

**Recommended Strategies for Preparing Fire Officers to Function as Incident  
Commanders**

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## CERTIFICATION STATEMENT

I hereby certify that the following statements are true:

1. This paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.
  
2. I have affirmed the use of proper spelling and grammar in this document by using the spell and grammar check functions of a word processing software program and correcting the errors as suggested by the program.

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## **ABSTRACT**

The North Ridgeville Division of Fire has in place a comprehensive standard operating guideline that addresses the use of the incident command system when mitigating various forms of emergency incidents. The problem was the inconsistent performance of the North Ridgeville fire officers when functioning as incident commanders at fire incidents. The purpose of this study was to identify and describe the most appropriate methods for developing the incident commander capabilities of the North Ridgeville Fire Division officers.

Research questions for this study included: 1) Are there standards, criteria or recommendations to serve as an incident commander? 2) What are the current training and experience requirements for a North Ridgeville Fire officer to serve as an incident commander? 3) What methods are being employed by other fire service agencies to prepare fire officers for their roles within the incident command system?

Evaluative research was completed, including a literature review of various standards, policies, job descriptions, previous research related to this topic and publications authored by subject matter experts. Additional research efforts included administering an external survey and conducting an interview with a subject matter expert.

Research revealed that the North Ridgeville Division of Fire was lacking in methods for preparing fire officers to perform as incident commanders that were consistent with industry standards and recommendations.

Recommendations included: development of an incident management training curriculum within the North Ridgeville Division of Fire that is consistent with industry standards, enrollment of all North Ridgeville fire officers in the Blue Card training program, exploration of the possibility of creating a regional partnership for the purpose of constructing a

command training center (CTC), and exploration of potential grant funding for the construction of a CTC. Suggestions for further research included the key aspects to construction and operation of a CTC.

**TABLE OF CONTENTS**

CERTIFICATION STATEMENT ..... 2

ABSTRACT..... 3

TABLE OF CONTENTS..... 5

INTRODUCTION ..... 6

    Statement of the Problem..... 6

    Purpose of the Study ..... 8

    Research Questions ..... 9

BACKGROUND AND SIGNIFICANCE..... 9

LITERATURE REVIEW ..... 14

PROCEDURES..... 32

    Definition of Terms..... 34

    Limitations of the Study..... 36

RESULTS ..... 36

DISCUSSION ..... 44

RECOMMENDATIONS ..... 48

REFERENCES ..... 51

APPENDIX 1 – external survey responses..... 55

## INTRODUCTION

### **Statement of the Problem**

Retired fire chief and author John Coleman made the following statement in one of his publications to describe the significance of the incident command system (ICS): “The incident command system is probably the biggest fire ground change to hit the fire service since the advent of motorized fire apparatus” (Coleman, 2008, p. xi). The ICS is a standard method of operating at every incident that a fire department responds to (Coleman, 2008). The National Fire Protection Association’s Standard for Fire Officer Professional Qualifications (NFPA 1021) described the requisite skills for a Fire Officer I as “the ability to implement an incident management system, to communicate orally, to manage scene safety, to supervise and account for assigned personnel under emergency conditions” (NFPA 1021, 2014, p. 9).

The North Ridgeville Division of Fire has in place a standard operating guideline (SOG) for managing all incidents within an incident command system that is tailored to its daily staffing and mutual aid agreements. Newly promoted lieutenants have been placed in positions that have required them to fill the role of incident commander, yet without formal preparation, many of these new lieutenants failed to deploy and manage resources within the standard operating guideline. There have been incidents throughout the history of the North Ridgeville Division of Fire that have indicated the need for a more effective ICS training and implementation program. Several recent incidents demonstrated that this problem was an ongoing issue.

The problem that this research paper investigated was *the inconsistent performance of North Ridgeville fire officers in managing structural fire incidents within the North Ridgeville Division of Fire incident command standard operating guideline.*

A recent residential structure fire resulted in a firefighter becoming stuck up to his waist in a hole in the floor of the fire room. The firefighter called for a “Mayday” via his radio. There was some confusion on the fire scene as to which officer was assuming the role of incident commander. When the “Mayday” was received, there was no rapid intervention team (RIT) in place to attempt rescue despite the presence of multiple companies on the scene. Fortunately, the firefighter was able to self-rescue.

Misapplication of the ICS has also led to an increase in both fire department and civilian property loss. A recent fire in an automotive repair shop resulted in a total loss of the structure. Initial arriving crews found heavy fire occupying one end of the structure. Due to the large size of the structure, multiple alarms were dispatched and multiple large diameter hose lines were used. A post-incident critique determined that there was confusion in the beginning stages of the incident as to who was serving as IC. Multiple crews had begun self-assigning to various functions and tasks on the fire scene. In addition, conflicting orders were made by fire officers who were not receiving any direction from an incident commander.

In January of 2014, a large pile of corrugated Polyvinyl Chloride pipe became involved in a fire. During this incident a fire apparatus sustained significant heat damage. The captain assumed the role of the IC, as per the North Ridgeville Division of Fire ICS SOG. After assuming the role of IC, the captain became physically involved in firefighting activities. A post-incident critique determined that the individual who took the role of IC should have avoided becoming physically involved in firefighting activities. The captain should have established a command post from which to coordinate the fire attack, including apparatus placement.

At a second alarm residential structure fire, the shift captain was on the first arriving apparatus. The captain took part in the initial fast attack. This left the responsibility for filling the role of formal command with the lieutenant arriving on the second due apparatus. Although the lieutenant had multiple resources at his disposal for which to give assignments, he failed to assign any companies to the function of search. Well into the incident, a fire victim was located and removed. The victim was transported and pronounced dead at the receiving hospital. Although the coroner determined that the victim had expired prior to the fire department's arrival, the fact remained that the IC had failed to assign any of the available resources to the function of search.

These examples have illustrated the realized and potential dangers involved with fire officers who have not been properly prepared to function in the role of an IC. Although the North Ridgeville Division of Fire has never experienced a line of duty death (LODD), it has experienced a number of undocumented close calls and significant unnecessary property loss on both the fire department and civilian side.

It is apparent from the National Institute of Occupational Safety and Health (NIOSH) fire fighter fatality investigations regarding line of duty deaths (LODD) that “a failure exists in tracking all resources and their assigned location from the initial first alarm assignment up through multiple alarms; this creates a lack of accountability when operating at the scene of an incident” (NFPA 1561, 2014, p. 33).

### **Purpose of the Study**

The purpose of this study was to *identify and describe the most appropriate methods for the development of the incident management capabilities of the North Ridgeville fire officers.*

Identifying existing deficiencies will facilitate the development of effective training programs for fire officers who will be serving in this role. The outcome of this study can be used by the North Ridgeville Fire Training Division as well as surrounding communities to enhance emergency scene operations and provide lasting organizational and cultural change within the North Ridgeville Division of Fire.

### **Research Questions**

The research questions this evaluative research investigated were:

1. Are there standards, criteria, or recommendations to serve as an incident commander?
2. What are the current training and experience requirements for a North Ridgeville fire officer to serve as an incident commander?
3. What methods are being employed by other fire service agencies to prepare fire officers for their roles within the incident command system?

### **BACKGROUND AND SIGNIFICANCE**

The North Ridgeville Division of Fire provides fire and emergency medical services to the City of North Ridgeville as well as the surrounding communities in the form of mutual aid. North Ridgeville is located in Lorain County, Ohio. The city is 25 square miles with a population of 29,465 as of the 2010 census. During 2014 the North Ridgeville Division of Fire responded to 3,039 calls for service out of two fire stations (North Ridgeville Fire Department, 2014, p. 4).

The North Ridgeville Division of Fire is comprised of 33 line personnel, one assistant chief of fire prevention, one assistant chief of training, one chief of the department, and an

administrative assistant. The chief officers and administrative assistant work Monday through Friday from 8:00 a.m. to 4:00 p.m. (City of North Ridgeville, Codified Ordinances, and Section 248.01). The line personnel are divided into three separate shifts, each working 24 hours with 48 hours off duty in between shifts (IAFF Local 2129, collective bargaining agreement 2014). Each of these three shifts is staffed with one captain, two lieutenants, and eight firefighters. This staffing allows for three companies to be in service daily. Fire Station One has a three-member and a two-member company. Fire Station Two has a single three-member company. All of the companies are assigned to a fire apparatus and a medic unit. They respond in the vehicle appropriate for the type of call received.

On a typical day three members are scheduled off during their regular shift. Of these three members, one may be a fire officer and two slots are reserved for firefighters. The captain serves as the shift officer working out of Fire Station One. The lieutenant serves as the supervisor at Fire Station Two. Occasionally, none of the three officers are scheduled off. On these occasions, the most junior lieutenant will work with the captain at Fire Station One, supervising the three-member company.

It must be noted that various incident command publications and systems have at times used differing titles for the incident command system. The purpose of this document was to discover several key pieces of information regarding incident command. For this research the slight differences between the ICS, the Incident Management System (IMS), and the National Incident Management System (NIMS) was inconsequential. "ICS is the older version of the incident command system; it provided continuity in fire ground operations and management. IMS is the newer, more all-purpose version of ICS. To be sure, they are very similar, and we in the world of structural firefighting see little if any difference." (Coleman, 2008, p. 2) The NIMS

is an incident response framework established by the Department of Homeland Security for use in both small scale local emergencies and larger scale emergencies involving many jurisdictions (Homeland Security, 2011).

The NRRFD has in place a comprehensive ICS SOG that outlines its expectations of the personnel when operating at all incident types. In this SOG, the method for employing ICS in the absence of a chief officer is explained. The typical response to incidents involving structure fires is for the first arriving officer to physically take part in mitigating the incident. The second arriving officer will then establish a formal command post outside of the structure. The logic behind this SOG is that in most cases the first arriving company will be comprised of two firefighters and one officer. Due to the low number of personnel on this company, the officer must take part in the firefighting activity if it is determined that fast action will be most beneficial. The SOG describes this mode as “Fast Attack” and acknowledges that it is to be used only when a second fire company will be arriving within a short time. In the “Fast Attack” mode, the first arriving company officer is in fact the incident commander and they are instructed to announce this during the scene report along with requesting additional resources if needed. It is understood that this type of mobile command places the incident commander in a highly disadvantaged position. The SOG states that mobile command must be replaced by a formal command post as soon as the situation and personnel power allows.

When a fire incident occurs in the Fire Station One district, the shift captain is likely to take part in incident mitigation. The lieutenant out of Fire Station Two will then establish a formal command post upon his arrival. This is often the first experience these lieutenants have in managing personnel and resources within the ICS. In past incidents this has resulted in poor

personnel and resource management, ineffective communication regarding roles and responsibilities, and safety violations to both department members and civilians.

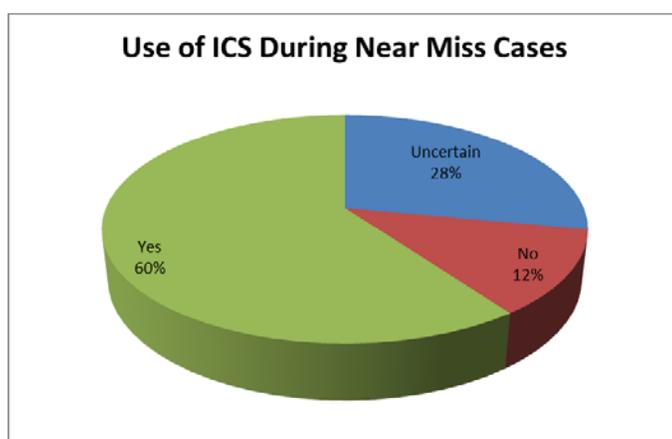
The National Institute of Occupational Safety and Health (NIOSH) published a document entitled “Fire Fighter Fatality and Prevention Program” (2008) which listed properly using ICS as number five of its top 10 recommendations for preventing a firefighter line of duty death (LODD). Within this text, NIOSH posed four questions to the reader to aid in assessing his or her own department in regards to ICS. Questions one and two were relevant to this research. Question one asked, “Does our department implement ICS at each incident large and small?” (NIOSH, 2008). Question two asked, “What training does our department provide in ICS? Is this training sufficient?” (NIOSH, 2008). This information illustrated the importance of the North Ridgeville Division of Fire’s need to design and implement a more effective ICS training program for its fire officers. In fact, the NIOSH question number two closely resembles the intent of question two posed by this research paper.

The National Firefighter Near-Miss Reporting System – sponsored by the International Association of Fire Chiefs (IAFC) – is a free and voluntary tool used by the fire service to gather data on unsafe occurrences on the fire ground that could have led to injury, fatality, or property damage. The data regarding each incident is gathered by interviewing representatives from the department involved in the incident.

In 2008 an annual report was compiled by the National Firefighter Near Miss Reporting System. This report covered 590 incidents. In this report a graph indicated whether ICS was used during the near miss cases that were studied. Table 1 on the following page was obtained from this annual report. This table illustrates that in 12% of the cases ICS was not used. In 28% of the cases it was uncertain if ICS was used. A representative of the National Near Miss

Reporting System was contacted for more recent data regarding near miss cases. More recent data was not available at the time of this research.

**Table 1**



Note. Obtained from The National Firefighter Near-Miss Reporting System  
2008 Annual Report

Factors other than poor ICS use can certainly be involved in these cases; however, according to NIOSH reports, ICS is an important consideration when preventing firefighter injuries and fatalities (NIOSH, 2008).

The inconsistent or incorrect use of ICS can lead to inefficient and dangerous operations on the fire ground. Previous incident reviews and research have identified the relationship between poor use of ICS and firefighter line of duty death/injury, civilian death/injury, unnecessary property damage, freelancing, and general confusion on the fire ground. The previously mentioned cases have established that the North Ridgeville Division of Fire was in need of improvement in regards to preparing its fire officers for fulfilling the role of an incident commander.

*The potential impact this study could have on the North Ridgeville Division of Fire is to provide reliable information to aid in developing the skills needed by fire officers who will be serving in the role of an incident commander. Recommendations yielded by this study will improve emergency incident operations management, positively impact overall incident safety and improve the community's fire loss experience.*

## **LITERATURE REVIEW**

This research project utilized both internal and external sources of information. The sources included internal fire department records, fire service text books authored by subject matter experts, research journals, professional performance standards, and applicable sections of the Ohio Revised Code.

The search for literature began in the data section of the United States Fire Administration website. Several key phrases were used in the search, including: *training fire officers in incident command, incident command, officer development, command training centers, and simulation training for incident commanders*. A librarian at The United States Fire Administration Library was also contacted for assistance. The librarian produced a list of publications pertaining to this research topic, many of which were available for download and printing. Several sources were accessed through the interlibrary loan system (ILL) offered through many local and major libraries.

As the review of the literature progressed, it became apparent that an expanded search for literature was necessary. Searches were conducted at the local county library and on the internet for information regarding *decision making processes, mentoring, command training centers, and Blue Card training*.

The research began with the process of collecting data from various documents produced by the North Ridgeville Division of Fire. Included in these documents were past training records, SOGs, and job descriptions.

The North Ridgeville Division of Fire Standard Operating Policies and Procedures contained job descriptions for fire captains and fire lieutenants. These job descriptions were divided into several categories that allowed the reader to determine the requisite knowledge, skills, abilities, and essential functions necessary for each of these ranks. The job descriptions of both fire captain and fire lieutenant listed directing and coordinating emergency scene activity and establishing command at incidents as essential job functions. Required knowledge, skills, and abilities for both job descriptions included knowledge of the National Incident Management System and knowledge of the North Ridgeville Fire Department Standard Operating Policies and Procedures (North Ridgeville Standard Operating Policies and Procedures, 2014).

The Ohio Administrative Code (OAC) addressed firefighting incident management within section 4123:1-21-07 *Fire Department Occupational Safety and Health*. The OAC stated that an incident management system shall be established with written standard operating procedures and that all members shall be trained in using this system (Ohio Administrative Code, 2015).

The North Ridgeville Division of Fire 2013 training records indicated that there were two training hours dedicated to the function of ICS. The records indicated that not all department members received the training. The lesson plan summary accompanying this record indicated that the training consisted of discussing the department's ICS SOG (North Ridgeville Division of Fire Training Records, 2013).

The 2014 training records indicated a slight increase in ICS training at 2.6 hours. As in 2013, not all members were in attendance. The accompanying lesson plan indicated that the training consisted of table top scenarios as well as other training functions where the topic of ICS was included (North Ridgeville Division of Fire Training Records, 2014). In both the 2013 and 2014 records it was stated that there were no methods of evaluation used to measure competency among the students in regards to ICS.

NIOSH has conducted extensive studies regarding any line of duty death (LODD) that involved a firefighter. A significant part of these studies included making recommendations for preventing similar type incidents. According to NIOSH documents, in reviewing these studies it was often apparent that the poor use of ICS at least partially contributed to the LODD (NIOSH, 2008).

In 2007, nine firefighters died in the line of duty while battling a fire in a furniture store. NIOSH conducted a study to determine the contributing factors that lead to the multiple LODDs. As a result, a list of recommendations for preventing similar incidents was produced. Two of the recommendations were directly relevant to this research topic. The recommendations were as follows:(a) develop, implement, and enforce a written incident management system to be followed at all emergency incident operations, and (b) develop, implement, and enforce written SOPs that identify incident management training standards and requirements for members expected to serve in command roles (NIOSH, 2008).

Established in 1896, The National Fire Protection Association (NFPA) has provided the fire service with codes, standards, recommended practices, and guides. These documents have been produced through a consensus standards development process involving volunteers who represent varied viewpoints and interests to achieve a consensus of various fire safety

issues. NFPA is the premier resource for fire data analysis and research (NFPA, 2014). The NFPA has no power to police or enforce compliance of its standards.

*NFPA 1561, Standard on Emergency Services Incident Management System and Command Safety* (2014) described the qualification process for those expected to perform in the role of IC:

Emergency Service Organization's (ESO) shall develop and implement a qualification process specific to their organization to ensure that members who function in the incident management system are qualified to function in the incident management positions in the types of incidents the ESO would be expected to respond. (4.7.1, p. 10)

NFPA 1561 (2014) then went on to provide greater detail in regards to ICS training requirements:

Responders who are expected to perform as incident commanders or to be assigned to supervisory levels within the command structure shall be trained in and familiar with the incident management system and the particular levels at which they are to perform. (4.8.3, p. 10)

*NFPA 1021, Standard for Fire Officer Professional Qualifications* (2014) described in detail the various skills and competencies an individual should have attained in order to meet several benchmarks in terms of status as a fire officer. These benchmarks were broken down into four sections; Fire Officer I, Fire Officer II, Fire Officer III, and Fire Officer IV. The Fire Officer I and II section contained a description of the general prerequisite skills for a fire officer wishing to enter this level of training.

One of the stated prerequisites was effectively operating at all levels within the ICS system used by the local fire agency. The ability to implement an incident management system, effectively communicate orally, manage scene safety, and supervise and account for assigned personnel was stated to be a requisite skill for any individual who has attained either Fire Officer I or II status (NFPA 1021, 2014).

Although NFPA stated that ICS training was required, it stopped short of indicating a recommended number of training hours. “The ESO shall define training and experience requirements.” (NFPA 1561, 4.8.4, p. 10)

Homeland Security Presidential Directive (HSPD)-5, Management of Domestic Incidents, directed the Secretary of the Department of Homeland Security (DHS) to develop a National Incident Management System (NIMS) (Homeland Security, 2011):

Based upon emergency management and incident response practices, NIMS represents a core set of doctrine, concepts, principles, terminology, and organizational processes that enables effective, efficient, and collaborative incident management. (Homeland Security, 2011, p. 1)

In March of 2004, the DHS published the first NIMS. NIMS was designed to provide a consistent guideline to enable all forms of government and the private sector to work together to prepare for and mitigate any incident regardless of the size or type. The NIMS emphasizes preparedness, including resource management and ICS. The NIMS classifies emergency responses into five categories. Type I and II incidents require national resources to aid in incident mitigation. These incidents will make use of 200-1000 personnel and typically last extended periods of time or multiple operational

periods. Type III incidents involve a significant number of local, regional and state resources and typically last several operational periods. Type IV incidents require several resources with typically one operational period before incident mitigation or expanding to a Type I, II, or III incident. Type V incidents can be mitigated with one or two resources with up to six personnel. Type V incidents are mitigated with one operational period (Homeland Security, 2011).

While implementing NIMS is critical, it is just one component of a comprehensive emergency management program. A fully comprehensive ICS program must also include exercising, evaluating, and taking corrective action (Homeland Security, 2011).

Although the NIMS program represents what is considered best practices in terms of ICS, it is not legally mandated that local governments adopt and use NIMS. However, without adoption of NIMS, local and state governments are not eligible for federal assistance, including grants (Homeland Security, 2011).

*NFPA 1026, Standard for Incident Management Personnel Professional Qualifications* (2014) described the responsibilities of the emergency service organization in preparing its incident commanders (NFPA 1026, 2014). Within this document the NFPA made reference to NIMS in terms of ICS qualifications:

The authority having jurisdiction (AHJ) shall establish a specific qualification process that identifies the steps to prepare a candidate for qualification at the level the candidate will be expected to perform under the auspices of that jurisdiction

and to prepare the candidate in a manner consistent and compatible with the NIMS. (1.3.4, p. 8)

NFPA 1026 further described the general knowledge requirements for any member serving in the role of IC:

The importance of command presence to an IC, familiarity with the National Response Framework and how it relates to the role of IC, knowledge of the National Incident Management System and the Incident Command System, and knowledge and procedures for stopping unsafe or incorrect acts or operations. (4.1.1.1, p. 12)

The NIMS Training Program defines the process for developing training and personnel qualification requirements for emergency management (Homeland Security, 2011). “The NIMS training program identifies those courses critical to train personnel capable of implementing all functions of emergency management” (Homeland Security, 2011, p. 3).

ICS-700 and ICS-100 are both basic introductory courses that are designed to provide a baseline to NIMS and ICS concepts (Homeland Security, 2011). Reviewing North Ridgeville Division of Fire personnel training files revealed that all members had completed both of these courses (North Ridgeville Fire Department Training Log, 2014).

ICS-200 provides training and resources for personnel who are likely to assume a supervisory position within the ICS. ICS-300 provides training and resources for personnel who require advanced knowledge and application of the ICS (Homeland Security, 2011). A review of North Ridgeville Division of Fire personnel training records revealed that all three chief officers were trained to the level of ICS-400, all three Captains and four of the six lieutenants were

trained to the level of ICS-300, and two of the six lieutenants had only been trained to the levels of ICS-100 and ICS-700 (North Ridgeville Fire Department Training Log, 2014).

The National Fire Academy conducts a course for the development of individuals in the chief fire officer position. Much of this course is dedicated to developing incident commanders. Found within the course material is information regarding the value of command presence –the ability to display confidence and control at all times –when serving in the role of an IC. Command presence is not something that comes with promotion, though it can be identified, practiced, and developed (United States Fire Administration, 2006).

The Professional Development Committee, a committee found within the International Association of Fire Chiefs (IAFC), has developed a handbook entitled *Officer Development Handbook* (ODH). The purpose of this handbook is to help provide a clear roadmap to success for current and future fire officers (IAFC, 2010).

In terms of personnel development, the ODH pointed out that in many cases government agencies have taken the wrong approach and placed too much emphasis on education and too little emphasis on experience. The most common approach to employee development placed 70% of the effort on education, 20% on mentoring, and only 10% of the effort went toward experience.

According to the ODH, evidence now has shown that the most successful employee development happened when the priorities of the common approach were inverted and most of the effort was placed on finding ways for the employee to gain experience. In fact, 70% of the effort was placed on experience while 10% was placed on education. Mentoring stayed the same at 20% (IAFC, 2010). “It is important for fire agencies to provide experiential opportunities for

employees so they can develop the competencies they will need later in their careers.” (IAFC, 2010, p. 5)

In keeping in alignment with NFPA standards, the ODH made reference to the various levels of fire officer training. The ODH described the necessary content in courses designed to train fire officers to Fire Officer I through Fire Officer IV. The emergency service delivery portion of these course curriculums described the learning objectives using three categories when completing Fire Officer I and II. These categories were knowledge, skills, and abilities (KSA). The KSAs pertaining to this research were developing incident action plans (IAP), implementing resource deployment, implementing emergency scene supervision, and handling major incidents under supervision of a supervising officer (IAFC, 2010).

Individuals were better able to maintain command presence when they were knowledgeable about the effects of the decisions they made. This knowledge included building construction, fire behavior, and incident tactics and strategies. Reviewing case studies of previous incidents also contributed to the knowledge base that increased one’s command presence. The value of studying individuals who possess and regularly display strong command presence should not be underestimated (United States Fire Administration, 2006).

Retired City of Phoenix Fire Chief Alan Brunacini entered the fire service in 1958. Throughout his career he served in every position within the Phoenix Fire department until his retirement in 2006. Brunacini is the author of *Fire Command; The Essentials of Local IMS*. This publication serves as the basis and framework for an ICS training program designed by Brunacini called Blue Card. *Fire Command* is recognized globally as a definitive work in dealing with local ICS. The Blue Card Command Certification Program is a state of the art training and certification

system that teaches company and command officers how to standardize local incident operations across their organization (Blue Card).

The combination of online and classroom simulations resulted in an incident commander training program that addresses operations in local type hazard zones. The program was designed to train personnel for managing NIMS Type IV and V incidents. These incident types make up 99 percent of the Nation's fire departments emergency responses. The Blue Card training program involves three tiers of instruction when preparing individuals for acting within the incident management system.

The first tier involves 50 hours of classroom instruction that covers the eight functions of command as derived from the author's textbook. In the second tier, each student is evaluated over a three day period using a simulation lab that is customized to each individual department. The third tier is where members are trained to become Blue Card trainers themselves. This allows each department to self-manage the certifications and evaluations.

The developers of the Blue Card program make the claim that completion of the course has produced incident commanders that make better decisions. This will potentially eliminate mistakes that have historically caused injury, death, or unnecessary fire losses. Within the program description the claim is made that no other tool will better expose operational shortcomings than a well-run simulation lab (Blue Card).

Edward S. Janke, author of an Executive Fire Officer Program (EFO) applied research project (ARP) entitled, *Scenario Training for Safe Fire ground Operations*, stated that the purpose of his research was to "identify the components of a comprehensive scenario-based training program." (Janke, 2009, p. 3) Janke believed that the Howard Fire Department was lacking in

sufficient knowledge and training guidelines to prepare its members to manage emergency incidents (Janke, 2009):

The Howard Fire Department faces the universal challenge all fire departments face: preparing officers and firefighters for their role in leading and managing the fire ground. Lack of an effective incident command system is cited as one of the contributing factors by both the National Institute of Occupational Safety and Health (NIOSH) and the National Fire Protection Association (NFPA) to firefighter line of duty deaths. (2009, p.5)

Decisions by first responders are based on intuition and familiarity. The research showed that decision making is critical to command and control and safe fire ground operations. Scenario training provides an opportunity to develop the experiences necessary for safe and effective decision making during critical operations. (2009, p.24)

Research has been conducted in recent years to study how individuals with experience actually make decisions in actual incidents or in simulations. This decision making process is termed Natural Decision Making (NDM). NDM allows individuals to make accurate decisions in high-risk environments. NDM is based on the individual's experience level (Janke, 2009). The use of NDM involves looking for critical cues, relating those cues to previous situations, and applying them when making command type decisions. This results in much faster and more accurate decisions (United States Fire Administration, 2006).

When an individual lacking in experience is faced with making a command decision, he or she is forced to use the classical thought process, as opposed to NDM. The classical method of decision making requires the decision maker to analyze the information, determine potential

problems and prioritize them, select from a list of tactics, and then issue the commands. The classical method is best used in situations where time is not a factor, such as training and planning prior to an actual incident (United States Fire Administration, 2006).

The greater an individual's experience level, the greater his or her ability to observe incident conditions and make timely well thought out decisions using the NDM process (United States Fire Administration, 2006). When making command decisions on the fire ground, instinct based on experience can be used to make informed decisions that have the potential to save lives (Sargent, 2006).

In order for incident commanders to make safe fire ground decisions, they must have experience on which to base their decisions. Scenario-based training allows inexperienced fire officers to be exposed to situations where command decisions must be made without the associated risks involved in actual incidents. This type of training allows fire officers to add to their list of experiences which will then assist in the decision making process (Janke, 2009).

Simulation training is vital for preparing firefighters to make decisions while managing difficult incidents. Simulation training can involve table-top exercises, assessment exercises, or live field exercises. Computer-based training allows decision makers to experience a virtual environment. This virtual environment training improves the ability to maintain situational awareness. Ability to maintain situational awareness is necessary in sound decision making (Janke, 2009). The use of computers to create a virtual reality training environment is extremely useful in training incident commanders to prepare for large scale types of events (Sargent, 2006).

Dennis Vincenzi authored a book in 2009 entitled *Human Factors in Simulation and Training*. Simulation type training allows for an organized approach to conducting training in a standard training environment. This allows for replication of tasks which must be performed

in a high stress environment. In addition, this type of training allows for a thorough assessment of performance and behaviors (Vincenzi, 2009).

Vincenzi (2009) conceded that despite the value of simulation training, there did seem to be some limitations to its value. Because there is no real inherent risk in simulated incidents, there may be considerably less stress felt on the part of the trainee. Using simulation as part of a required certification process may help increase the stress level and enhance the scenario realism.

Although the research conducted by Janke pointed to the value of scenario and simulation based training for developing incident commanders, he also stated that some skills were best introduced through the classroom environment. Simulations provided the greatest value when they were used as supplementation to hone the skills of a trained individual (Janke, 2009).

In 2012 a study was completed by John J. Caussin Jr. of the Fairfax County Fire and Rescue Department. The purpose of Caussin's study was to "determine the methods to improve performance and consistency of the IC in the Fairfax County Fire and Rescue Department." (Caussin, 2012, p. 3) Caussin explained that the command officers in FCFRD did not have the opportunity to gain experience operating as an IC on a regular basis. He believed that this lack of experience was the cause of inconsistent levels of performance and varied levels of competency among those who served in the role of IC (Caussin, 2012).Caussin made the following statement in his document:

The performance of Fairfax County Fire and Rescue Department command officers serving in the capacity of incident commander is inconsistent. This has had a direct effect on emergency incident outcomes and how these officers are perceived by leaders. Without corrective measures, this situation will manifest

itself through increased risk to life and property during emergency incidents and ineffective organizational leadership. (2012, p. 3)

The research conducted by Caussin provided several recommendations for fire service agencies that wish to develop the capacity to conduct initial training and/or certification as well as refresher training and continuing education for the command officer and incident commander. Caussin's recommendations began with several developments that must take place within the training division that is responsible for curriculum and officer development (COD). Among these recommendations was a customized officer school and task book for first line, mid-level, and command level officers (Caussin, 2012). Caussin then further recommended that "the COD section will also be responsible for developing and maintaining the requirements for the IC certification process as well as quarterly command competency incident simulation training for all command officers and those eligible to be acting command officers" (Caussin, 2012, p. 64).

Brad R. Harvey of the Raleigh Fire Department conducted research in regards to ICS training for chief officers within his department. The document produced by Harvey described the contents of a successful annual chief officer ICS training program. Among these aspects were biannual drills, NIMS compliance, creation of a chief officer training guide, and the creation of a designated ICS training room with state of the art simulation technology (Harvey, 2010).

Effective decision making is vital to preventing firefighter injury and death. The establishment of a consistent curriculum involving incident simulation is vital to employee preparation and success in responding to emergencies. In today's virtual world there is now the ability for fire service agencies to develop command simulators that provide scenarios which allow personnel to become prepared to take command.

Although the value of command training centers (CTC) has been established through research, there does not exist a set of standards to describe how they should be established and operated (Cabral, 2008).

The Phoenix Fire Department operates a Command Training Center (CTC). Through computer programs and three-dimensional models, the CTC provides interactive simulations of large scale type incidents. The simulation exercises prepare command officers to make better fire ground decisions. Every fire captain and prospective fire captain receives training quarterly at the CTC. The Phoenix Fire Department's CTC is recognized nationally as a model for fire service ICS training (Command Training Center, 2014).

Caussin's research found that The Montgomery County Maryland Fire and Rescue Services (MCFRS) has designed and put in place a comprehensive command officer training program (Caussin, 2012). Reviewing the findings of Caussin's research revealed several similarities between the organizations that have successful ICS training programs.

These similar components included ICS simulation exercises using computer software, tabletop scenarios, annual ICS competency evaluation, continuing education, and mentoring (Caussin, 2012).

The MCFRS command competency training program was designed with the goal of enhancing the skill sets of command officers and ensuring competencies are maintained and demonstrated. The intended end result was increased confidence among the command officers by requiring them to make decisions in realistic simulations. This was achieved through the use of table top scenarios in group settings where peers and training staff were able to discuss the chosen strategies and thought processes. In

addition, command officers were scheduled for skills evaluation on an annual basis (Caussin, 2012).

“The Olympia Fire Department (OFD) opened a low cost simulation program to certify its incident commanders. Officers completed approximately 36 hours of simulation training, ninety minutes a session. The program runs each shift one day a month; therefore, it typically takes close to two years of in service training time to certify as an IC” (Caussin, 2012, p. 36).

In 2007, Jerome F. LaMoria of the Prince George’s County Fire/EMS Department (PGCFEMSD) conducted research pertaining to command officer development. The purpose of this research was to “develop, and propose for implementation, a training curriculum specific to the PGCFEMSD that will prepare personnel to properly and safely function as an emergency scene incident commander” (LaMoria, 2007, p. 7). Within this research document LaMoria described the value of a mentoring program when developing personnel in regards to incident command.

The catalyst of the FDNY command officer development program was a series of line of duty deaths within a span of less than two years. The FDNY program consists of classroom instruction, simulation exercises, and a mentoring period that involves participants shadowing veteran battalion chiefs. LaMorias’s research revealed that when it comes to preparing command officers, the FDNY relies heavily on passing on lessons learned from past experiences. This adds to the importance of the mentoring portion of the command officer development program (LaMoria, 2007).

Mentoring involves communicating useful skills and knowledge to someone who wants to learn (Shea, 1994). LaMoria’s research indicated that a system of mentoring is a critical component of the development of command level officers (2007). The goal of a mentoring

program is to pass on lessons learned to all of the various levels of experience within the department: “A good mentoring program will make your incidents go a lot smoother, elevate your organization overall, and most importantly, provide a much safer environment for the troops to work in.” (Lasky, 2006, p. 55)

A review of the collective bargaining agreement between the City of North Ridgeville and North Ridgeville Firefighters Local 2129 revealed that the contract did contain language describing a mentoring program. Personal communication with the majority of the department membership took place in regards to this mentoring program. The vast majority of those interviewed described the program as inadequate and unable to fulfill its intent of preparing firefighters to fill the role of a fire officer. At the time of this research the status of the NRPD mentoring program was questionable. Collective bargaining negotiations were under way and the mentoring program was likely to be eliminated from the contract (personal communication with NRPD Chief Reese, 2014).

In his thesis paper entitled *Command Decision Making: A Training Needs Assessment*, Michael W. Bowden described the issue facing the American Fire Service in regards to incident commanders. Bowden (2006) stated:

Many departments have less time available for training and have placed greater emphasis on improving emergency medical services, resulting in less time available for fire and other hazards training. Ultimately, the command officer is still expected and required to guide and coordinate the firefighters through a myriad of possible emergencies while protecting life and property, mitigating the problem, and ensuring the safety of the responders. This is a huge responsibility,

and command officers need ongoing specialized training in order to remain effective. (p. 4)

Through his research Bowden found that experienced fire ground commanders rarely, if ever, based their decisions on a mental list of the various alternatives. In fact, the experienced fire ground commander formulated his decision by recognizing the current situation as similar to a previous one. The commander then implemented the actions that have worked previously (Bowden, 2006).

New fire officers that have never served in the role of IC will lack the previous experiences needed to make safe and effective decisions on the emergency scene. Therefore, a successful incident command training program must contain components that will build that experience base. The program must include a list of case studies for officers to review and study, classroom simulations, multi-company drills, and a mentoring program (Bowden, 2006).

Clinton H. Smoke described another valuable tool in improving command effectiveness. Smoke(2010) stated that conducting a post-incident analysis after any large scale incident provides an opportunity to examine the IC's strengths and weaknesses. In addition, it provides an opportunity for the IC to explain to other members how the IC arrived at his command decisions. Many departments use this as a valuable training tool for their command officers.

There exists a need for development of an ICS training program within the North Ridgeville Division of Fire. Review of literature and research produced by industry leaders and experts in the fire service has revealed a gap between recommended training standards and practices and that which is currently being provided.

While the literature review exposed the gap in incident command training, it also provided insight into what measures may be taken to address the issue facing the North Ridgeville Division of Fire. The literature review revealed various training techniques that may prove helpful. Realistic scenario based simulation training may help to aid incident commanders in the use of NDM as opposed to the classical thought process. In addition, development of an incident commander's orientation guide and task book may help ensure the training is consistent and can be replicated from one individual to the next. The desired result of consistent training is consistent performance. Incident command influences incident outcomes. It is vital that the incident commander is consistent and competent in order to safely and effectively mitigate an emergency (Caussin, 2012).

The information collected during this literature review guided the development of the continuation of research on this topic. The development of the questions for the external survey and personal interview were based on the results of the literature review findings.

## **PROCEDURES**

The purpose of this research project was to learn the industry standards with regards to preparing fire officers to serve in the role of an incident commander. Those standards were compared to the current practices of the North Ridgeville Division of Fire. An evaluative research methodology was utilized to guide in determining the answers to the research questions.

Research questions one and two were answered by the gathering and review of information collected during the literature review portion of this study. The literature review process also guided the development of the external survey questions.

In relation to question three, data was collected via survey on the methods, training programs and frequency of other area fire departments in terms of preparing fire officers for performing as incident commanders. The survey was developed and distributed using a web-based system known as Google Documents. Google Documents also allowed for the collection and tabulation of the survey responses as they were received. The survey was designed to first ask the respondents if their organization did in fact provide any training to the potential incident commanders. The survey then inquired as to the training type and frequency. The final portion of the survey inquired as to organization size in terms of staffing and type. The survey was initially distributed via department email to all members of the North Ridgeville Division of Fire for evaluation on the basis of question clarity and functionality of the Google Documents program. These responses were not included in the actual data collected toward this research.

E-mail addresses were obtained from the Ohio Fire Chiefs Association for each fire chief listed in the Urban Search and Rescue (USAR) Region Two portion of Ohio. The list comprised 88 fire chiefs encompassing five counties. An initial email went out to the respondents informing them of the coming survey. The initial email also provided additional instructions for completing and submitting the survey. The survey was sent out via email within the same hour. The survey remained open for submissions for 14 days. Reminder e-mails were sent out one week prior to the close of the survey. The data was gathered and automatically tabulated as each survey was answered by the respondents. During the second week of the survey two respondents

sent the author an email stating they did not understand how to find the survey and submit their answers. Both of these respondents were given additional instruction in the submittal process.

At the close of the survey, 51 of the 88 individuals surveyed, or 57%, had submitted a survey response. The decision was made to expand the survey. Again the Ohio Fire Chiefs Association was contacted for email addresses of Ohio fire chiefs. This survey group included the listed fire chiefs for one county in each of the seven remaining Ohio USAR regions. This list was comprised of 89 individuals. For this group the previous process was duplicated. An initial notification email with survey instructions was sent out prior to the actual survey. At the conclusion of the first week a reminder email was sent out. At the end of the second week, 42 individuals or 47% had responded to the survey. There were a combined total of 177 individuals contacted for the survey. Of the 177 individuals, 93 responded. This is a response rate of 52%.

An interview was conducted with retired Toledo Fire Division Chief Officer John Coleman. John Coleman served in the Toledo Fire Department Training Academy and has authored several publications focusing on the use of incident command in the fire service. The interview questions were developed and sent to the interviewee via email. The interviewee provided typed responses to the questions and returned them via email.

### **Definition of Terms**

Battalion. A large organized body of people who work together (Merriam-Webster Dictionary, 2015).

Company. “A body of men organized to fight fires, esp. one of a number of such groups constituting a fire department” (<http://www.collinsdictionary.com/dictionary/american/fire-company>).

Formal Command Post. “Used at large scale incidents where formal command has been established” (Coleman, 2008, p. 40).

Freelancing. “Acting without authority” (Coleman, 2008, p.6).

Incident Command System. “The Incident Command System (ICS) is a management system designed to enable effective and efficient domestic incident management by integrating a combination of facilities, equipment, personnel, procedures, and communications operating within a common organizational structure” ( <https://www.fema.gov/incident-command-system-resources>).

NIMS. “ The National Incident Management System which provides a consistent template enabling Federal, State, Tribal and local governments, the private sector, and non-governmental organizations to work together to prepare for, prevent, respond to, recover from, and mitigate the effects of incidents regardless of cause, size, location, or complexity” (Homeland Security, 2011, p. vi).

Natural Decision Making. Decision making process based on an individual’s experience level (United States Fire Administration, 2006).

Rapid Intervention Team. A team of firefighting personnel whose function is to search for and remove trapped, lost, or injured firefighters (Coleman, 2008).

Standard Operating Guideline. Standard method, procedure, or rule in which a fire and emergency services organization operates to perform a routine function; usually contained in a written policy and procedures handbook also referred to as standard operating policy (SOP) (Fire and Emergency Services Instructor, 2006, p. 644).

### **Limitations of the Study**

There were several limitations to the study. The author of this document had limited experience in performing research of this magnitude. Although a thorough literature review was conducted, there may have been further literature on this subject that was missed which may have altered the course of this study. An assumption was made that all of the survey respondents understood the questions and had sufficient knowledge of their organization to accurately answer each question. Two of the respondents were confused as to how to answer and submit the survey despite the initial message sent prior to the actual survey.

## **RESULTS**

The three research questions specifically answered for this applied research project were as follows: 1) Are there standards, criteria or recommendations to serve as an incident commander? 2) What are the current training and experience requirements for a North Ridgeville fire officer to serve as an incident commander? 3) What methods are being employed by other fire service agencies to prepare fire officers for their roles within the incident command system?

In regards to question one, there were in fact several standards and recommended criteria for individuals who will be expected to serve as an incident commander that were discovered. With exception to Ohio Administrative Code 4123:1:21, these standards were not required by law unless formally adopted into local ordinances. While many of these standards were not a requirement, they were developed by committees that were comprised of industry leaders and subject matter experts.

When compared to other standards and resources regarding incident command training, the Ohio Administrative Code (OAC) provided the least amount of detail. Although lacking in detail, it was the only standard found by this research that was a law. The OAC stated that an incident management system shall be established using written standard operating procedures and that all members shall be trained using the system (Ohio Administrative Code, 2015).

NFPA 1021, *Standard for Fire Officer Professional Qualifications*, spelled out the recommended capabilities for any individual who has obtained the Fire Officer One status. The recommended abilities for a Fire Officer One included the ability to implement an action plan so that the necessary resources were deployed to mitigate the problem. NFPA indicated that the requisite skill for this ability included implementing an incident management system as well as accounting for assigned personnel under emergency conditions (NFPA 1021, 2014).

NFPA 1561, *Standard on Emergency services Incident Management System and Command Safety*, stated that the emergency service organization was responsible for developing a qualification process for their incident commanders that was specific to their organization. This qualification process should have been reflective of the types of incidents for which the incident commander would be expected to respond.

NFPA 1561 further stated that NIMS type 5 incidents should have been the minimum level of qualification for which local emergency service organizations (ESO) have prepared their incident commanders. In addition, the ESO shall have provided refresher training at least on an annual basis.

The most comprehensive document found while researching question one was the National Fire Protection Agency's volume 1026. NFPA 1026, *Standard for Incident Management Personnel Qualifications*, described in detail the requisite knowledge and skills for

all positions within the command system, including the incident commander. According to NFPA 1026, the authority having jurisdiction (AHJ) is responsible for developing a qualification process for its members that is reflective of the positions each member is expected to fill within the incident command structure. In addition, the training included in this process should have been compatible with the National Incident Management System (NFPA 1026, 2014).

The Officer Development Handbook (ODH), developed by the Professional Development Committee of the International Association of Fire Chief's, recommended adjusting the typical way in which fire service agencies prepare potential and current fire officers. The greatest emphasis was often placed on education, followed by mentoring, and finally experience. The ODH advised switching the placement of experience and education in order to provide greater experiential opportunities for developing fire officers.

The ODH also made reference to several NFPA standards and the four levels of fire officer training and development. Found within this section of the ODH was the recommended minimum knowledge, skills, and abilities (KSA) for each fire officer who may serve as an incident commander. The KSAs that pertained to this subject and research were the ability to develop an incident action plan, implement resource deployment, and implement emergency scene supervision.

Research question two asked: *What are the current training and experience requirements for a North Ridgeville fire officer to serve as an incident commander?* To answer this question North Ridgeville Division of Fire training records and job descriptions were reviewed. It was found that there was not any required incident command training or evaluation in order for a fire officer to be placed in the role of an incident commander. Although not required, the 2013 and 2014 training records indicated that between two and three hours of ICS training was conducted

each year. This training was conducted for all three shifts using table top and actual scenarios. Not all of the fire officers were present for this training.

The job descriptions for both fire captain and fire lieutenant listed the National Incident Management System as one of several items a fire officer must have knowledge of. There was not any document located within the North Ridgeville Division of Fire that described which NIMS certifications a fire officer was required to have knowledge of. Among the fire captains, all were trained to the level of ICS-300. Two of the six lieutenants had only the basic ICS courses. The intent of question two was to determine training requirements for potential incident commanders as set forth by the North Ridgeville Division of Fire. Although the fire officer job descriptions described the required knowledge and abilities, this research did not locate any documents describing how this knowledge and abilities were to be obtained. Furthermore, there was nothing found that indicated that there was a system for measurement of competence in regards to the stated knowledge and abilities.

Experience requirements prior to promotion into an officer role were only that an individual must have had five years of employment with the North Ridgeville Division of Fire prior to becoming eligible to sit for a promotional exam. This research was unable to locate any description of what this experience must have entailed.

Research question three asked: *What methods are being employed by other fire service agencies to prepare fire officers for their roles as incident commanders?* Both the literature review and the survey provided insight into the answer to this question.

Results of the 93 responses to the external survey showed that 81% of the responding agencies took formal action to prepare their fire officers to fill the role of an incident

commander. Of these agencies, 65% made use of both internal department training and outside training resources.

In regards to making use of an incident management orientation guide or task book, 81% of the responding agencies did not provide any type of orientation guide or require completion of a task book. Recommendations yielded from previous research on this topic indicated that developing a fire officer orientation guide and task book for all levels of rank produced a positive impact in improving incident commander competency. The content of this material should have been compliant with industry standards (Caussin, 2012).

The responding organizations indicated that the majority, 62%, did not require any type of continuing education or recertification for their incident commanders. As stated earlier, NFPA 1561 recommends that incident commander refresher training be conducted annually at a minimum. Of the agencies that did require refresher training or recertification, 16% conducted this training annually. The majority of the other respondents were spread relatively evenly through biannually, quarterly, monthly, and other time frames.

Various forms of incident simulation were found to be being employed by fire agencies who wished to prepare their fire officers for the role of incident commander. Several agencies were found to have operated command training centers (CTC) that produced interactive scenarios as a means of simulating actual emergency incidents. These training centers varied in complexity. The most basic CTC made use of a single computer monitor displaying a simulated incident. More complex CTCs incorporated an actual command vehicle positioned in front of a projected image on a wall screen with several individuals positioned remotely to send and receive assignments via radio traffic.

Several fire agencies or training institutions have instituted CTC's into their command officer training programs. These agencies included the Phoenix Fire Department, the Houston Fire Department, the Utah Fire and Rescue Academy, the Texas Engineering Extension Services Emergency Operations Training Center, and the Clay Fire Territory in Indiana (Caussin, 2012). In contrast, the results of the survey conducted for this research showed that the majority of respondents did not represent agencies which make use of CTC's.

Research conducted by Cabral indicated the value of a command training center when preparing command officers to perform in the role of an incident commander. The Phoenix Fire Department made use of a CTC which provided interactive simulations using computer based technology. These simulations were intended to teach fire officers to make faster and more appropriate decisions during emergency incidents (Cabral, 2007). The survey responses indicated that 57% of the responding agencies did not make use of a command training center for preparing incident commanders; 13% of the respondents were not familiar with the term.

Other less technological forms of simulation involved table top scenarios. Many of these agencies required their fire officers to log a set number of simulation hours prior to becoming eligible to serve in the capacity where they may be expected to fill the role of an incident commander.

During the literature review portion of this research, simulation type training was found to be reported as an efficient means of helping incident commanders gain the necessary experience that aided in naturalized decision making on emergency incidents. John 'Skip' Coleman described in an interview the method of simulation training he used as a chief officer with the Toledo Fire Department. Coleman stated that he used a method he termed "trickle down training". The process first involved developing a computer simulated fire incident and then

going through the incident with the potential incident commanders. After the simulation was completed, Coleman would critique the performance with the potential incident commanders. The potential incident commanders then took the simulations out to their respective companies to again go through the simulation. Using this method, recommended strategies and tactics were able to trickle down to all of the company officers and crew members (J. Coleman, personal communication, February 3, 2015).

Upon further investigation of the various forms of simulation training, the Blue Card system was found to use simulation in the form of repeated computer based simulations. Of the survey respondents, 53% worked for organizations that did not use the Blue Card system. Organizations that employed the Blue card system made up 42% of the total respondents and 5% used another system similar to Blue card. Those responding agencies who found Blue Card has improved incident commander performance made up 36% of the responses.

Another form of preparing fire officers for the role of an incident commander was found to be mentoring. Of the 93 respondents who replied to the survey, 48% used mentoring as an incident commander training tool. Another 26% of respondents used mentoring on a case by case basis. During the literature review portion of this study several pieces of previous research and industry experts recommended mentoring as a command officer development tool. Mentoring is a critical component when developing command officers (LaMoria, 2007). Laskystated he believes that a much safer work environment is created as a result of mentoring (Lasky, 2006). Coleman stated that he believes, in the absence of computer generated fire simulators, on scene mentoring at real fire incidents was the second best choice in terms of training incident commanders (J. Coleman, personal communication, February 3, 2015).

When asked if respondents believed that mentoring had a positive impact on the performance of command officers, 51% indicated that they believe it had, 25% indicated that it had somewhat caused improvement and 4% believed that no improvement was realized from mentoring. It must be taken into account that 'not applicable' was also an option when responding to this question. The 'not applicable' response was chosen by 20% of the respondents.

Mentoring was found to be a significant portion of the FDNY command officer development program. Research showed that FDNY command officer preparation relies heavily on passing on lessons learned from past experiences to new command officers (LaMoria, 2007).

This research found that NFPA 1026 was the standard put forth by NFPA that described the qualifications necessary for incident management personnel. NFPA1026 recommended that command personnel be prepared for the level in which they are expected to perform in a manner consistent and compatible with the National Incident Management System. The level of responsibility a command officer is expected to have in incident management should coincide with the level of that individual's NIMS certification.

The survey responses indicated that ICS-100, ICS-200, and ICS-700 were the most commonly held certifications among potential incident commanders for the organizations responding to the survey. ICS-100 and 700 were chosen by 91% of the respondents. ICS-200 was chosen by 90% of the respondents. The amount of individuals certified in ICS-300 and ICS-400 was slightly less at 84% and 74% respectively. There was no response that indicated that the incident commanders in their organization held none of these certifications. It must be noted that the highest number reported was 84 despite the fact that 93 individuals had responded to the survey.

The intent of the last two questions of the survey was to determine the amount of responding agencies that were similar to the North Ridgeville Division of Fire in terms of number of members, run volume, and organizational type. The majority of the respondents represented organizations similar to the North Ridgeville Division of Fire. The North Ridgeville Division of Fire currently has 36 members. Of the respondents, 55% represented agencies with 21-40 members. The next closest category of 41-60 members comprised 25% of the responses.

The similarity of run volume between the survey respondents and the North Ridgeville Division of Fire was evaluated on the basis of previous research that showed a relationship between emergency scene experience levels and incident commander performance. As noted earlier, the naturalized decision making (NDM) process relies on one's ability to recall previous incidents and relate them to the current situation. The North Ridgeville Division of Fire responded to 3,039 calls for service in 2014. The survey responses showed that 40% of respondents represented organizations with annual call volumes that are within 1000 calls for service of North Ridgeville Fire Division's call volume.

## **DISCUSSION**

The results of this study clearly indicated that the North Ridgeville Division of Fire was lacking the formal incident commander training as described by industry standards such as the National Fire Protection Agency. The search for documents within the North Ridgeville Division of Fire that would describe any training or experience requirements produced limited results. Throughout several volumes the NFPA discussed what this training should have entailed. Of these volumes, NFPA 1026, *Standard for Incident Management Personnel*

*Professional Qualifications* provided the most comprehensive description of training and qualification requirements for incident commanders. The authority having jurisdiction shall establish a qualification process that identifies the necessary steps and needed training to prepare individuals to perform in the expected role within the incident command system (NFPA 1026, 2014). The survey showed that the nearly 81% of the organizations surveyed were NFPA compliant in terms of formally preparing their incident commanders.

With the determination made that industry standards require formal incident commander training, the question became, what was the best method to deliver this training? The literature review and survey results provided insight on how to begin addressing the lack of incident commander preparation found within the North Ridgeville Division of Fire.

Incident commanders are expected to make fast, high risk decisions with limited information. Information gleaned from the literature review showed that these decisions were best made using the naturalized decision making as opposed to the classical thought process. The issue faced by the North Ridgeville Division of Fire and many organizations was that the naturalized decision making process requires an experience base for which to base these decisions. Without experience, the incident commander is required to default to the classical thought process which requires mentally going through a list of options and weighing the pros and cons of each option prior to issuing orders to address the incident conditions.

The literature review found mentoring to be one of the effective forms of preparing fire officers to be effective incident commanders. While mentoring has its value, it is largely dependent on the number of incidents the mentor and mentee are able to respond to during the mentoring period. This becomes a problem for smaller agencies who are not frequently

responding to fire incidents requiring the establishment of the incident command system. With a lack of frequent fire incidents, experience must be obtained through simulation type training.

Building an incident commander's experience base must include classroom simulations and multi company drills along with a mentoring program (Bowden, 2006). Several agencies were found to operate command training centers which make use of computer based simulation to bolster an incident commander's experience base. Although the value of command training centers has been established, there does not exist a set of standards that describe how these centers should be constructed or operated (Cabral, 2008). An internet search of command training centers produced information regarding CTCs that use the latest computer technology and media equipment in order to provide realism to the scenario. The Phoenix Fire Department operates a CTC that allows the incident commander to run a simulated incident from the cab of an actual command vehicle identical to the command vehicle he or she will operate from in the field.

The idea that a CTC must be as advanced or impressive as the Phoenix Fire CTC may discourage many agencies from exploring the possibility of establishing their own CTC. The majority of the survey respondents did not work for agencies that make use of a CTC. The Montgomery County Maryland Fire and Rescue Services (MCFRS) designed and put into place a low cost low technology CTC. The MCFRS CTC made use of table top scenarios in group settings where peers and training staff could discuss chosen strategies (Caussin, 2012).

The inability to construct a CTC does not mean that simulation training is no longer an option. The Blue Card command certification system makes use of incident simulation throughout the nearly 80 hours of instruction required to become a certified incident commander. The first portion of the certification program involves 50 hours of either classroom or online

instruction. This phase includes dozens of interactive scenarios where the student is shown various structure types with fire or smoke showing. The student is required to simulate assigning crews to various tasks according to their chosen strategy. The second phase of the Blue Card system involves 24 hours of simulations where students take the role of an incident commander and issue commands via radio traffic to other students who are playing various roles in the command structure. This system may be viewed as a more cost effective means of using simulation to assist incident commanders with building an experience base.

Although the value of simulation training has been established, it has also been shown to have some limitations that must be considered. Vincenzi (2009) stated that a limitation to simulation training may exist when the individual performing in the simulation senses that there is no real risk to life or property. This will lead to considerably less stress felt by the trainee. To overcome this limitation the simulation may be included into a comprehensive incident commander certification process.

The research performed by Caussin (2012) suggested that agencies should develop and maintain requirements for an incident commander certification process. This process should include a required task book for incident commanders to complete in order to be eligible to serve in their roles, along with regular continuing education sessions that include simulations. Adding these simulations to the requirements of the task book will aid in adding a sense of stress on the part of the trainee during the simulations. It should be noted that the majority of the survey respondents answered no when asked if their organizations made use of any type of incident commander task book or orientation guide.

In summary, the research suggested that the North Ridgeville Division of Fire was not in compliance with industry standards in terms of preparing incident commanders to safely and

effectively manage incidents. The majority of the survey respondents were employed with organizations that were taking action to prepare their incident commanders. While there were various options discovered for effective preparation of incident commanders, the solution need not be cost prohibitive. Incident commander preparation curriculums have been developed that made use of relatively low cost simulations, such as the Blue Card system, table top scenarios, and trickle down training. Each emergency service organization must determine what methods will most effectively prepare their own members for managing the incidents for which they are most likely to respond.

### **RECOMMENDATIONS**

The purpose of the research was to identify and describe the most appropriate methods for the development of the incident management capabilities of the North Ridgeville fire officers. The research first sought to discover what criteria and industry standards existed for training and developing fire officers to serve as an incident commander. This information was then compared against the action taken within the North Ridgeville Division of Fire in terms of incident commander development. Lastly, fire service organizations in the region were surveyed to gain insight as to how they have been addressing incident commander development. Based on the research findings, the following recommendations were offered toward incident commander development.

1. Recognize the risk posed to firefighters and civilians when lack of adequate incident management training exists. Recognition of this fact will aid in attaining adequate financial and personnel resources to complete the remaining recommendations.

2. Development of an incident management training curriculum within the North Ridgeville Division of Fire training section. This training program must be based on industry standards not limited to: NFPA 1026, *Standard for Incident Management Personnel Professional Qualifications*, NFPA 1021, *Standard for Fire Officer Professional Qualifications*, NFPA 1561, *Standard on Emergency Services Incident Management System and Command Safety*, and all Department of Homeland Security, Federal Emergency Management Agency NIMS requirements. This curriculum should include an incident commander task book to be issued and completed by each fire officer prior to being allowed to serve in the role of an incident commander. The curriculum will allow for the consistent replication of training and developing future fire officers in incident management.
3. Enrollment of all North Ridgeville Division of Fire officers and chief officers in the Blue Card training program. The Blue Card program will provide improved incident command training while work is being completed on recommendations four through six. Blue Card provides incident command training that is consistent with industry standards while using simulation type exercises.
4. Explore the possibility of creating a regional partnership with the intent of developing a regional command training center through the Lorain County Fire Chiefs Association. The Lorain County Fire Chief's Association has expressed a dedication to improving incident command performance prior to this research by establishing a Blue Card training site within Lorain County. It seems logical that there would be favorable interest in establishing a CTC to accompany the Blue Card training site.

5. Conduct further research to explore the key aspects and cost of developing a regional command training center. Prior to implementing recommendation six, research must be conducted into the costs involved with constructing and maintaining a regional CTC. Site visits to established CTCs is recommended.
6. Seek out grant funding for development and implementation of a regional command training center. Grant funding will help defray the inherent costs of establishing a CTC.

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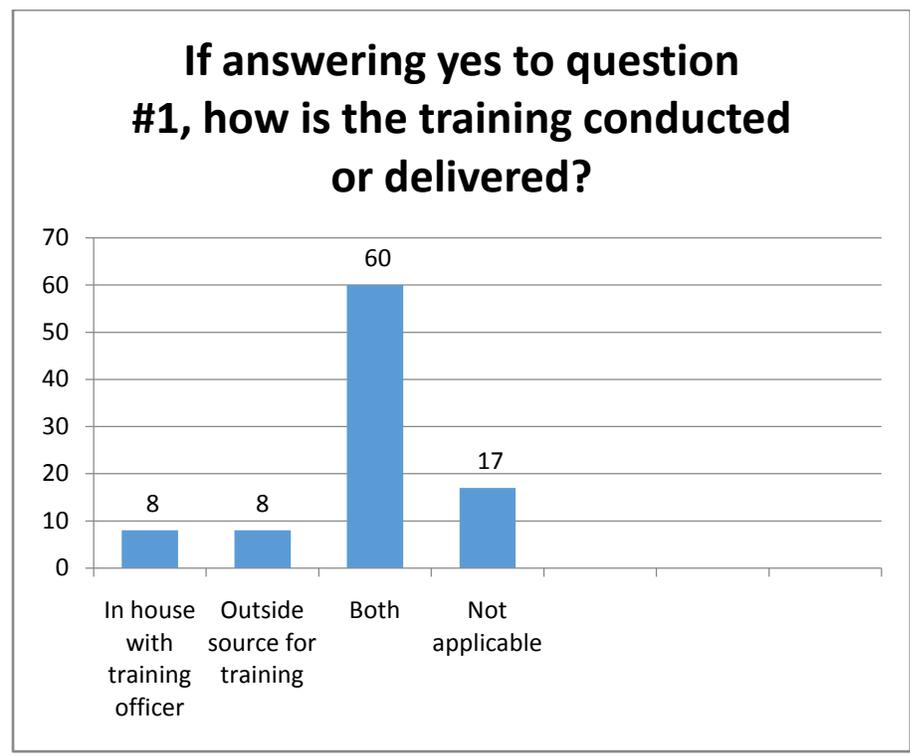
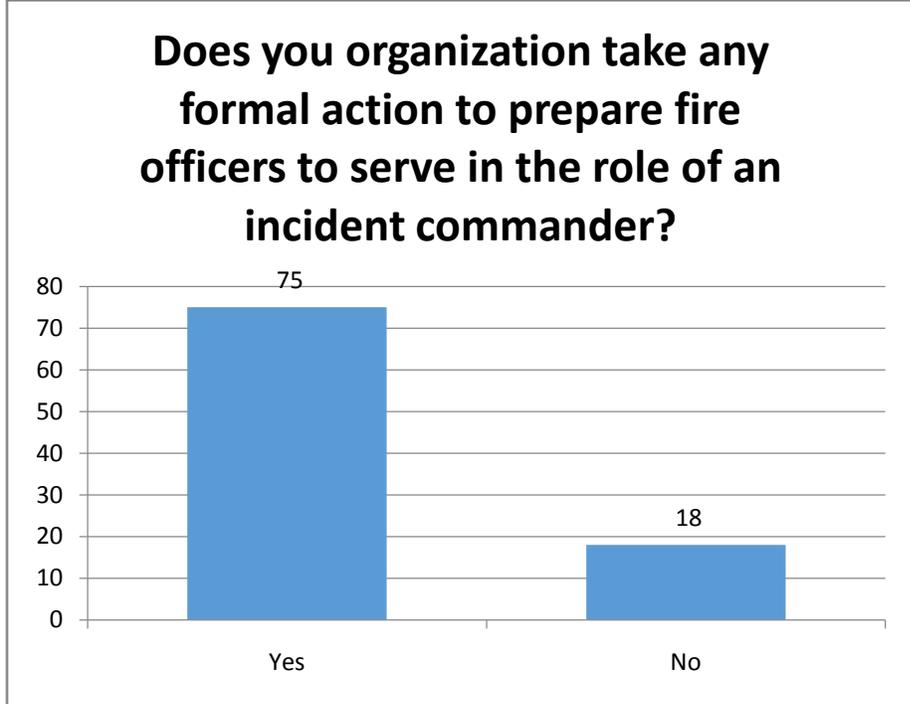
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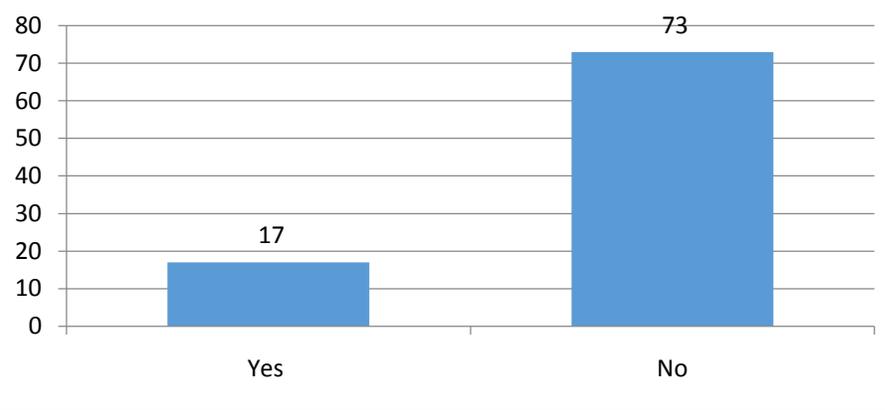
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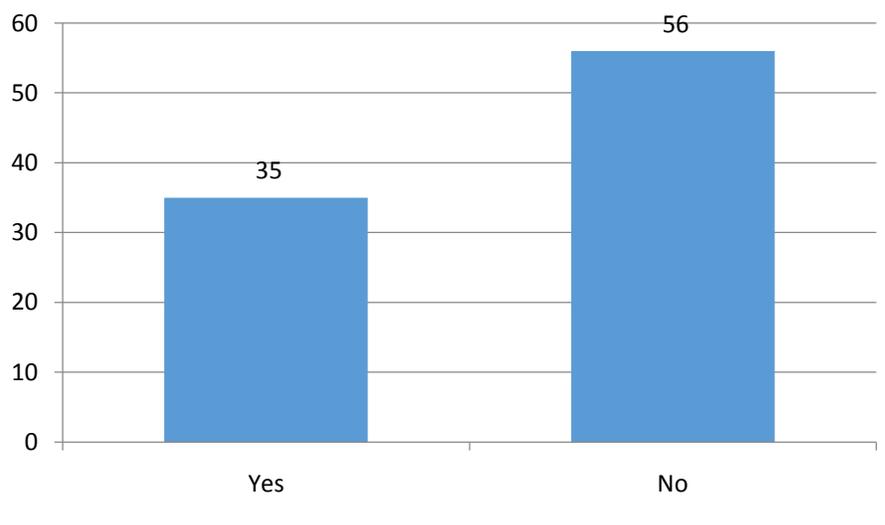
**APPENDIX 1 – EXTERNAL SURVEY RESPONSES**

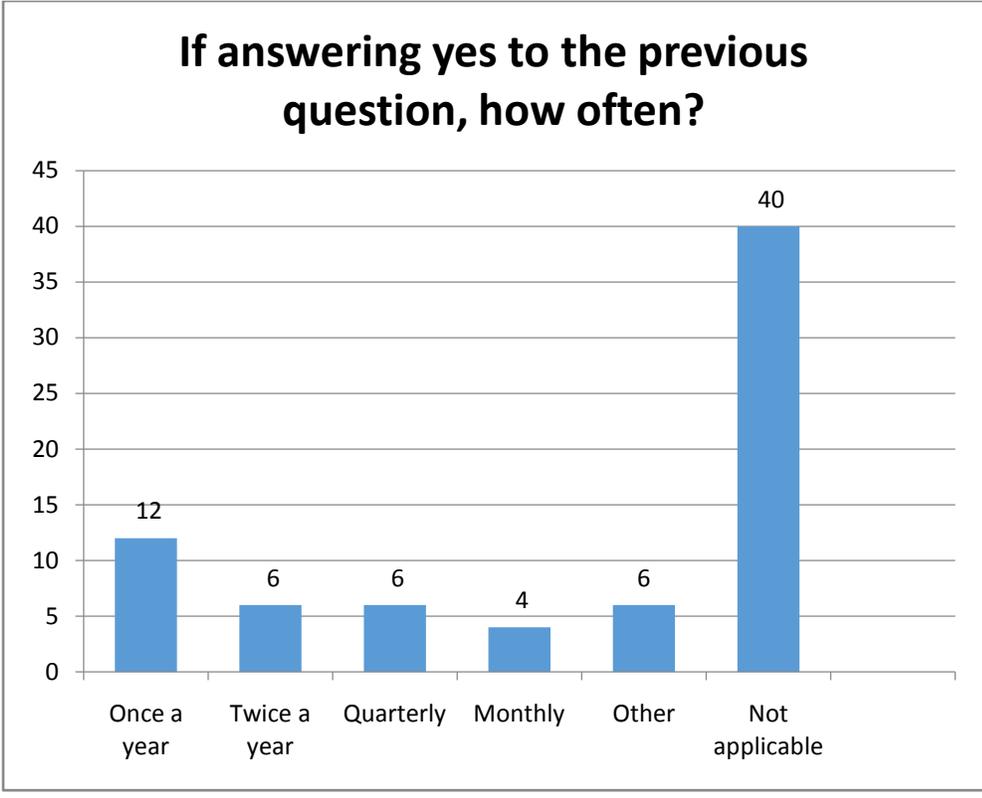


**Does your organization have any sort of incident management orientation guide, check off or task book that must be completed prior to serving as an incident commander?**

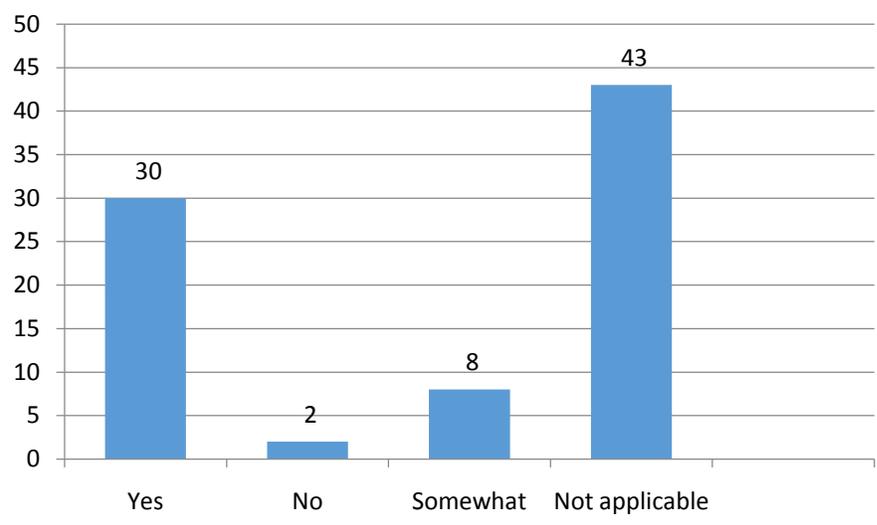


**Does your organization require regular continuing education or re-certification for those serving as an incident commander?**

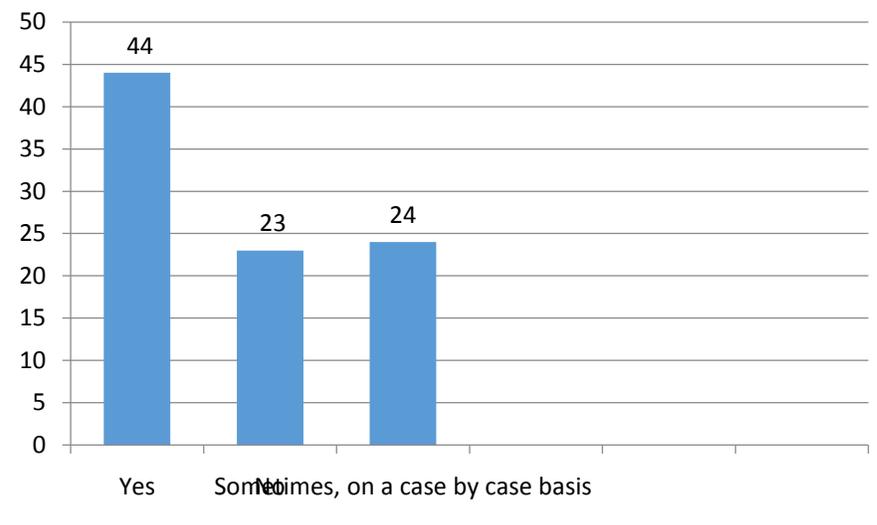


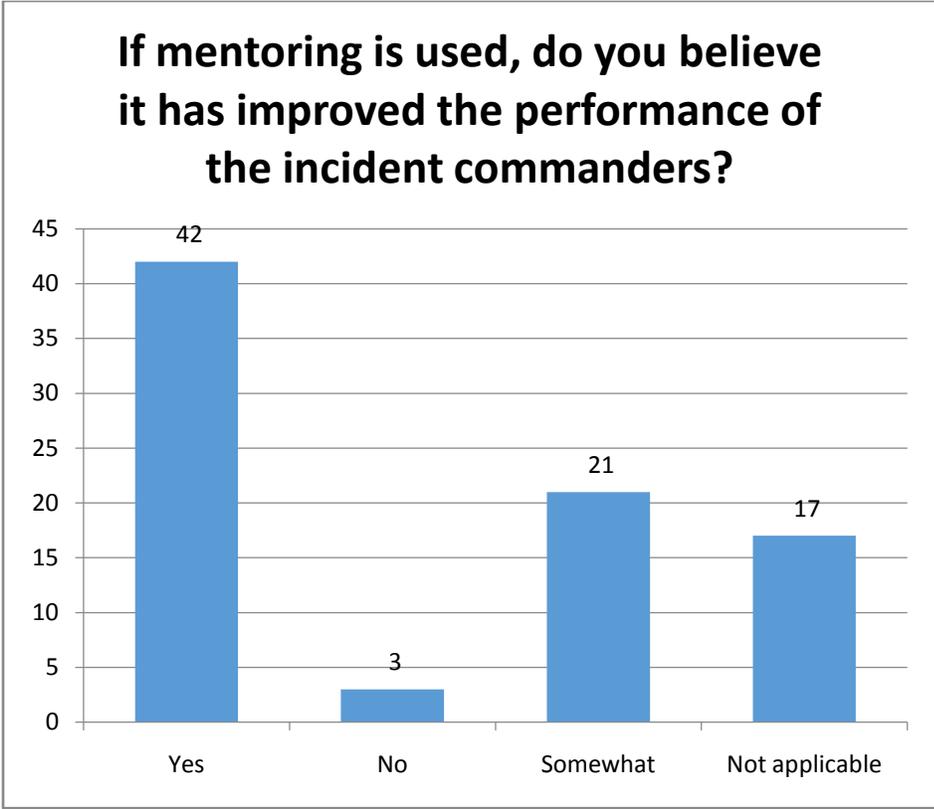


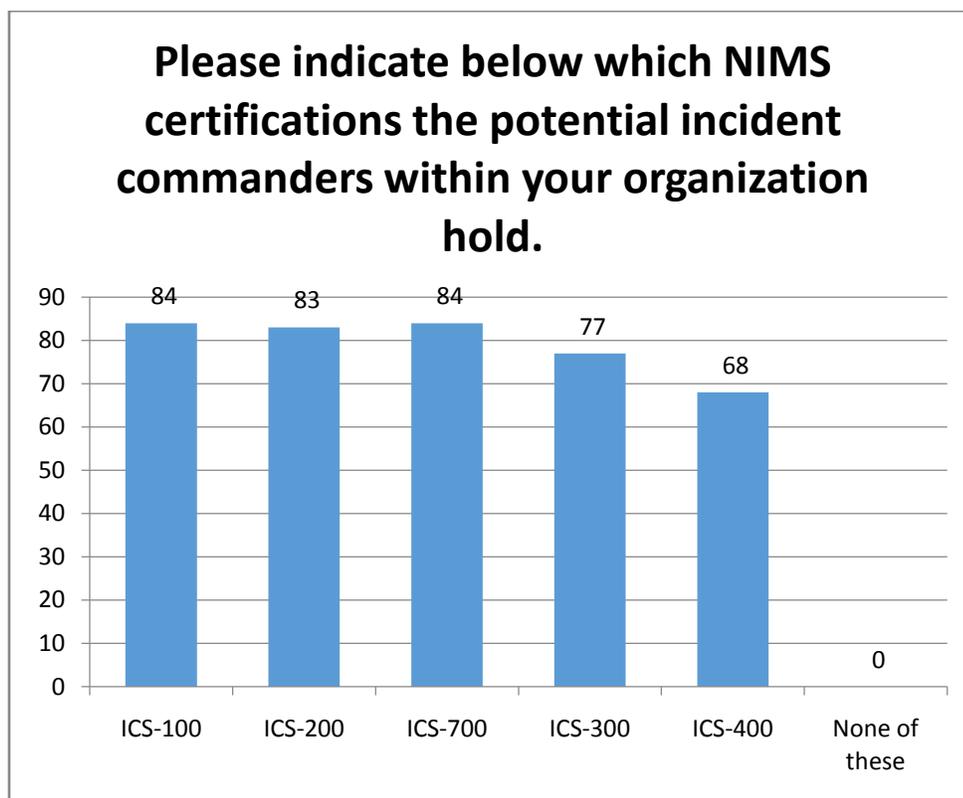
**If Blue card is used, do you believe it has improved incident commander performance within your organization?**



**Does your organization use a form of mentoring to develop the skills of individuals who are expected to perform as incident commanders?**







**Please indicate the total number of members within your organization, not including dispatch personnel or administrative assistants.**

