instructor to student ratio (Waleerak Sittisom, 2020). The most relevant to this study is the instructor to student ratio and how it affects the quality of education. The study found that one of the reasons students seek private school over public school was due to a better student to instructor ratio. Overwhelmingly the results show that more interaction with the instructor (smaller ratio) produces better outcomes for the student.

This information is significantly important because having more dedicated staff in the training branch would result in a better instructor to student ratio. As seen in the prior literature, this could have a significant impact on how recruit school and drill ground training is administered. Allowing for a better ratio of instructors to students might show an improvement in completion of rookie school.

"Teacher Effectiveness in Adult Education: The relationship between Teacher Characteristics and Student Test Gains and Transitions into Postsecondary Education" seeks to determine the defining characteristics of what makes a teacher a good educator. The study found many things that play a role in the learning and education of students but the most relevant topics to this study are, what is the instructor's role in student outcomes, who to select as instructors, and the correlation between full time and part time instructors (Yin et al., 2022).

The teacher is the single strongest factor in student achievement (Yin et al., 2022). This is a bold statement considering all the factors surrounding the student. This information is pivotal because teacher selections is the next most relevant topic. The study concluded that teacher specialization statistically correlated with student outcomes. It was not the amount of time someone had been teaching nor their teaching method. Although those factors play a role in outcomes, it was the teacher's specialization that made the difference statistically. Lastly, the study showed that there was not statistically a difference in gains between part-time and full time teachers (Yin et al., 2022). However, part time teachers were less effective in helping students transition to postsecondary education compared to full-time teachers (Yin et al., 2022).

### **Law Enforcement Training**

"Recruit conservation warden field training: A qualitative analysis of the San Jose Police Department Field Training Model applied to natural resource law enforcement" sought to find a better option for training law enforcement officers in the field. This change was called for mostly

as a result of President Obama's, Presidential Task Force on 21<sup>st</sup> Century Policing (Groppi, 2021). The bulk of the study was to establish a better way for officers to be trained. In this study they went away from a centralized training team and focused on field training officers (FTOs). In the study they used wide variety of training techniques used by the FTOs to address recruit learning needs, which showed that "innovative training techniques" were not discouraged as stated by the President's Task Force (Groppi, 2021, para. 35).

This study is important because it shows some contradiction to the idea that a centralized training team is better for learning outcomes. The study did not say, not to have a centralized team but focused on the role of FTOs. There could be some pitfalls in this comparison due to the nature of the work and the work teams. Law enforcement often operate as a single unit and or in teams of two depending on the location. The fire service almost always operates as a larger team, with the minimum being four firefighters assigned to an apparatus.

"The Importance of Training in Law Enforcement" several major topics that can correlate to this research paper. The first item studied was the way training hours were devoted to law enforcement training programs nationally and how they affected their reactions. The vast majority of their hours were devoted to operational training (200 hours) with the second most being weapons and the use of force (168 hours) (Allen, 2020). The majority of those hours were not devoted to crisis intervention or de-escalation tactics (21 hours) (Allen, 2020). The author goes on to explain how the devotion of hours has a correlation with the on-scene outcomes.

The next most relevant topic was about the selection of instructors and how they make a difference in outcomes. Allen, (2020) challenges two assumptions that are commonly held in law enforcement and likewise, in the fire service. The first assumption is that the most senior member of a department is good at their job (Allen, 2020). If this assumption is true, then why

have they not been promoted or moved to a higher rank with greater impact on the department. The next assumption is, people who are good at their job will be good at training other people to do that job (Allen, 2020). There are many other skills required to become a good trainer outside of knowing a doing the specific job itself. Most importantly is communication, empathy, and the ability to see the trainees point of view (Allen, 2020).

This article has great relevance to building and establishing a proactive training branch. We must first understand that what we focus on in training is what the firefighters will do in the field. If we only train on certain topics, those will be the actions taken by firefighters in high-stress situations regardless of the conditions present. Likewise, we must challenge old assumptions and traditions that have been long held. When selecting team members for a training branch, it should not always be the traditional selection process of the senior members, regardless of their educational merit.

### **Fire Based Training**

"An Evaluation of the Officer Development Training for the Rocky Mount Fire Department" sought to determine the best method for how to establish an officer development program within their department. The overreaching idea was that many of the aspiring officers had to acquire training from outside the department as opposed to internally (English, 1998). The conclusion was that Rocky Mount did not need a formal officer development school but needed to provide more opportunities to the firefighters in the local area.

This study is important because it contradicts the idea that the training branch should offer more classes internally, requiring more staff. It also indicates there may be opportunities in the Winston-Salem area that have not been explored. It does however, indicate the need to become organized as an organization, and make sure the members of the department are aware of the available resources (English, 1998).

"Determining if the Current Training Officer Format Utilized by the Hinsdale Fire Department is Effective" sought to find out the best method for having effective training officers. This study found that training officers had become more like shift supervisors than training officers (Kenny, 1998). They were also faced with a growing demand for training as they had accepted new roles and responsibilities as a department such as emergency medical response, hazardous materials response, specialty rescue, and many non-emergency functions. The long term recommendation was to add positions to their administrative staff (40 hour week) dedicated to training (Kenny, 1998).

This research is very important because it has a direct correlation to the current study. Many of the conditions are similar or the same to the Winston-Salem Fire Department. The biggest and most alarming part of the study was the size of the department. The Hinsdale Fire Department had 20 full time firefighters and protected about 18,000 citizens in the year 1998 (Kenny, 1998). This research established the need for more personnel in the training branch more than 25 years ago with a department almost 20 times smaller than the Winston-Salem Fire Department. Although this research should be outdated, it speaks directly to the needs of the Winston-Salem Fire Department today.

"Live-Fire Training: Much Preparation for Safety" details the need for live fire training with professional firefighters. Although live fire training is not the topic of this research paper, this literature does establish a minimum of 15 students for live fire training and a ratio of one instructor for every five students (Van Der Feyst, 2013). The Six Nations Fire Department uses between seven and 12 instructors for all live-fire training since it allows them to cycle instructors in and out of rehab and also provides extra hands for any unexpected problems (Van Der Feyst,

2013). This literature is important because it establishes a minimum of three instructors for live fire drills, exceeding the number of staff currently in the training branch.

### **Burnout**

There are many implications that arise from the lack of sufficient staffing in any organization or branch. Burnout refers to the psychological condition caused by a demanding job with a lack of access to resources (Starcher & Stolzenberg, 2020). When demand exceeds resources, fatigue occurs; if this imbalance is maintained over time, fatigue becomes chronic and, finally, burnout appears (Edú-Valsania et al., 2022). To better understand burnout, it has been categorized into different categories. Burnout has six primary theories, social cognitive theory, social exchange theory, organizational theory, structural theory, job-demand-resources theory and emotional contagion theory (Edú-Valsania et al., 2022).

The most likely theory facing the Winston-Salem Fire Department is the Demand-resource theory. This occurs when there is an imbalance between the demands and the resources derived from the work (Edú-Valsania et al., 2022). Common work demands include work overload, emotional labor, time pressure or interpersonal conflicts. An imbalance can happen through the numerous demands and responsibilities, conducted with a shortage of resources (Lubbadeh, 2020). The problem in Winston-Salem is constant overload and constant demand for issues that must be solved. When recovery in the face of such demands is insufficient or inadequate, a state of physical and mental exhaustion is triggered (Edú-Valsania et al., 2022).

Burnout not only affects the individual, but it also affects the organization. It might also be the cause of other problems throughout the organization. Recent years have shown an increase in sick usage and decreased moral. Edú-Valsania, 2022, says that burnout will have adverse consequences both for health of the individual and for the organization . Burnout was often a predict for absenteeism, turnover, job attitudes and job performance (Lubbadeh, 2020). Once a

person has started showing these signs and symptoms it can spread throughout the Training Branch. Likewise, if the instructors who are teaching the department new skills and abilities show these signs it can affect the whole department. Burnout can become contagious and perpetuate itself throughout social interactions on the job (Maslach & Leiter, 2022). Burnout can also cause serious personal health conditions and was recognized as a legitimate concern by the World Health Organization in 2019 (Maslach & Leiter, 2022). In turn, burnout will have adverse consequences both for the health of the individuals and for the organization (Edú-Valsania et al., 2022).

### **Similar Research**

"Building an Effective Training Division Staffing Model Within the Clay Fire Territory" intended to find the needed staff for an effective training branch. Through this research the author surveyed similar sized fire departments in search of the optimal number of employees in a training branch. In this research, the author focused on a smaller department with about 130 employees and five fire stations (Huth, 2018).

The results showed relevant implications to this study. The first result was the possibility of burn out for positions that were overworked and understaffed (Huth, 2018). The author explains how understaffed training branches have negative impacts on the employees and the organization. This is further highlighted by his personal communications during interviews of how adding positions in the training branch relieved a lot of stress (Huth, 2018).

This research also investigated how many people should be in a training branch of a department with less than 150 employees. The author interviewed 18 departments and found that about one-third had one dedicated training staff position, about one-third had two positions, and about one-third had three to six positions (Huth, 2018). The study showed that even smaller departments, with more training staff, believe that more personnel were needed to be effective.

This research also gave some indication as to how the training branch should divide the roles and responsibilities. As discussed in the research the higher- or highest-level officer should work on the strategic level goals (Huth, 2018). This included things like long range planning and building programs for the future. Providing direction and analyzing feedback and results. The lower level officers should be doing the hands on part of the program (Huth, 2018). This included things like teaching the classes and being at the drill grounds. When the members of the branch had a more specific goal and were not multi-tasking, they achieved better results (Huth, 2018).

This prior research is critical because it attempts to directly answer some of the questions in this study. It does show a correlation between more training staff and better outcomes. It also brings to light some unforeseen negative outcomes such as the burnout of employees and its long-term effect on training staff employees. This research does provide some direction as to how the training branch should be divided and how the roles can be separated. Lastly, it provided some alternative methods of reaching some of the intended goals.

This research does not directly answer the research questions completely for this study. Some of the major differences are found in the size of the department and size of the community. Winston-Salem is more than twice the size of any of the researched departments. One of the largest cities researched was Fargo Fire Department with 118,523 population, 7 fire stations and 120 employees (Huth, 2018).

Another area of research that was not discussed was the correlation between proactive and reactive. The research discussed positives and negatives but did not directly address proactivity. The goal of this study is to determine what is necessary to become proactive and not just meet the minimal requirements for the Winston-Salem Fire department.

One area the author discusses that has a direct correlation to this study is the need for more research in staffing administrative or training positions. The author discusses how the National Institute of Standards and Safety (NIST) and the National Fire Protection Association (NFPA) have conducted studies on many of the fire ground situations and how fire ground operations are impacted based on the number of personnel. Almost no research has been conducted on how the number of support staff in training affects fireground operations. The author sums it up by saying "absent from this standard is language that indicates what proper training division staff should be" (Huth, 2018, p.16).

### **Synthesis of the Existing Literature**

Throughout the literature review there were several common themes and trends that arose. There were also many shortcomings that need to be addressed. Overwhelmingly, the literature was very short of direct answers and had to be expanded quite significantly.

The first trend that was noticed was the need for training and education in all industries. This includes schools, businesses, law enforcement and any industry where the conditions are changing with time. Training rose to the top of industries that specialize in emergency situations and high-risk outcomes. With training being a major factor in producing outcomes, the quality of training became another trend. One of the major deciding factors in quality outcomes was the instructor who provided the instructions. Yin (2022, p.264) said "the teacher is the single strongest factor in student achievement."

With teacher selection being of top priority, the trend arose of how to select the teachers/instructors and how to deliver the information. Some agencies chose to use a field-based system while others gravitated to a more centralized training group. Both systems seem to have positive and negative effects on the students based on a multitude of factors.

The overwhelming takeaway from the literature review was the need for training and the need for selecting the correct person to teach the information. The literature also showed an outcome correlation based on instructor to student ratios. The specialization of those instructors to the topic seems to show the most impact in student outcomes.

The literature review also had many shortcomings and gaps. After scouring online sources, local college resources and the National Fire Academy Library there are many questions unanswered. There was no definitive answer or equation to determine the number of personnel needed in a fire training branch. There was minuscule information about instructor ratios and their impacts to outcomes, especially in fire-based delivery programs. There were no formulas found to say a department of X size should have Y personnel devoted to the training branch. Likewise, there was no way to measure the Winston-Salem Fire Department to the current best practices. Additionally, there was no means to evaluate the potential outcomes or repercussions for failing to meet the existing standards.

### **Summary**

The literature review has shaped this researchers understanding of staffing the training branch in an unpredictable way. I would have thought there would be more research done in this area and more outcomes established. There has been a heavy focus on the staffing of fire apparatus for many years and countless studies depicting the negative effects of understaffed apparatus. There has also been research showing what the optimal staffing levels are and where too many firefighters no longer improve the outcomes in emergencies.

This revelation makes this researcher question how the fire service continues to respond to the never-ending emergencies and a growing number of firefighter injuries and death in the modern era. It makes this researcher think about the Dan Heath book "Upstream" quote:

*We respond after the bad thing has happened. And we so rarely make the time and devote the resources that we need to get upstream and solve these problems at their root. But to take an upstream approach, we first have to understand what keeps us in that reactive, downstream crouch. (Heath, 2020)*

## CHAPTER 3: METHODOLOGY

### Introduction

The goal of this research is to establish the optimal number of staff needed in a training branch of a fire department to become proactive. The primary fire department of this study is the Winston-Salem Fire Department. This section outlines the research methodology as a qualitative case study using interviews to gather information from fire departments of similar size and location.

The main goals of this study are to evaluate the training programs of fire departments in locations similar in size and geographical context to Winston-Salem. Additionally, the researcher aims to analyze potential correlations between the effectiveness of training staff and the overall performance of firefighters in real-world scenarios. Furthermore, the study seeks to examine proactive measures taken by other fire departments in their training practices and investigate the possible influence of staffing levels on a fire department's proactive approach to training.

### Research Design

Quantitative research is the process of collecting and analyzing numerical data to find patterns and trends. Predictions of outcomes are based on numerical trends and relationships. Mixed methods of research use qualitative and quantitative approaches to understand numerical trends as well as provide qualitative context to the result.

A qualitative case study was selected to provide a deeper contextual level of understanding of how other fire departments address the staffing needs of their fire department training branch. This approach was selected due to its ability to provide an in-depth explanation of how the department is structured, why it is structured the way it is, and to provide real life

context. This approach also allows for the explanation of decision making and how those decisions relate to complex scenarios found within fire departments.

### **Population and Sample Size**

The population for this research is fire departments in North Carolina. The target population is based on fire departments with full-time employees and four or more fire stations. The target population must also have at least one paid full-time employee dedicated to the training branch of their department. This broader population is needed to have enough participants and ample data. A larger population is also needed to ensure the anonymity of the researched fire departments.

The interviewees were selected based on their relationship to the training branch of their department. The interviewee must be at the rank of captain or above with a preference to the leader or chief of the training branch. They must be assigned to the training branch full-time and have a deep understanding of the training branch. They must know the current needs, programs, and goals of the training branch. Finally, they must possess some accurate insight into the formation of dedicated positions within the training branch.

Each interviewee was given informed consent and assured anonymity. All interviewees who participated were interviewed voluntarily and at their own will. Before each interview, the interviewee was asked to sign an informed consent form detailing the conditions of their participation. At the beginning of each interview the interviewer read a statement advising the interviewee of their rights as a participant. Before proceeding, verbal consent was obtained, and audio and video recorded.

Interviewees were located and contacted in a variety of manners. The first type of connection was person to person. Through the personal contacts of the researcher or his

coworkers, interviewees at the target fire departments were contacted. Most of the connections were made through the accreditation office or personal connections with chief officers. Once the original contact was made, they were directed or provided the contact information for the sample participant. Once contact was made an interview was scheduled.

The second mode of connecting with participants was through the use of fire service networking groups. The research was advertised to the North Carolina Chiefs Council via email as an invitation to participate. Willing participants emailed the researcher if they had interest in participating or helping with the study.

### **Instrument(s)**

The data collection was conducted using the virtual video platforms Microsoft Teams. This mode of data collection was selected due to the geographical location of the researcher and the interviewees. Video interviews were chosen as opposed to phone interviews, due to its increased ability to build trust and rapport with the interviewee. The online platforms also provide real time questions and answers with the ability to record for later transcription. The ability to document data later allowed the researcher to have better dialog and a more accurate recount of the interview.

The interviews were structured the same for all participants. Once a connection was made between the researcher and the interviewee an online meeting was set up. In the meeting invitation, a document containing the interview questions was attached (Appendix A). This allowed the interviewee to prepare answers as needed and gather information they might not readily know. Providing forward knowledge of the questions does not alter the data collection because the researcher was not looking for reactionary statements. The content of the questions remained unchanged regardless of any prior knowledge of the questions.

Before the actual interviews the questions were field tested. The test was conducted by subject matter experts at Columbia Southern University. The subject matter experts were shown the research, purpose, and research questions. The subject matter experts were allowed to review the questions to determine whether they would gain the intended outcomes. The subject matter experts provided feedback and recommended changes before the interviews were conducted.

During the interviews a script was followed. (1) The researcher captured the interviewee name and fire department demographics to validate their eligibility as a participant. The identifiable content was later redacted to protect the interviewee and the department. (2) A brief description of the research and its intended outcomes was explained. (3) The interviewee was educated on their rights as a participant and their ability to terminate the interview at any time. (4) The interviewee was asked if they understood the conditions of the interview. (5) The interviewee was asked if they had any questions before starting the interview. (6) The interview questions were asked in numerical order from top to bottom as found in appendix A (7) The interviewee was asked to elaborate on each of the subtopics. (8) The interviewee was asked if they had anything additional to add to the study or any follow up questions. (9) The interviewee was again explained their rights as a participant and how to notify the researcher if their wishes changed after the interview was concluded.

During the interview the participants were allowed to express their views and speak freely. If the interviewee did not directly answer an interview question or sub question the researcher asked them to elaborate on that topic if they could. No participant was required to answer any questions, and no one was persuaded to answer differently than their original answer.

## Research Process

A data collection instrument was built (Appendix A) and field tested prior to the interviews being conducted. After the interview questions were selected, the participants were selected based on the population and size requirements. The interview questions were sent to the interviewees for review prior to the meeting date. Interviews were scheduled based on the availability of the interviewee and the researcher. There was no order formulated based on the interviewee's department or size.

The interviews were conducted via the online video meeting platform Microsoft Teams. During the interview the researcher read the script verbatim and from top to bottom. If the interviewee chose to continue with the interview after informed consent, the researcher began with question number one. Sub sections were also discussed if they were not originally answered by the interviewee. If the interviewee did not answer a question or answered indirectly, the researcher asked the interviewee to elaborate on the topic. If the interviewee still did not answer the question, the researcher moved on to the next question.

During the interview the researcher collected the highlight of the answers via using Microsoft Word document on an additional screen. Focus was placed on capturing major topics and direct answers. The overall focus was placed on keeping a respectful interview dialogue with the interviewee.

During the interview the audio and transcription of the interviewee was recorded using Microsoft Teams platform. After the interview was concluded the researcher listened to the recording and updated the Microsoft Word document with missed information and the smaller details. A special notice detailed whether the interviewee felt their department was proactive or

reactive. It was also highlighted whether the interviewee felt the department's training staff was sufficient or had gaps in training delivery.

After all interviews were conducted, the researcher analyzed the data into categories. The first category was proactive and reactive. The second category was adequately staffed departments and inadequately staffed departments. A correlation was made between departments with adequate staffing and proactivity.

When departments were highlighted as meeting the intended goal, adequately staffed and proactive, the subcategories were analyzed to see supporting information. The supporting information was also used to provide better recommendations to the Winston-Salem Fire Department about resource allocations and possible outcomes.

Departments that did not meet the desired outcome were also analyzed for potential pitfalls and things to avoid. All data was used to provide better recommendations to the Winston-Salem Fire Department about the information gained during the interview process. This data was included in the recommendations for how to become proactive and avoid potential pitfalls.

### **Ethical Considerations**

The researcher understands the potential for a conflict of interest. The researcher took great lengths to make sure the interviewee was not pressured or led to answer questions in a particular manner. The interviewees were allowed to speak freely, and no interjections were made during the interviewee's responses. If the researcher felt that the interview question was not answered fully then the interviewee was asked to elaborate more. However, if the interviewee still did not answer the question directly, the researcher moved on to the next question. Further pressuring the interviewee might lead to pressured answers or persuade the interviewee to answer in a way they perceive the researcher wants to hear.

There is also a potential conflict of interest on the interviewees part because they might want to persuade the research in their desired direction. If the interviewee wants to use the research for their department in the future, they might answer in a manner that addresses their department's needs or wants. Attempts to mitigate this type of conflict of interest were difficult and could still exist within the study's results. All interviewees' answers were perceived as valid unless a direct connection was made with a conflict of interest.

The interview process adhered to ethical considerations and provided the participants with informed consent prior to conducting interviews. The participants were made aware of what information would be used and what data would be captured. Participants were made aware of the voluntary status of the interview and their ability to stop at any point in time. Participants were also offered the opportunity to redact any statement during or after the interview.

The participant's department may face potential exposure in terms of the total number of employees and the quantity of training staff. The departments interviewed are susceptible to public information requests; therefore, the number of employees and number of training staff are a public record. It is plausible someone could draw a correlation to a department based on their department size and number of employees. Attempts to mitigate this were taken by not putting direct comments with potentially identifiable correlations. All results used the department identifier assigned to them during the interview process.

The interviews were conducted and recorded using the researcher's personal computer. The personal computer is password protected and stored in a secure location within the researcher's home. No one other than the researcher was given access to the computer for any reason during the research.

There was no one allowed site access to the acquired information other than the researcher. Where requested, professors supervising the research from Columbia Southern University were granted minimal unfiltered data to assist with the research process. All data collected will be retained on the researcher's personal computer for four years under password protected files. No access will be granted to these files apart from the researcher.

### **Summary**

In this chapter, the researcher focused on determining the optimal level of staffing for a proactive fire department training branch. Winston-Salem Fire Department was used as the primary department to be studied and the researcher gleaned information from other departments in the targeted categories. The objectives of the methodology were to gain information about proactive fire departments and how their training staff correlated with intended outcomes. The departments were selected based on their location, size and the presence of at least one full-time training staff employee. Interviewees were selected based on their knowledge and understanding of the department's training branch.

The researcher used a qualitative case study due to its ability to provide in-depth explanations and its ability to explain the decision-making process. The researcher used a structured interview as the research instrument to collect consistent data from all the interviewed departments. The research instrument was field tested for relevance and clarity prior to the beginning of interviews.

During the analysis process, the interviewees' name and their respective fire departments were removed from the data collection to protect the anonymity of the participants. The recorded interviews were stored on the researcher's personal computer that is password protected in a

secure area. No personally identifiable information was retained after the data collections process.

The research process made connections between proactive fire departments and their perceived staffing needs in the training branch. These correlations were compared to the Winston-Salem Fire Departments current perceived staffing needs and current reactivity status. This information was used to make recommendations and corrective actions for the Winston-Salem Fire Department.

Throughout the research process all ethical considerations were considered. The participants were provided informed consent and informed of their voluntary participation. They were also afforded the opportunity to change or redact statements made during or after the interview. Steps were taken to mitigate possible conflicts of interest by asking open-ended questions and non-leading questions. The researcher was also aware of the participants' potential desire to alter the research to further their own department's goals. The participant's anonymity was protected by not inserting direct quotes or identifying statements into the research results. The participant's department identifier was used for all published and potentially discoverable materials.

## CHAPTER 4: STUDY RESULTS

### Introduction – Demographics of the Participants

The research was conducted through interviews and various questions, and answers typed setting. The goal of the interviews was to answer research questions. The research questions were designed to determine the personnel needs of the WSFD training branch, the protocol to become proactive, the new responsibilities the training branch will need to acquire, and how the roles and responsibilities should be divided.

Members working for fire departments in North Carolina and assigned to their department's training branch, were interviewed. The interviewers used the research interview questions to extract their facts and perceptions about their department. It was also used to see if the department felt their needs were being met and whether they considered themselves proactive.

### Research Results

The first research question asked was: How do the current personnel needs of the Winston-Salem Fire Department training branch affect efficiency? This question was answered through a series of questions. The interviewees were asked about the overall staff within their department and how many personnel were directly assigned to training. The numbers varied dramatically during the study. Department F reported only having one member assigned to training as their full-time position, while Department G reported having 17 members assigned directly to the training branch. This information did not tell the full story due to the varying size of departments. Department C reported having 15 members assigned to training and 1250 members. In contrast, Department A had two members assigned to training and 166 members. Both organizations had an 83:1 ratio of training staff to employees.

This data did not capture the full extent of the circumstances due to the varying responsibilities within the training branches. Department E and I reported having only the responsibility of training and a separate branch to handle the safety responsibilities. Departments A and B were reported to be the safety and training branch.

In comparison, the WSFD training branch also focuses on safety and training. Their accident, injury, and safety inspections are handled within the training branch. They were also responsible for all the training requirements and certification handling. No responsibilities were handled by other fire department training branches not currently run through the WSFD training branch. In contrast to the department studied, WSFD ranked with the highest employee to dedicated training staff with a ratio of 196:1 (393 employees to 2 training staff). \*(Department H has not returned proper documentation to be included in the study)

### Table 1

*Comparison of the department's total staff, to the number of dedicated training staff. The ratio was calculated based on total department members divided by training staff members.*

Department Identifier	Overall Staff	Training staff	Ratio
Winston-Salem Fire Department	393	2	196.5
A	166	2	83
B	216	2	108
C	1250	15	83.33
D	130	4	32.5
E	634	8	79.25
F	90	1	90
G	420	17	24.71
H (insufficient documentation)			
I	351	4	87.75

To better understand the efficiency of each department, they were asked if their current staffing met the department's needs. Over half of the departments said no (5), two said yes, and

one said neutral. Department G stated, "We are close, but we need about 3 to 4 more people" (personal communication, February 21, 2024). Department B stated, "We can't keep up our programs" (personal communication January 29, 2024). Department E stated, "We are just maintaining the same as we were 25 years ago" (personal communication February 12, 2024). Department A stated, "We barely meet the needs, and we have a \$75,000 budget for external training" (personal communication January 25, 2024).

Winston-Salem was asked the same question, and the answer was "No, the current staffing does not meet the department's needs. To complete the day-to-day functions, we have pulled four people out of suppression on special assignments to the training branch. We have asked for an additional seven positions" (personal communications, February 20, 2024). WSFD stated, "Without the current special assignment positions, we would be set back 30 years" (personal communications, February 20, 2024).

## Table 2

*Results when asked if the current staffing level in the training branch meets the needs of the department.*

Department Identifier	meets the needs of the department
Winston-Salem Fire Department	No
A	Yes
B	No
C	Yes
D	Neutral
E	No
F	No
G	No
H (insufficient documentation)	
I	No

The recurring theme among almost all departments interviewed was the need for additional personnel, primarily in the administrative functions of the training branch. It was also frequently discussed how the responsibilities have continued to increase while the administrative staffing to handle the increased responsibility has not followed suit. Department C stated, "We are meeting the needs, but we are training like it is 1985, and we need more administrative staff" (personal communication, February 1, 2024). Winston-Salem echoed this trend by stating "without the special assignment personnel from suppression, we would be set back 30 years" (personal communication, February 20, 2024).

Research question two asks: what protocols are needed for the training branch to become proactive and address the future needs of the Winston-Salem Fire Department? This question was assessed through a series of questions about the department's perception of proactivity and where they see their training branch in the future. Two departments reported being proactive, two reported being reactive, and four reported being neutral. Most departments stated they wanted to be proactive, but it was not possible due to the ever-changing landscape of the fire service or the lack of sufficient staffing. Department E stated, "We are a little of both; we are reactive to major events but also proactive in establishing ladder academies and other programs" (personal communications, February 12, 2024). Department F stated, "We are doing as good as we can with the staff we have" (personal communications, February 14, 2024).

One theme that continued to arise during the interviews was how the fire service measures proactivity and whether it is possible to become completely proactive. Some departments measured their proactivity by how they responded to incidents, while others based their proactivity on the programs they had in place. Department C stated, "We want to be proactive, but it is hard to know what will change. We train on current events, but it's almost

impossible to know every situation. After an incident, we are reactive and try to improve for the next time" (personal communications, February 1, 2024).

Winston-Salem was asked if it was currently proactive, and the response was, "We are in a change process; we are slightly reactive, but we could be more proactive" (personal communications, February 20, 2024). Winston-Salem elaborated that they are trying to meet the day-to-day needs of the department, and getting ahead of things was difficult. Although staffing and immediate needs were a large factor, other issues such as the lack of dedicated training facilities played a role in their ability to become proactive.

**Table 3**

*Results when asked if the interviewee perceived their department as proactive.*

Department Identifier	Considered themselves proactive
Winston-Salem Fire Department	No
A	Neutral
B	Yes
C	Neutral
D	Yes
E	Neutral
F	No
G	No
H (insufficient documentation)	
I	Neutral

When departments were asked where they see their training branch in the future, the overwhelming theme was the need for continuous improvement and growth. Department B stated, "We're going to have to grow, like a college or university" personal communications, January 29, 2024). Department C said, "We still teach like 1985 with paperback books. We're going to have to learn how to train the recruits with virtual reality, simulators, and better props" (personal communications, February 1, 2024). Almost all the departments interviewed

mentioned the need for additional staffing as the needs of the students change and the fire department grows. Department E stated, "We have a lot of untapped potential, we work a lot of hours, and we have no time to get ahead of things" (personal communications, February 12, 2024).

Winston-Salem was also asked where they see themselves in the future, and they also followed the trend of needing additional personnel. One additional area of need was a dedicated fire department training facility. Winston-Salem Fire Department uses a community college facility located far from the city limits. Winston-Salem said, "We have to drive 20-30 minutes to the site, and some companies have longer drives up to 45 minutes" Personal communications, February 20, 2024). Winston-Salem must also schedule their training with the community college and share the facility with other volunteer and municipal fire departments. The lack of a dedicated training facility was listed as a key factor to Winston-Salem becoming more proactive and was not mentioned during any of the other interviews.

Research question three asks: what new responsibilities will the training branch need to accomplish to become proactive? The future responsibilities were assessed by asking departments what key responsibilities they have, and the answers were somewhat similar. Most departments were responsible for fire, EMS, and recruit training. Along with training, they assisted with maintaining certifications and most departments used an online platform to track training hours and deliver online content. With a few exceptions, these were the key responsibilities of a fire department training branch.

Some departments reported having a role in hiring, promotions, recruitment, and special projects. One key area of difference was the responsibility of the safety program. Half of the departments interviewed housed the safety branch with training, and half had safety as a stand-

alone branch. The responsibilities of safety are a key factor because the roles and responsibilities of the safety branch were not investigated during this study. There was no measurement tool for the departments that house the safety branch to differentiate the time or resources spent addressing the safety component. Department B stated, 'We are the training and safety branch. I am responsible for both functions" (personal communications, January 29, 2024). Meanwhile, Department E stated, "Safety is separate; STOs report to a different assistant chief" (personal communications, February 12, 2024).

**Table 4**

*Results when asked if the interviewee's training branch was responsible for safety responsibilities.*

Department Identifier	Responsible for Safety
Winston-Salem Fire Department	Yes
A	Yes
B	Yes
C	No
D	Yes
E	No
F	Yes
G	No
H (insufficient documentation)	
I	No

Winston-Salem was asked about the safety program and stated, "We are in a change process there also; the STOs still report to training, but less than 20 percent of their job duties are training." We are still responsible for the work demand, but a newly formed compliance office will possibly handle those functions in the future" (personal communications, February 20, 2024).

The prevailing trend was the need for someone to oversee major programs within the organization. While some training branches still had the responsibility of safety, most reported having a subdivided workgroup to focus on those duties. Apart from smaller departments, it was not the same individual over safety and training. The larger department tended to establishing a separate branch to manage the safety responsibilities.

The next theme that became prevalent was the versatility of the training branch and how they frequently assisted with other key tasks. These tasks were everything from assisting with promotional processes, hiring processes, recruitment, physical fitness, post-incident analysis, policy reviews, software management, fire insurance ratings (ISO) reports and special projects. These additional tasks pulled time and resources away from the training branched specific responsibilities.

Research question four asks: how should the roles and responsibilities of the training branch be divided? This information was assessed by asking the departments about the positions, ranks, and roles within their training branch. This information varied significantly based on the key responsibilities of each department. The department with safety responsibilities typically had a dedicated individual responsible for that role. Departments with recruit training typically had someone dedicated to that role also. Many departments utilized shift personnel to meet the increased demand during recruit training.

The overwhelming trend was selecting the right personnel for the job instead of just adding more people. Department C stated, "Everyone wants more people; we have to invest in the right people. It's not how many, it's who." Personal communications, February 1, 2024). Winston-Salem echoed this trend and said, "We need specialists for some areas" (personal communications, February 20, 2024).

The next trend in larger departments was civilian or non-sworn employees. Through the utilization of non-firefighter-type employees, they were able to accomplish different tasks. Those tasks included software management, data analysis, record keeping, video production, and scheduling. These tasks do not require advanced fire service knowledge and sometimes better align the employee to their specialty task.

Winston-Salem training branch does not currently utilize civilian employees. With the limited number of employees (2), they must be a jack of all trades. They do utilize specialist instructors for classes in their specialization. Winston-Salem said, "We use specialists to teach classes like driver operator, technical rescue, and incident command" (personal communications, February 20, 2024).

### **Summary**

The Winston-Salem Fire Department training branch scored the worst with a 196:1 employee to staff ratio. This number almost doubles any of the departments studied and almost eight times larger ratio than fire department G. The WSFD training branch also houses the safety component of the department with no additional administrative staff to manage it. WSFD training branch is responsible for almost all responsibilities as every department studied. It uses suppression personnel to meet the day-to-day needs of the fire department. Additionally, WSFD is facing the challenge of not having a training facility, which was not studied but was listed as a major factor in becoming proactive. Training facilities were not mentioned as a concern for any other department studied.

## CHAPTER 5: CONCLUSIONS AND RECOMMENDATIONS

### **Summary of the Results**

The overarching theme supports the problem statement that the Winston-Salem Fire Department training branch is significantly understaffed. Similarly sized departments had a training staff cadre of 8 to 17 members. Some did not have safety responsibilities or additional projects such as hiring and promotional processes. In addition, some departments supplement the staffing needs by having a dedicated budget to outsource training to external classes. Even with all the additional resources, most departments reported being unable to meet the department's needs or were barely meeting the needs. Subsequently, it prevents them from getting ahead of day-to-day tasks and becoming more proactive.

### **Conclusions-Based Results**

The findings and themes uncovered in the study provide some valuable insight into better understanding the staffing situation of training branches in North Carolina. Through this research, there is a staffing problem within the administrative functions of training branches. With training being the foundation of the fire service, there was an alarming percentage of departments that stated they could not meet the needs of their organization. Departments that could meet those needs stated they still needed more people to accomplish the goals and become proactive.

This information is important to the fire service because training is a critical, never-ending factor in service delivery. All firefighters start their careers in training, and most departments reported hosting a recruit academy or some version thereof. As Winston-Salem stated, "training changes the culture of the department" (personal communications, February 20,

2024). This broad statement should not always be perceived as a positive one. If the training is teaching or reinforcing negative habits, it could change the culture for the worse.

The existence of a substandard training program increases the likelihood of firefighter injuries and decreases the opportunities to perform skills properly, efficiently, and safely (Pinsky, 2009). The inability to meet the day-to-day needs of a fire department would qualify as substandard. Regarding the WSFD training branch, a staffing crisis exists. With WSFD already facing a staffing crisis within the suppression branch, taking members off the apparatus should not be a consideration for long-term success. The revolving door of understaffing can only result in negative impacts.

### **Limitations**

In this study, many limitations and unforeseen questions went unanswered. The first and largest limitation was comparing departments equally based on common attributes. Each department's roles and responsibilities differed, and their strategy to achieve effective training differed. Some departments focused on company-led training, while others liked a centrally based instructor cadre. Additionally, some department training branches were responsible for safety, while others deferred those responsibilities to a separate branch. Making a true comparison of the departments posed a significant limitation to providing definitive answers based on quantitative findings.

The next biggest limitation was defining what proactivity means. The researcher did a poor job of detailing what proactivity means in the fire service. Subsequently, the tool used to measure the departments produced poor results. Some departments felt that proactivity was the presence of advancement programs. Another based it on eligible candidates for promotion, and another based proactivity on injuries and post-incident evaluations. None of their assessments

were wrong; however, comparing the departments based on different factors was almost impossible. The researcher should have clarified a set of benchmarks or established a better tool to measure the desired information equally.

Another large limitation of this study was the lack of information and prior research. There was almost no peer-reviewed research detailing qualitative or quantitative data about how many support or administrative personnel should be within a fire department training branch. A key question asked during the interview echoed this assertion. "How did the department determine the current staffing levels in your training branch?" Almost every department responded by stating that the Fire Chief sets the number of people. No department within the study based its staffing levels on a specified model or prior research. This void of information limited the ability to have a solid foundation to start from and could be an independent study of its own.

The next limitation was the sample size of departments. With this topic being a novel study area with no prior foundation, each question produced more questions than answers. The scope of the research was too broad and lacked a clear definition of measurement tools. The challenges were further compounded by the researcher's novice status in research and limited proficiency.

This research is not generalizable to other fire departments outside of Winston-Salem. Very minimal correlation can be made to other fire departments in North Carolina, the southeast or the American fire service. Due to the limited sample size and lack of formal answers, much more research is needed to further answer the desired questions.

### Implications and Recommendations to the Field

Although the research is somewhat incomplete, and few definitive statements are to be made, major takeaways exist for the Winston-Salem Fire Department's training branch. The first and most important implication is the staffing crisis in the training branch. Based on all measurable categories, the WSFD training branch needs more personnel to meet the department's needs. With a ratio of 196:1 employee to training staff, this is by far the highest number in the departments studied. The training branch would need to add 14 positions to mirror the department with the best ratio. It is the researcher's recommendation to add eight positions to the training branch. These positions would result in a 39:1 ratio. However, this does not account for the need to address the safety component of the branch. Utilizing some of those positions to fulfill the safety component would decrease the ratio but would still align the training branch with similar departments within North Carolina.

**Table 5**

*How the ratio of total department members to training staff members would be impacted if more positions were added to the Training Branch of the Winston-Salem Fire Department.*

Proposed added positions	Department Total	Training staff	Ratio
Current	393	2	196.5
3 positions added	393	5	78.6
8 positions added	393	10	39.3
10 positions added	393	12	32.75
14 positions added	393	16	24.56

The next recommendation would be to establish what proactivity looks like for the Winston-Salem Fire Department. As discussed during the interview, WSFD has already established benchmarks for training and assessing its current effectiveness based on a standard.

In addition to that, the WSFD training branch should establish long-term, measurable benchmarks that show proactivity. In conjunction, WSFD should allocate a position for planning and proactivity within the organization. This position should not be bogged down with day-to-day duties and should always be operating in the future. Therefore, when new technology or new challenges arise, the planning officer can hand over the blueprint to be executed by the remaining staff.

The training branch will have to undertake some new responsibilities to become proactive. As reported by Winston-Salem, a dedicated training facility is a necessity. Training facilities were never posed as a challenge for other departments in North Carolina. This new responsibility will require more positions to maintain the facility and provide effective training. The effectiveness of non-sworn positions and their impact on the efficiency of training delivery should also be researched. As Department C stated, "We still teach like it's 1985" (personal communications, February 1, 2024). In the future, there will be a need for training content creators, videographers, and record management specialists. These new responsibilities must be addressed now and not wait until a new staffing crisis arises.

The roles and responsibilities within the training branch should be evaluated to place employees in the best position for success. The researcher recommends adding these additional positions to ensure that each major function of the organization has a dedicated person to oversee the major roles and responsibilities unique to that position.

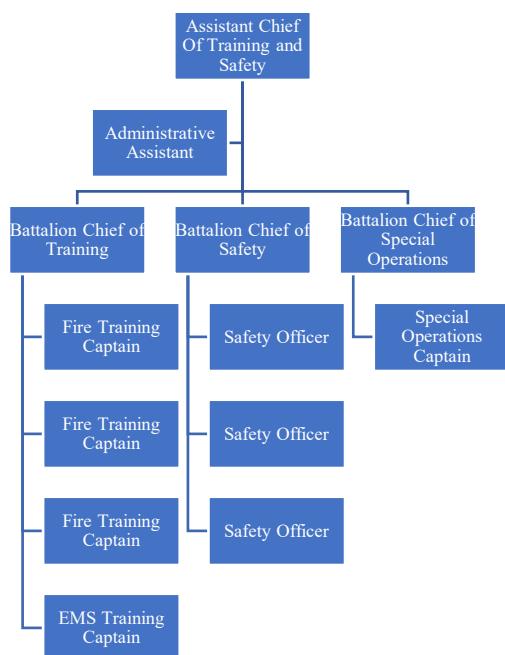
- Battalion chief of safety (if not creating an additional branch to meet the safety needs.)

The on-shift safety officers (current positions) would report to this battalion chief.

- Battalion chief of special operations who would oversee the specialty programs such as technical rescue, hazardous materials, tractor-drawn apparatus training, and special projects. This wing would have a captain assigned to assist with these functions.
- The current training wing would add four captains who report to the battalion chief of training.
  - Three captains work to address fire training, recruit school training, drill ground training, and in-service training.
  - One captain would manage the EMS program and subsequent training.
- One administrative assistant (non-sworn) will analyze data, make schedules, and build online content.

**Figure 1**

*Proposed assignments and organizational chart with 8 new positions added to the Training Branch of the Winston-Salem Fire Department.*



## **Recommendations for Future Research**

There are many recommendations for future research in this area, as each question asked resulted in more questions. The most prevalent research for the Winston-Salem Fire Department training branch is the need for a dedicated training facility. During the interviews with Winston-Salem, they brought this to the forefront as a major hurdle for success. More research would need to be conducted to find the history of why there is not a facility and how the department meets its ISO rating requirements. It would also be relevant to address how a dedicated facility would impact recruiting, primarily of diverse candidates. Lastly, the impact on the efficiency of the department as a whole.

The next most relevant research to the WSFD training branch should be a time and work-study. This study would better analyze the need for more positions and highlight the things that are not getting adequate attention. A deeper dive into how the department operates with such short staffing could possibly highlight some improvements for others. They could also introduce areas of failure that need to be addressed.

The last recommendation for future research is how to measure a fire department's performance and proactivity. The NFPA 1410 drills already highlight the minimum standard for a fire company. However, they fall short of establishing depth into proactivity, and variables such as firefighting strategies and the company officer's decision-making ability. NFPA 1410 also fails to account for command efficiency and specialty operations such as Mayday.

## **Conclusion**

The results of this study did not produce a definitive answer in the quantitative sense; however, they did provide some insight into the current status of the training branch and some possible implications. The research answered how the current personnel needs affect the

department. As illustrated above, the current staffing levels in the training branch are at a crisis level. This has furthered the staffing crisis in the suppression branch, and the needs are still unmet.

There is also much research to be discovered in this area and problems to solve before a proactivity assessment can be conducted. Being that this is a somewhat novel area of study, and the limitations caused more questions than answers, further illustrates the need for more research. If further research was conducted and a true qualitative X=Y type answer was established, fire departments could measure their organization against a baseline. The data could also influence the decision-making of elected officials and policymakers. If the recommendations of this research are heeded, further research would need to be conducted to see if the recommendations were accurate or should be altered.

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## TABLES

**Table 6**

*All results are shown in one table for comparison.*

Department Identifier	Overall Staff	Training staff	Ratio	meets the needs of the department	Considered themselves proactive	Responsible for Safety
Winston-Salem Fire Department	393	2	196.5	No	No	Yes
A	166	2	83	Yes	Neutral	Yes
B	216	2	108	No	Yes	Yes
C	1250	15	83.33	Yes	Neutral	No
D	130	4	32.5	Neutral	Yes	Yes
E	634	8	79.25	No	Neutral	No
F	90	1	90	No	No	Yes
G	420	17	24.71	No	No	No
H (insufficient documentation)						
I	351	4	87.75	No	Neutral	No

## APPENDICES A

### **Assessing the Staffing Needs of the Winston-Salem Fire Department Training Branch: a study of how to move the department from reactive to proactive.**

#### **Interview Questions Outline**

##### **Demographics (This information is collected to validate the interviewee and will be redacted from the published paper.)**

Interviewee Name-

Fire Department-

Rank and Position Title-

Interviewee Identifier (not redacted)- Interviewee A

#### **Introduction**

I am Patrick Grubbs, a Battalion Chief of the Winston-Salem Fire Department. I am also a student with the Nation Fire Academy's Executive Fire Officer Program (EFOP). I have requested this interview today as a part of the EFOP applied research project's capstone paper.

This interview is designed to help me analyze the staffing needs of the Winston-Salem Fire Departments Training Branch. I will ask you a series of questions about your department, with the intent to gain information about your fire departments and draw a correlation between how staffing in the training branch impacts the overall outcomes of the fire department.

All of your personal information, as well as your department identifiers will be removed from the research paper. The items to be included into the research paper are:

- the size of the department
- number of training staff

- if the departments training needs are being met
- Roles and ranks of training staff
- Non-identifiable statements and perceptions the interviewee expresses that are directly related to the asked question and the outcome of the research.

When the data is entered into the study you will be given an identifier such as department A, B, or C. All effort will be made to protect the identity of the interviewee and their host department.

At any juncture during this interview, you have the option to pause, decline specific questions, or conclude the interview. Opting not to respond to a question or terminating the interview will not result in any consequences, and there will be no expectation for you to answer at a later time. Neither your department nor any other professional organization will be notified about this interview. You are under no legal or professional obligation to complete this interview.

Do you have any Questions? If you understand these conditions and wish to continue, I will begin with the interview questions.

1. Tell me about your training branch.

- a. How is your training branch structured? What are the ranks and positions titles within the branch?
- b. What are the key responsibilities is this training branch responsible for?

Examples: department training, hiring processes, promotions, safety reviews,

2. Tell me about the training staff.

- a. Number of dedicated training staff?

- i. What is the approximate tenure of the training staff?
  - ii. How many employees are in your department?
- b. What are the staff ranks?
- c. How are the training staff levels determined?
- d. Who determines the staffing level in the training branch?
- e. Do the current training staff levels meet the needs of the department?
  - i. Why or why not?

3. What programs is your training department responsible for?

- a. Drill Ground?
- b. Recruit training?
- c. Certifications?
- d. Online training or records management platforms to oversee?
- e. EMS, fire, technical rescue, hazardous materials, etc.
- f. In service training?
- g. Any other training that your department oversees?

4. Do you believe the training branch has a correlation in department outcomes?

- a. What effect do you believe the training staff has on the quantity of training?
- b. What effect do you believe the training staff has on the quality of training?

- c. What effect do you believe the training staff has on fire ground safety?
- d. What effect do you believe the training staff has on policy implementation?
- e. Any other correlations?

5. Using proactive as identifying and preventing potential problems before they arise, do you consider your department proactive or reactive?

- a. How does your department foresee problems before they arise due to training?
- b. How are problems addressed before they have negative outcomes?
- c. How do you respond to negative events? (injures, near-miss, vehicle accidents, poor decision making at an incident)
- d. How do you address crews not meeting performance standards?

6. How do you measure your department's training?

- a. Does your department use a standardized form or formal set of checks and balances to measure training effectiveness and efficiency?
- b. Do your department use timed drills such as NFPA 1410?
- c. What other ways do you measure training effectiveness?

7. What feedback do you receive from the field?

- a. How do you track the feedback and quantify it?
- b. In your perception, is there too much or too little training?
- c. What evaluations/drills/scenarios/ do you like to see? Why?

8. Where do you see the training branch in the future?
  - a. Examples: more positions, more focus on a certain area, any current trends?
9. How does the size of your training staff affect the questions above?
  - a. Example: Does more training staff equal more results or better outcomes?
  - b. Example: Outcomes are not affected based on the training staff.
10. Do you have any other feedback that you feel would be helpful to this research?

I would like to thank you for your time and willingness to answer my questions. If anything changes after we have completed this interview, and you wish to redact a statement or make a change, please let me know and it will be adjusted. My goal is to protect you and your departments anonymity, have no negative impact on you or your department and gain information to better my department.

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