EOC Survivability

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Certification Statement

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Abstract

Recent Emergency Operations Center (EOC) activations have demonstrated that Concord Fire Department (CFD) has a diminished capacity to sustain staffing during activations. The problem is the Concord Fire Department has never performed a capabilities assessment on the staffing requirements for the EOC. The purpose of this research was to evaluate the survivability profile of staffing considerations and position descriptions within the EOC. Evaluative research was performed though comprehensive literature reviews, internal data collection, conference lectures, and personal interviews. The following research questions were answered:

1. What are the key elements for staffing requirements in a capabilities assessment?
2. What staffing numbers and specializations are necessary to provide sustained operations?
3. What technologies are available to use in minimizing or limiting staffing requirements?

Literature specific to capabilities assessments was reviewed from military, educational facilities, and state guidelines. The 5-Year NIMS training plan was used to evaluate internal CFD training records for current certifications. Additional EFO papers were reviewed for survey data pertaining to EOC staffing profiles and the types of technology utilized. A personal interview and attendance at the state preparedness conference supported all research.

Five major components of a capabilities assessment were identified and used to perform an organizational assessment which defined core competencies and distinctive capabilities. The internal review of training certifications indicated only 18.2% of members meet the recommendations for preparedness, 10.1% of members meet the recommendation in communication and information management, and 10.1% of the members meet the resource

management components. Although 97.5% of members have completed the Command and Management awareness components, only 17.7% are qualified at the advanced level of training. Recommendations include pre-scripting staffing profiles for specific activations utilizing the core command staff and ESF positions, increasing ICS training by 20% over the next four years, and increasing the availability and training of WebEOC.

Table of Contents

Introduction

In the last two years the Concord Fire Department (CFD) has activated the Emergency Operations Center for two hurricanes. In the days leading up to each event, staffing plans were made, emergency management plans were dusted off, and the framework of our Emergency Operations Center (EOC) was established. CFD has experienced members capable of filling critical roles in EOC operations; however, many of these members are also part of the Massachusetts Task Force / Urban Search and Rescue Team (MATFl/USAR). During both of the previous activations many of these experienced members of our department were activated and deployed by the Federal Emergency Management Agency (FEMA) days before our area was impacted by the storms. In both events these deployments left CFD short in experienced and trained staff to maintain EOC operations. The problem is the Concord Fire Department has never performed a capabilities assessment on the staffing requirements for the Emergency Operations Center (EOC). The purpose of this research is to evaluate the survivability profile of staffing considerations and position descriptions within the EOC. Evaluative research will be performed by comparing nationally established guidelines for EOC staffing with current CFD capabilities. Information will be obtained through interviews, internet research, surveys, and internal data collection. The following research questions will be used to assist in this evaluation process:

4. What are the key elements for staffing requirements in a capabilities assessment?
5. What staffing numbers and specializations are necessary to provide sustained operations?
6. What technologies are available to use in minimizing or limiting staffing requirements?

Background and Significance

Concord is the capital city of New Hampshire. Located almost geographically in the center of the state it is the largest city in Merrimack County. The City of Concord operates with a Council-Manager style of government. There are 15 members including the Mayor that constitute the city council. Daily operations of the city are overseen by a council appointed City Manager. The City Manager is designated by city ordinance as the Director of Emergency Management. He is responsible for coordinating all activities in connection with emergency planning. The Concord Fire Department operates four strategically placed stations covering 64 square miles of area and serving a residential population of 42,463. The Concord Fire department is staffed by 99 full time personnel. Administrative personnel consist of five administrative staff members, two members of fire prevention, nine communication staff members, and one fire alarm/traffic control member. The remaining eighty-two members make up the suppression division. The department staffs three engine companies, one tower company, three Advanced Life Support (ALS) ambulances, and a command vehicle on a 24/7 basis.

There is no specific policy or directive on how or when the EOC will be activated. The authority to do so comes from the City of Concord code of ordinances which states:

> The City Manager is authorized and directed to create an organization for emergency management utilizing to the fullest extent the existing agencies within the community. The City Manager, as executive head of the municipal government, shall be responsible for the organization, response, resources administration, and operation of emergency (Code of Ordinances, n.d., figure 1-4-4).

On August 28, 2011 Hurricane Irene moved into the Northeast with a predicted path that tracked directly over the center of New Hampshire. In the days leading up to the storm, five members of the department ranking from Lieutenant to Bureau Chief were activated and deployed. These deployments left us scrambling to fill EOC positions. Ultimately, the EOC was staffed by the Fire Chief, a Bureau Chief and the department Administrative Assistant. Luckily, the majority of the storms impact missed New Hampshire and traveled west into Vermont. In the EOC there were only a few requests for sandbags and barricades that comprised most of the activity during the first and only operational period. This incident was viewed as a lucky break for the department and in the very informal post incident analysis all parties agreed a more structured process was needed to ensure sustainability in the event of a larger incident. However, in the months to follow daily operations once again became the priority and the recent near miss faded from agendas.

A little more than a year later on October 29, 2012 Hurricane Sandy began its approach into New Hampshire. Again critical members of our command staff were activated and deployed. Since Hurricane Irene was mostly a non-incident for the City of Concord, little had been done to prepare for a larger, more resource dependent operation. In the 12 hours leading up to the impact of the storm, the departments training room was again converted into a makeshift EOC. The storm was expected to reach the city by 4pm and the Fire Chief had reached out to the various department heads across the city and requested a pre-incident briefing at noon. The fire department staff consisted of the Fire Chief, the Deputy Chief, and a Bureau Chief. The police department sent one representative, and the general services department sent their Director. During the briefing we were informed by the Director of general services that he would not be operating in the EOC and was only checking in. As the storm progressed and call volume

increased, the five of us began to assume all needed roles. The inefficiency of our system led to multiple instances of confusion, conflicts, and duplication of efforts among the police, fire and general service units working on the front lines. Throughout the incident there was never a formal Incident Action Plan (IAP), very few damage assessments were recorded in real time, and no long range planning was instituted. Many of the EOC decisions and operations were based on reactionary information received from the field. The hurricane had knocked out power to most of the city and during the storm a member of the EOC staff was needed in the field to assist with the transfer of two premature infant twins on ventilators. The storm had left the life supporting ventilators on battery backup and time was quickly running out. Although operations had started to slow down at this point, this was another example of the understaffing issues facing the EOC. In a post incident analysis the survivability of our EOC was once again the center of discussion. Key items for improvement focused on maintaining adequate staffing for essential job functions and a plan for increasing the long term survivability of operations through alternative staffing models or technology.

The goal of the National Fire Academy's Executive Analysis of Fire Service Operations in Emergency Management is to prepare fire officials to manage and operate in administrative functions within the emergency management framework. This goal is directly related to the problem of survivability with the Concord Fire Departments EOC. This course and associated material will be used as a guide for identifying the key areas of effective operations. Unit 5 of the student handbook for the Executive Analysis of Fire Service Operations in Emergency Management is titled *Emergency Operations Center and External Assistance.* A terminal objective of this specific chapter is to allow students to analyze EOC operations using "risk

assessments, capabilities assessment, and resource agreements" (Executive analysis of fire service operations in emergency management, 2012, p. 5-1)

The United States Fire Administration (USFA) has been a leading agency in the promotion of professional development within the national fire service. Of the five operational goals in the USFA strategic plan, this research is directly linked to many of them. By identifying methods to increase survivability of the EOC, this research is specifically associated with the USFA's goal of increasing local planning and preparedness. This research also meets the goal of improving capabilities for response and recovery following emergencies.

Literature Review

Many of the national models on how to design or staff an EOC reference a process known as a capabilities assessment. The focus of the first research question is to determine what elements or factors comprise the capabilities assessment. The notion of capabilities assessment was introduced by the military in 2003 with the goal of this assessment to identify and correct "shortcomings in the existing requirements process" (Joint Chiefs of Staff, 2009, p. 3). In order to identify shortcomings of a process or program, the process must be broken down into identifiable actions or capabilities. Before these capabilities can be identified they must first be defined. The official Joint Chiefs of Staff users guide on Capabilities-Based Assessments states the formal definition of a capability is "the ability to achieve a desired effect under specified standards and combinations of means and ways to perform a set of tasks" (Joint Chiefs of Staff, 2009, p. 6). Once the various capabilities are separated they can be evaluated in stages. In the first stage of any evaluation a background or historical pattern of the process must be determined. According to the Joint Chiefs of Staff this will allow the real issue(s) to be separated and evaluated. Capability assessments are designed to define the functional needs to perform a

specific task then identify gaps in the existing task(s), and identify if there is a need to address these gaps.

This capabilities based assessment has proven useful in many non-military applications as well. A PowerPoint lecture used at the Bryan School of Business and Economics at the University of North Carolina Greensboro on assessing strengths and weakness, describes a three prong approach to internal analysis. First, the organizational capabilities must be identified; these are described as the daily processes and routines performed by knowledgeable staff to produce a work product. Next are the core competencies, these are defined as a "major value-creating capability" (Sterna, Gillaspie, Chapman, Crowell, Eccles, & Addison., n.d, Slide 6). Finally, distinctive capabilities are the functions that distinguish a particular organization from others. According to the authors an organization must first secure their organizational capabilities because these are the foundation for developing core competencies. The military utilizes a capabilities assessment to determine what forces will be needed to allow the government to adequately defend our country against all foreign and domestic adversaries. By assessing the current capabilities against multiple scenarios that are designed to overwhelm the system, the military can better understand how to allocate resources on a global stage. This balance of strengths and weaknesses is what gives our military a large advantage over smaller nations. Private industry typically uses a capabilities assessment process to gain a competitive edge in business or sales. Utilizing the above mentioned three prong approach a business can secure a place in the industry where a product is needed. The private industry will then find the most effective way to produce and deliver their product to the consumers. Unlike the military, it is not uncommon in private industry for there to be multiple sources for product production and delivery; thus creating a competitive environment. Emergency management can learn from both

examples of capabilities assessments. Similar to the military style of assessment, emergency management must determine the strengths and weaknesses of any given system under the worst case scenario. Although typical emergency management centers are not out for profit or competition, many of the previous basic foundations can be applied. When performing an assessment of an emergency management center the same three characteristics of capabilities can be determined. Organizational capabilities must be matched against organizational resources in order to determine what core competencies exist. Once these competencies have been evaluated an organization can determine what their distinctive organizational capabilities are and ultimately perform better by effectively balancing the strengths and weakness. A great example of this type of assessment was performed by the State of Florida in 2003. The Division of Emergency Management in collaboration with the Department of Community Affairs and the Architects Design Group, Inc. released a guidance publication on Emergency Operations Center Project Development and Capabilities Assessment. This guide was designed to set the framework for updating an existing Emergency Operations Center (EOC) or the design of a new center. Chapter 1 of this publication states that the purpose of an Emergency Operations Center is to:

> provide a facility, located in an appropriate centralized location, in which government can continue to function and provide interagency coordination and executive decision making for managing disaster response and recovery. An EOC, above all must be survivable during and after an incident, be it a man-made or natural event (Guidance Publication, 2003, Chapter 2).

This guidance document covers all conceivable aspects of survivability for an emergency operations center from the site location to the type of glass that should be installed on windows.

For the purposes of this literature review on those aspects directly related to staffing or personnel will be reviewed. The guidance documentation describes two distinct types of staff in the EOC, staff that would normally operate at the center on a daily basis are referred to as Emergency Management Staff, and those that respond and staff the EOC during events are referred to as the Incident Command Staff. There is no specific reference chart or recommendation for the number of staff required for the Emergency Management or Incident Command Staff, as these vary based on the population and jurisdictional size of the coverage area. The guide does include a "Spatial Needs Assessment" formula. As a general rule the guide suggests that the "allocation of approximately 105-110 gross square feet per 1000 population of the jurisdiction will generally provide sufficient area" (Florida Disaster, 2003, n.p). This documentation also recognizes the need for the space to be flexible as it is often a multi-use facility that may only be used as an EOC during actual emergency events. The Australian Government has a good example of a staffing specific capabilities assessment for the development of their website. Section 1.4 of this guide requires agencies to determine what skills are currently available to the agency. This assessment is performed to determine if all required skill sets are currently available to them in-house or if outsourcing is required. The depth of experience and knowledge will vary by individual and this assessment will help to classify or categorize specific skill sets. This assessment will also assist in identifying how many staff has each specific skill (The Australian Government Web Guide website, n.d., Chapter 1.4). The Australian Government uses this process to identify knowledge levels and training gaps within their organization. This assessment is the foundation for how and what level of staff are dedicated to specific programs. This process allows for optimal resource allocation by creating a detailed profile of staffing with specific skill ability. This profile can then be used to assign staff to projects based on size and complexity. For

example, a small client with a simple problem may require less staff members with a lower degree of technical knowledge; whereas, a larger more complex program may require more staff members with higher degrees of proficiency or specialty.

So now that the foundation of the capabilities assessment has been identified, the next question will focus on what staffing numbers and specializations are necessary to provide sustained operations. Following a basic chain of command structure each activated EOC should have an appointed EOC Director (EOC-D). The Directors position is generally assumed by the Director of Emergency Management; however, it may be filled by another individual typically designated by the town administrator. Responsibilities of the EOC-D range from the ability to develop and implement policies to the coordination of disaster management and in a summary report on the on-line job finder O*NET Online the educational requirements for the position varied. 52% of employers required a Bachelor's degree, 26% required a Master's degree, and 15% reported requiring some college or no degree at all (O*NET Online website, 2010). There were no additional credentials specific to Incident Command training listed as a pre-requisite for the EOC-D position. The position of Liaison Officer is another critical function within the staffing profile of the EOC. The Liaison Officer serves as a first point of contact for all assisting agencies. As an incident becomes more complex additional agencies, many of which may have specialized or specifics disciplines may be needed. The Liaison Officer is responsible for the interagency coordination of all agencies involved. A Public Information Officer (PIO) shall be a position established within the incident command staff. The Public Information Officer has a variety of job duties, but "communication is the basis for what they do" (Public Information Officer, n.d, para. 1). The PIO will be the individual responsible for assembling, confirming, and releasing all information to the public. The final key position for an EOC is the Safety Officer.

This role will assume the responsibility for the safety of all members associated with the operation. This position is granted the ultimate authority to prevent or stop any unsafe acts when immediate action is required (LAKE COUNTY, 2003, p. 14). These four command staff positions are the foundation of the EOC staffing profile.

The Five-Year National Incident Management System (NIMS) Training Plan of 2008 recommends various Incident Command System training programs based on the level of responsibility. This document states

> The heart of the Five-Year NIMS Training Plan is to develop the complete foundation of the National Training Program for NIMS, which consists of core competencies for typical positions, a national core curriculum for NIMS, training guidance for specific courses within the core curriculum, and personnel qualification guidelines (National Incident Management System (NIMS): Five-Year NIMS Training Plan, 2008, p. 4).

The core curriculum aligned with NIMS components and by level of training (Appendix 1) is a recommendation of the level of ICS training by specific component or job function within the ICS system. It is recommended that members only needing a general awareness of NIMS complete ICS 700 and 800. Members in communications or information management should complete ICS 704. Those members with responsibility in resources management/logistics should complete ICS 703, 706, and 707. Those members serving in command or management roles should have ICS 100,200,701, and 702. Again all of the above programs are for the awareness level of training and topics or concepts are introductory. Advanced, is the next level of training and includes the training programs, ICS 300 and 400; which are designed to develop skills and include practical exercises. The final level of training is called practicum; this training level is designed to qualify individuals on position-specific disciplines.

In 2010, a survey was conducted on rural counties in Pennsylvania to determine funding, staffing, and training abilities. The survey collected data from 54 respondents regarding staffing and equipment. Specifically addressing the staffing profiles of their departments, 69% of the respondents indicated that they were understaffed and they believe this appears to be a nationwide problem secondary to limited state funds (Mueller & Mitchem, 2010, p. 7).

A field study on the EOC in Henrico County, Virginia was conducted in 2002. This study was an overview of the physical structure and the recommended staffing at that time. According to Anna McRay (2002) "fourteen to sixteen people from various county agencies staff the primary emergency operations center when it is fully operational". The agencies that these people represent are shown in Appendix 2. The Mesa County Emergency Management website suggests the following resource allocation for a city level EOC activation: Chief Executive Officer, Command Staff, Incident Commander, EOC Management support team, Logistics section, Planning section, Administration/Financial section, Information Technology section, Safety/Security section, and 15 Emergency Support Functions (ESF) (Emergency Operations Center Management n.d., p. 218). These levels are consistent with the National Incident Management System (NIMS) recommended positions for EOC staffing. The additional 15 ESF positions are categorized by number; for example an ESF#1 would include all aspects of transportation and an ESF#2 would handle communications (Emergency Support Function Annexes, 2008, p. 1). A full list of ESF positions and responsibilities can be found in Appendix 3. In order to be considered operational, the EOC at the University of California requires the following positions be filled: Emergency Director, Emergency Management Coordinator, Operations Chief, Planning Chief, and an EOC Coordinator. These positions are the minimum staffing required for any partial or full activation (University of California, 2009, p. 8). The

Emergency Plan Implementing Procedure guide also states that there are ten key positions within the EOC Management section; those listed above for the minimum activation level plus a Liaison Officer, Public Information Officer, Police Department representative, Newswriter, and Historian.

With the various staffing profiles described above the next question will focus on how or what technologies are available to assist in minimizing the staffing impacts on EOC operations. The key to effectively manage the response and recovery operations involved with a large scale incident involves the ability to process a large volume of information from multiple sources. This information needs to be processed and documented rapidly for operations and must also be available for recovery reimbursement. According to Davis Logic Incorporated the ideal information system would be "an easy to use and robust information and decision management system" (DavisLogic Inc, 2005, para. 6). Emergency managers that are challenged with a limited staffing profile need a command, control, and monitoring systems that can easily and efficiently collect and process information. In a survey conducted as part of an applied research paper, 21 agencies were asked to identify the specific software utilized for information management in the EOC. The majority used Web EOC (48%) followed by E-Team (29%). Respondents were also asked to identify the software used for mapping resource allocation to which ERSI (40%) was the majority and Web EOC (30%) was second. A third question was asked to identify what software was used for mapping of critical facility status, the largest group was split between Web EOC (23%) and ERSI (23%) followed by GIS w/ Autodesk (15%). The departments surveyed were predominantly located in California (Craig, 2007, p. 16).

A second applied research paper written by Joseph Silva (2000) of the Meridian Fire Department in Idaho was reviewed. His research evaluated 81 departments from within Idaho

and throughout the Northwest region. This literature was specifically reviewed because of the similarities in staffing profiles and jurisdictional coverage areas the respondents represented. Question #2 in his survey was "What is the number of Career Staff in your department?" Departments in Idaho averaged 18 career staff members and those outside the area averaged 23.4. The jurisdictional coverage area was also similar in size to the Concord Fire Department with an average population of the respondents at 45,154 people. Survey question #9 asked respondents "what types of information accessed or exchanged over the Internet would be beneficial to the Emergency Operations Center". His results indicated that 100% of the respondents included the following items; timely access to media, access to Bureau of Hazardous Materials, access to the State EOC, and access to FEMA, the weather service, and poison control. The author states "We clearly exist in the information age and an EOC, like Meridian's must make full use of the information available at our fingertips." Although this research is more than a decade old, his statement still holds true as we clearly are in the information age and ironically many of the challenges addressed in his research are still ongoing for many departments.

Another survey completed by Jennifer Fleishman(2011) a graduate student at the University of Central Florida looked into what specific types of software EOC's were using. Her survey encompassed 32 universities from across the United States. Question #8 of her survey inquired as to the type of communication technology being utilized. Her results indicated that 97% used the internet, 28% used satellite communications, 94% used radios, 47% used voice-over IP, and 50% indicated they used another method of communication. Question #9 centered on the specific type of EOC management software used. The results listed 61% using WebEOC, 4% using E-team, 9% using SharePoint, and 52% using another type of software.

In summary this literature will assist in determining the criteria for a capabilities assessment. Multiple research papers were reviewed to determine what staffing is required to maintain operations

and assess what positions should be filled at every EOC. Lectures from UNCG will help define the core competencies existing with CFD and help establish a future business model. Finally, technology was reviewed to determine what software existed previously and to evaluate what if any are the future trends in EOC communication technology.

Procedures

Evaluative research was performed for each question using information gathered from multiple sources. The research began with a literature review and initial research at the National Fire Academy's Learning Resource Center in September, 2012. Each research question was isolated and various sources of information specific to the questions were reviewed.

Information for question #1 (What are the key elements for staffing requirements in a capabilities assessment?) was evaluated using various online resources. A Google search for information included terms such as: capabilities assessment, staffing assessment, Emergency Operations Center, and key elements for assessments. The following online resources were used to gather information regarding capabilities assessments:

1. Joint Chiefs of Staff users guide. This 97 page online document was used to gather a historical perspective on the creation of the capabilities assessment. A memorandum issued by Donald Rumsfeld on the need to fix a broken requirements process was the impetus for the formalized capabilities assessment that is currently used by the Department of Defense. This document was located using an expanded Google search for military capabilities assessment.
2. University of North Carolina at Greensborough PowerPoint. This PowerPoint used by the school of business was designed to assist students in the process required to analyze their respective industry. This unit identified and defined the key terms such

as capabilities, core competencies, and distinct capabilities. This PowerPoint was located using a Google search for business capabilities assessments.

3. State of Florida Emergency operations guide. This guide is an excellent resource for any state or agency looking to update or build an emergency operations center. This guide outlines specific requirements on all aspects of design, build, and operations required to sustain an emergency operations center. For the purposes of this evaluative research, only those sections of the guide that pertained to staffing requirements were reviewed. This document was found using a Google search for fire department capabilities assessment.
4. Australian government website. This website was chosen for the detailed training requirements of various levels of operations within the emergency operations center. Specific numbers of staff needed were also gathered based on the various training levels. This website was found during an online search for staffing requirements of an emergency operations center.

The above research focused on defining what constitutes a capability assessment. A cross section of sources military, state, county, and educational institutions were evaluated for information consistent with defining a proper way to evaluate the Concord Fire Department. Because of the specific nature of many documents, limitations were noted in finding information that matched the exact criteria of Concord Fire needs. An attempt was made to locate specific information on fire departments or organizations of similar staffing and jurisdictional area that had performed capabilities assessments.

Information for question #2 (What staffing numbers and specializations are necessary to provide sustained operations?) was obtained from search engines such as Google and Bing. Information specific to staffing numbers was evaluated through online journals, websites, and public records. An on-line job finder was utilized to define job descriptions, required skills, and education.

The FEMA website was reviewed for training recommendations and certification levels. The Five-Year National Incident Management System (NIMS) Training Plan of 2008 was printed and utilized for determining what level of training was recommended for each component of NIMS.

Two large surveys (Pennsylvania rural, and Henrico County) were reviewed to compare large amounts of data from each respective study. Finally, two institutions were evaluated online through their respective websites for specific uses of EOC positions and staffing numbers. There were limitations on locating institutions that are similar in size, both geographically and population density, to compare staffing with and these organizations did not include educational or training requirements for their respective positions. These online documents and surveys were found using a web based search for terms such as "staffing profiles for emergency operation centers" and "sustained operations for EOC". As mentioned above, there were limitations in finding departments or organizations with similar jurisdictional size and staffing to adequately compare. Most departments only listed the types of emergency situations required to activate their respective EOCs and most did not expand on the staffing required to do so.

Question #3 (What technologies are available to use in minimizing or limiting staffing requirements?) was evaluated solely via web based information. Multiple online searches for "Emergency Operations Center technology" returned information on software companies that specialize in emergency management products. Reviews of their respective products were evaluated for features and limitations. The software products were reviewed for specific information relating to emergency operations staffing. In addition, two executive fire officer research papers (Craig, 2007) and (Silva, 2000) were reviewed and their survey data on the types of software utilized by various departments was evaluated. Finally, a graduate student research paper was reviewed to compare survey results from college campuses to those found in the fire

service. Although there were a few limitations in the availability of this data, many similarities were noted between the public and educational institutions evaluated. Additional limitations were noted in the details of the EOC software as many organizations did not include specific details of the software capabilities. Another limitation included the geographical location used for each EFO paper as they were specific to West coast fire departments.

In addition to the above internet based searches a telephone interview was conducted with the New Hampshire Director of Homeland Security, Christopher Pope (Appendix 4). This telephone interview was conducted on December 12, 2012 at 4:30pm and lasted approximately 45 minutes. The purpose of this interview was to answer the questions:

1. What are the key elements for staffing requirements in a capabilities assessment?
2. What staffing numbers and specializations are necessary to provide sustained operations?
3. What technologies are available to use in minimizing or limiting staffing requirements?

The researcher also attended the 2013 New Hampshire Emergency Preparedness Conference on June 27, 2013. This conference was held at the Radisson Hotel in Manchester, New Hampshire from 7:30am-4:00pm. Concurrent sessions attended were:

- Defense Support of Civil Authorities During Hurricane Sandy: Observations and Lessons Learned presented by Colonel John Yurack of the United States Marine Corps.
- Health Information Privacy and Emergency Response: What you need to know. This session was presented by Patricia Dipadova a Senior Consultant with Community Health Institute.
- Residential and Long term care facilities: Keys to Emergency Planning. This session was presented by a number of panel experts including, Peter Bacon, Don

Rabun, Wendy Smigelski, Carole Totzkay, and Rodney Bascom all from the Department of Health and Human Services.

- Private Sector Integration with State Emergency Operations Center presented by John Dumais, Justin Slattery, and Kevin Daigle

Information collected from this conference was used to perform original research to answer the research questions:

1. What are the key elements for staffing requirements in a capabilities assessment?
2. What staffing numbers and specializations are necessary to provide sustained operations?
3. What technologies are available to use in minimizing or limiting staffing requirements?

Finally, a review of internal training records was performed using Firehouse software to search employee training certifications. Staff members were divided into the following categories: Administrative Chief (AC), Administration Assistant (AA), Suppression Chief (SC), Suppression Captain (SCpt), Suppression Company Officer (SCO), Suppression Non-Company Officer (SNCO), Communications Officer (CO), Communications Dispatcher (CD), Fire Prevention / Alarm (FP). Each member's training records were filtered for ICS 100, ICS 200, ICS 300, ICS 400, ICS 700, ICS 701, ICS 702, ICS 703, ICS 704, and ICS 800 certifications. All data was compiled in an Excel report format (Appendix 5).

Results

Through evaluative research information pertaining to all research questions was reviewed and can be used to formulate a future action plan. The key elements of a capabilities assessment as asked by question #1 was answered by various agencies; although each agency had a very unique definition that was specific to the type of industry. The Joint Chiefs of Staff user guide (2009) identified the following five major components of the capabilities assessment:

1. Background or situation. This portion of the assessment is used to determine what the circumstances are leading up to the need for an assessment. This is achieved by separating specific events and filtering outcomes from known to unknown.
2. Tasking or the mission. This is the core of the assessment as it will define what the answer to the specific needs are, whom the answer will be provided to, and what the timeframe for completion is.
3. Assessment planning or execution. This portion will allow the creator to create scenarios and hypothetically test the operational scope of the assessment. This allows for the ability to create alternative plans. This portion of the assessment is also where a defined schedule and evaluation method are defined.
4. Resources or support services. This section defines internal and external organizations that will support the work group.
5. Oversight or command and control. This defines the group(s) that is responsible for the oversight and completion of the entire process.

To define the various components of the assessment recommended above, the University of North Carolina at Greensborough PowerPoint (Sterna et al. n.d) was used to identify specific needs and current operating levels. According to the PowerPoint the first step in determining capabilities is to perform an organizational capabilities assessment. There are currently 99 available members employed with CFD. These members were broken down into specific categories:

1. Administration
    a. 4 Administrative Chiefs
    b. 2 Administrative Assistants
2. Suppression
    a. 4 Suppression Chiefs
    b. 4 Suppression Captains

c. 16 Suppression Company Officers

d. 58 Suppression Non-Company Officers

3. Communications

a. 1 Communications Company Officer

b. 8 Communication Dispatchers

4. Fire prevention

a. 1 Fire alarm technician.

b. 1 Fire prevention Lieutenant

The Concord Fire Department mission statement (City of Concord, 2013, p. 1) was utilized for the next section of the PowerPoint to detail the core competencies of the organization. These competencies include "providing an all-hazards approach to fire protections, emergency medical services, community risk reduction and education". Core competencies are the broad skills or services provided within the specific trade. The basic infrastructure of the fire service tends to be favorable for the emergency management and emergency preparedness roles within the EOC. The Concord Fire Department certainly demonstrated the ability to mitigate emergencies during the last two major events from an operational level because of attributes such as strategic station locations, multi-use vehicle capabilities, flexible staffing, and equipment designed to handle a wide variety of emergency situations. The final evaluative stage of the University of North Carolina at Greensborough PowerPoint (Sterna et al. n.d) is the separation from the core capabilities to the distinctive capabilities. The Firehouse training report data (Appendix 5) was evaluated against the Five-Year NIMS Training Plan of 2008 (Appendix 1). Key results of this evaluation indicated that

- 98% of the Department has completed ICS 100
- 97% of the Department has completed ICS 200
- 18.2% of the Department has completed ICS 300

- 17.2% of the Department has completed ICS 400
- 98% of the Department has completed ICS 700
- 10.1% of the Department has completed ICS 800
- 10.1% of the Department has completed ICS 705
- 10.1% of the Department has completed ICS 704
- 18.2% of the Department has completed ICS 800

Compared to the recommendations of the Five-Year National Incident Management System (NIMS) Training Plan of 2008, Concord Fire has only 18.2% of members whom meet the recommendations for preparedness. Of the percentage, 10.1% of members meet the recommendation in communication and information management, and 10.1% of the members meet the resource management components. Alternately, 97.5% of the members have completed the Command and Management awareness components and of those 17.7% are qualified at the advanced level of training.

The Guidance Publication released by the State of Florida (2003) estimated the spatial needs of an EOC to be approx. 105-110sqft /1000 population. For the City of Concord this would equate to a building approximately 4486sqft which is significantly larger than our existing structure.

The answer to question #2 (What staffing numbers and specializations are necessary to provide sustained operations?) was defined by using the Australian model of resource allocation based on staffing ability and job complexity. CFD was broken down into the specific operational functions as outlined by the five year plan of NIMS. Because of contractual limitations suppression non-company officers do not routinely function in EOC command and management positions. Of the 16 suppression company officers, 100% meet the awareness criteria for command and management

while only 31.3% are trained for advanced levels of management. In addition, 75% of suppression Captains and 100% of the Suppression Chiefs are trained in advanced levels of management.

The four key staffing positions of an EOC are the Director, the Liaison officer, the Public Information officer, and the Safety officer. An additional fourteen to sixteen ESF staffing positions are needed to operate a fully functional EOC. One of the biggest challenges to staffing these positions, as evident in the rural counties survey (Mueller & Mitchem, 2010) is understaffing; although, 69% of the respondents they surveyed believed understaffing was a secondary problem and adequate funding is the primary cause understaffing.

Question #3 (What technologies are available to use in minimizing or limiting staffing requirements?) was answered by a number of sources. Multiple online searches for EOC software returned information on a company called Davis Logic Incorporated. Although this company's website did not endorse any specific brand of software, they did outline the key factors to making technology beneficial in EOC staffing. These factors include functions such as an alert network, an event alert evaluation and triage, incident logging, team tasking, resource deployment and monitoring, status boards, executive briefings, and documentation (DavisLogic Inc, 2005). Using these factors as a guideline for reviewing various types of software, WebEOC appeared to be the most robust. An applied research paper written by Forrest Craig (2007) also demonstrated that the majority of respondents he surveyed utilized WebEOC. His paper indicated that 48% of his respondents used WebEOC as the primary software for information management; however, WebEOC was not the primary software for other specific functions such as mapping or tracking critical facility status. Another applied research paper written by Joseph Silva (2000) contained data on what types of information EOC's would like to have accessed or exchanged over the internet. The majority (100%) of his respondents all indicated that real time access to specific organizations for critical information sharing was the most important. Even though the organizations he surveyed are

in the northwestern part of the United States, many of the specific organizations that were referenced in the survey are similar to those needed in New Hampshire. After reviewing all the literature it appears that an internet based software program, such as WebEOC is beneficial in meeting the key components outlined by Davis Logic Incorporated. To further validate this, a graduate research paper written by Jennifer Fleishman (2011) of the University of Central Florida was reviewed. This specific research paper was utilized because it moved away from the traditional public safety/government based EOC's and focused on educational facilities. Her survey collected data from 32 universities and similar to the above mentioned surveys 97% of her respondents indicated that internet based technology was the primary form of information management. Her results also indicated that 61% of the universities were utilizing WebEOC.

A telephone interview with the Director of Homeland Security Christopher Pope (C. Pope, personal communication, December 12, 2012) was very insightful to the interworking of the New Hampshire division of Homeland Security and Emergency Management. Director Pope was asked what the biggest challenges were for Emergency Management in New Hampshire. He stated that because Emergency Management (EM) is not standard to each community the state must remain flexible and maintain the ability to scale to individual community needs or requests. Specific to question #2 (What staffing numbers and specializations are necessary to provide sustained operations?) he stated that the State of New Hampshire operates with the standard 14 ESF functions as recommended by FEMA. He noted that not all positions are activated on every incident and that many of the positions are predestinated by emergency type. This aids in the ability to bring the EOC on line rapidly in an emergency event. Specific to question #3 (What technologies are available to use in minimizing or limiting staffing requirements?) he stated the State of New Hampshire currently utilizes WebEOC for the majority of the 234 local communities or EOC's. The final question of our interview was extremely beneficial in regards to answering question #1 (What are the key elements

for staffing requirements in a capabilities assessment?) as he described that there are many events or emergencies that can be predicted or pre-scripted and although the full impact may not be known or may change dramatically when the event happens having a pre-scripted plan will dramatically reduce the work load to mitigate the event. By using staff in a tabletop event, many of the needs, resources, or requests can be preplanned for emergencies.

The 9th Annual Emergency Preparedness Conference held in Manchester on June 27, 2013 was also beneficial in answering all three research questions. In a lecture on Defense Support of Civil Authorities during Hurricane Sandy presented by Colonel John Yurack of the United States Marine Corps he stressed the importance of planning assessments and preplanned or pre-scripted contracts for emergencies. He described the methods of activating these resources during events and the challenges on cutting through the red tape to get "boots on the ground" (J. Yurack, personal communication, June 27, 2013) he also stressed that the red tape is there for a reason. Often time's short cuts are implemented to expedite ground support, only to cause significant problems post event when funding and reimbursement are required. This oversight could critically impact a community or EOC that was not prepared. In another lecture co-presented by the New Hampshire department of Resources and Economic Development (DRED) and the New Hampshire Grocers Association (NHGA) information related to Question #3 (What technologies are available to use in minimizing or limiting staffing requirements?) was discussed and examples of how the state is using WebEOC to integrate the private sector into the emergency management information sharing. By using the largest association of food suppliers in New Hampshire, DRED was able to provide critically needed food supplies to areas affected by the recent ice storms and hurricanes. This integration of public and private agencies is

mutually beneficial to long term sustainability during emergency events and shows the benefit of expanding technology to outside agencies.

Discussion

Literature reviews and the results of the above research confirmed the need for the Concord Fire Department to perform a capabilities assessment on the staffing requirements for the EOC. The purpose of this research was to evaluate the survivability profile of staffing considerations and position descriptions within the EOC. Based on the evaluative research in the literature reviews, an action plan can be created to assist CFD in obtaining nationally established guidelines. The results of the interview and emergency preparedness conference along with internal data collected from CFD confirmed the need for a more robust staffing plan and a better use of technology to augment this new staffing plan. The CFD needs to perform a capabilities assessment using the recommendations from the Joint Chiefs user guide. According to the users guide "choosing a straightforward scenario to begin with starts the scenario analysis-analysis reconciliation phase, and the entire exercise concludes with the derivation and documentation of needs" (Joint Chiefs of Staff, 2009, p. 55). This is further supported by the University of North Carolina at Greensborough PowerPoint in which the fundamentals of capabilities are explained. They also suggest performing an internal analysis to determine strengths and weaknesses. This literature suggests that "Most organizations simply minimize the impact of the weakness" (Sterna et al., n.d, figure 6) when they are trying to develop a sustainable competitive advantage. This is very consistent with the current operating model of CFD. The Florida state EOC guide included results from a questionnaire they distributed to 67 counties in Florida; information regarding the staffing impact indicated that 61.8% expected their staff to increase within the next five years (Florida Disaster, 2003, figure 1.4.18). Unfortunately, there was limited information

on a follow up for this research to see if those departments in the survey actually did increase the number of staffing in their respective EOC's. The term *sustainability* was used numerous times in the guidance publication; however, it was used to describe a physical sustainability such as collapse prevention or earthquake proof. There was little data on staffing sustainability for long term operations. The data collected from CFD training levels on current ICS certifications will be useful in determining an action plan for improving CFD staffing, but there was very little literature that directly correlated to specific staffing requirements. There were numerous sources of literature that supported the EOC structure and the roles and responsibilities of those in the positions. The Australian Governments web guide to capabilities assessment (Australian Government Web Guide website, n.d., p. 1) states that "At the conclusion of the capability assessment, agencies should have a clear understanding of the range and depth of skills available to them either internally, externally and in a combination of both, and be able to identify the training and skill acquisition required to progress. This researcher believes the data gathered from the internal study has given a better understanding into the depth of skills currently available. Information from the remaining literature review as well as the personal interview with Director Pope confirmed that technology is becoming a larger part of emergency management. Studies from Pennsylvania (Mueller & Mitchem, 2010, p. 1) and Idaho (Craig, 2007, p. 13) suggested that WebEOC was used by the majority of agencies they evaluated. This is consistent with the technology that is currently being used by the State of New Hampshire.

After reviewing the CFD data and the Five-Year National Incident Management System Training Plan of 2008, it is of the researchers' opinion that CFD has made good strides in educating key individuals within the rank to perform at the recommended levels. It is worth noting that although there are members sufficiently trained according to NIMS, they also

constitute the bulk of the operations staff. This limits the functionality of these members in an expanded EOC role.

Based on this information the organization needs to look into ways of continuing to enhance training levels to all members, utilize technology such as WebEOC within the EOC for both internal and external resources, and use tabletop drills to pre-plan or pre-script scenarios for real incidents.

Recommendations

As described in the background and significance section, the two recent activations would have left the CFD EOC critically short in staffing if the events had required multiple operational periods. The sustainability of the current CFD profile would quickly become overwhelmed in a large scale or long term incident. This research has laid the groundwork for a more in-depth look at CFD specific operational guidelines or standard operating procedures for the EOC. As described in the problem statement of this research, CFD has not performed a capabilities assessment for staffing survivability. Recommendations on the basic foundation of the capabilities assessment for staffing needs have identified the strengths and weaknesses of the current resources available to CFD. No individual strength will equate to a more sustainable EOC, but the organizations strength as a whole should be nurtured and supported to correct weakness in critical areas that are preventing development and sustainability. As stated earlier, CFD must not simply continue to minimize the impact of our weaknesses but proactively move to a more robust system of staffing.

Before this can be accomplished the true mission of the CFD EOC must be defined. The first research question was designed to identify the gaps in capabilities and much of the research completed will assist in this internal review; however, the key to defining what the overall

mission of the EOC is should be based on what the most prominent needs are. The five main requests made to an EOC are for information, goods, services, problem solving, and command/control coordination. By focusing on these core requests CFD can begin to draft a sustainable staffing model based on current training levels. Table top drills should be performed with scenarios similar to the recent activations for Hurricane Irene and Sandy. These tabletop drills should be performed using various staffing configurations to identify any potential weaknesses. Although, the research suggests utilizing all 14 of the ESF positions in the EOC, CFD should begin the evaluation process by selecting the most critical ESF functions based on the type of emergency. The purpose of this research was to evaluate the survivability profile of staffing considerations and position descriptions within the EOC, using an activation for a hurricane as an example, the following are recommendations for EOC positions should be established:

- EOC Director. This is typically the City Manager but may be filled by the Fire Chief.
- Liaison Officer. This should be filled by a Chief Officer familiar with city and private resources.
- Safety Officer. This position should be filled by a Chief Officer with operational and safety experience and specialized training.
- Public Information Officer. This position should be filled with a member from Fire Prevention or an Officer that has received specialized training in public information.
- ESF #2 Communications. This position should be filled by a lead dispatcher or the dispatch supervisor.

- ESF #4 and ESF #9 Firefighting and Search and Rescue. These positions should be combined into a single point operations level position. This position should be filled with a Chief Officer from the operations division.
- ESF #5 Emergency Management. This position should be filled with a Chief officer or higher position and preferably a member who has completed ICS 300 and ICS 400.
- ESF #6 and ESF #8 Mass care/human services and Public Health. These two positions should be combined and can be fulfilled with the representative from the CAPHN (Capital Area Public Health Network).

This staffing profile consists of seven members from the fire department and one member from an outside agency. The additional nine ESF positions should be filled with members from other city departments. For example, ESF #3 (public works and engineering) if needed, should be filled with a management level representative from the General Services department. Additional support services should come from the Police department (ESF # 13 public safety), Highway and Utilities department (ESF #1 transportation), and the Central NH Hazmat Team (ESF #10 Hazardous materials). These additions to the EOC staffing will help increase sustainability.

After reviewing the various ICS training levels within CFD, a future plan should be to increase ICS training by 20% each year for the next 4 years (Appendix 6). Specifically, for year one this training would include:

- Four suppression Company officers in ICS 300 and 400.
- One suppression Captain in ICS 300 and 400.

- Eight Communication Dispatchers in ICS 704.
- One Communications Officer in ICS 704.
- One suppression Captain in ICS 703.

Additional research will be needed to evaluate fiscal and contractual obligations for the above training recommendations.

Follow up will also be required to identify the potential use of department members from the suppression non-company officers group in EOC roles during emergency activations and training exercises. In addition to increasing the training level of members, WebEOC training should also be delivered to all department members. This training should be scaled to the level of responsibility and extended to all members for an increased awareness of the available technology.

Final recommendations for any future follow up within the organization or by other researchers utilizing this data would be to narrow the scope of departments evaluated to those that have similar staffing profiles. This will aid in drafting very specific action plans for staffing sustainability.

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Appendix 1

Core Curriculum Aligned with NIMS Components and by Level of Training

Components of NIMS			IS-700	Awareness	Advanced	Practicum
	Preparedness			IS 800 IS 705		
	Communications & Info Management			IS 704		
	Resource Management			IS 703 IS 706 IS 707		
	Command & Management	ICS		ICS 100 ICS 200	ICS 300 ICS 400	Position-specific courses
		MACS		ICS 701		
		Public Info		ICS 702		
	Ongoing Management & Maintenance					

Appendix 2

Emergency Operations Center Staff for Henrico County

American Red Cross	Building Inspectors
Commonwealth's Attorney	County Manager/Board of Supervisors
Department of General Services	Division of Fire and Emergency Medical Services
Division of Police	Mental Health
Office of Budget Management	Parks and Recreation
Health Department	Public Information Officer
Public Works	Schools
Sherriff's Office	Social Services

Appendix 3

Roles and Responsibilities of the ESF

Roles and Responsibilities of the ESFs	Scope
ESF #1 – Transportation	Aviation/airspace management and control Transportation safety Restoration/recovery of transportation infrastructure Movement restrictions Damage and impact assessment
ESF #2 – Communications	Coordination with telecommunications and information technology industries Restoration and repair of telecommunications infrastructure Protection, restoration, and sustainment of national cyber and information technology resources Oversight of communications within the Federal incident management and response structures
ESF #3 – Public Works and Engineering	Infrastructure protection and emergency repair Infrastructure restoration Engineering services and construction management Emergency contracting support for life-saving and life-sustaining services
ESF #4 – Firefighting	Coordination of Federal firefighting activities Support to wildland, rural, and urban firefighting operations

ESF Scope ESF #5 – Emergency Management	Coordination of incident management and response efforts Issuance of mission assignments Resource and human capital Incident action planning Financial management
ESF #6 – Mass Care, Emergency Assistance, Housing, and Human Services	Mass care Emergency assistance Disaster housing Human services
ESF #7 – Logistics Management and Resource Support	Comprehensive, national incident logistics planning, management and sustainment capability Resource support (facility space, office equipment and supplies, contracting services, etc.)
ESF #8 – Public Health and Medical Services	Public health Medical Mental health services Mass fatality management
ESF #9 – Search and Rescue	Life-saving assistance Search and rescue operations
ESF #10 – Oil and Hazardous Materials Response	Oil and hazardous materials (chemicals, biological, radiological, etc.) response

	Environmental short- and long-term cleanup
ESF #11 – Agriculture and Natural Resources	Nutrition assistance Animal and plant disease and pest response Food safety and security Natural and cultural resources and historic properties protection and restoration Safety and well-being of household pets
ESF #12 – Energy	Energy infrastructure assessment, repair, and restoration Energy industry utilities coordination Energy forecast
ESF #13 – Public Safety and Security	Facility and resource security Security planning and technical resource assistance Public safety and security support Support to access, traffic, and crowd control
ESF #14 – Long-Term Community Recovery	Social and economic community impact assessment Long-term community recovery assistance to States, local government, and the private sector Analysis and review of mitigation program implementation
ESF #15 – External Affairs	Emergency public information and protective action guidance Media and community relations Congressional and international affairs Tribal and insular affairs

Appendix 4

Interview Questions for Christopher Pope

Christopher Pope
Director Homeland Security and Emergency Management
33 Hazen Drive
Concord, NH 03305
Interview date 12/12/12

1. **What are the biggest challenges for emergency management across the state of NH?**

   Emergency management is not standard to each community; it must be scalable for the community and have a flexible framework. Each community must answer three questions to determine what level of EOC they wish to maintain. (1) What does the EOC do? (2) What is the mission? (3) Who is the customer of the EOC?

   There are 234 local EOC's in the state of New Hampshire and because of the small geographical area and relatively low population of the state there are no regional EOC's or MACES instead all agencies report directly to the State EOC.

   The five most requested items at the state EOC level are (1) information, (2) Goods, (3) services, (4) Problem Solving, and (5) Command Control / Coordination.

2. **What staffing models are used in the state EOC?**

   The standard 14 ESF functions are filled based on the needs of the incident. Specific incidents such as a radiological emergency at either of the nuclear facilities would expand to more specific support groups.

3. **What technology has the EOC instituted to improve the Mission?**

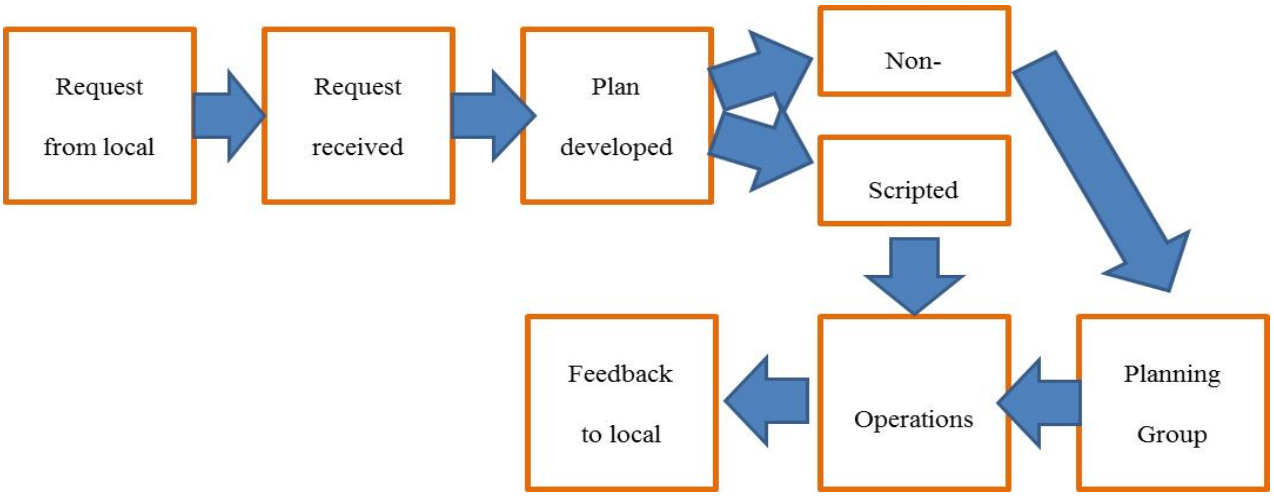
Currently the state of NH utilities WebEOC and has had tremendous success with it. The largest drawback is the internet or web capability of some of the Northern towns or counties. Communications with some of the more remote areas is challenging especially when phone, internet, or power issues interfere with local resources.

WebEOC is fully functional and the majority of New Hampshire cities have been trained in the operation and benefits of using this resource. The software has proven useful in communities sharing information amongst neighboring communities and those further away being able to use data to plan ahead as their areas become impacted.

4. **What type capabilities assessments are performed in the EOC?**

The EOC performs numerous table top drills with various partners to ensure that the basic framework of any emergency situation has been pre-scripted. By planning ahead in tabletop drills many of the critical needs can be pre-set and have action plans in place and ready to go. This drastically reduces the staffing required to plan, coordinate, and deliver these request.

A typical flow chart of the EOC would look like this:



By increasing the number of Pre-scripted events in the playbook the number planning, logistical, finance, and even operations staffing becomes less intense.

Appendix 5

Firehouse Data										
Internal data from Concord Fire Department training records										
	100	200	300	400	700	701	702	703	704	800
Administration Assistant (AA)										
Administration Assistant (AA)	X	X			X	X	X	X	X	X
Administrative Chief (AC)	X	X	X		X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Communications Dispatcher (CD)	X	X			X					
Communications Dispatcher (CD)	X	X	X*		X					
Communications Dispatcher (CD)	X	X			X					
Communications Dispatcher (CD)	X	X			X					X
Communications Dispatcher (CD)	X	X			X					X
Communications Dispatcher (CD)	X	X			X					
Communications Dispatcher (CD)	X	X			X					X
Communications Dispatcher (CD)	X	X			X					X
Communications Officer (CO)	X	X	X	X	X					
Fire Prevention / Alarm (FP)	X	X			X					
Fire Prevention / Alarm (FP)										
Suppression Company Officer (SCO)	X	X			X					

Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X					X
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X		X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X					
Suppression Company Officer (SCO)	X	X			X					X
Suppression Company Officer (SCO)	X	X	X	X	X	X	X	X	X	X
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X					
Suppression Company Officer (SCO)	X	X	X	X	X					X
Suppression Captain (SCpt)	X	X	X	X	X					
Suppression Captain (SCpt)	X	X			X					X
Suppression Captain (SCpt)	X	X	X	X	X					
Suppression Captain (SCpt)	X	X	X	X	X					
Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	
Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	X
Suppression Chief (SC)	X	X		X	X	X	X	X	X	

Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X	X		X					X
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					X
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X	X	X	X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					

Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					X
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
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Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					

Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X				X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Completed	97	96	19	17	97	10	10	10	10	18
Total Members	99	99	99	99	99	99	99	99	99	99
Percentage of completion	98.0%	97.0%	19.2%	17.2%	98.0%	10.1%	10.1%	10.1%	10.1%	18.2%

Appendix 6

Recommendations for Concord Fire Department 4 year training program										
	100	200	300	400	700	701	702	703	704	800
Administration Assistant (AA)										
Administration Assistant (AA)	X	X			X	X	X	X	X	X
Administrative Chief (AC)	X	X	X		X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Administrative Chief (AC)	X	X	X	X	X	X	X	X	X	X
Communications Dispatcher (CD)	X	X			X				Year 1	
Communications Dispatcher (CD)	X	X	X		X				Year 1	
Communications Dispatcher (CD)	X	X			X				Year 1	
Communications Dispatcher (CD)	X	X			X				Year 1	X
Communications Dispatcher (CD)	X	X			X				Year 1	X
Communications Dispatcher (CD)	X	X			X				Year 1	
Communications Dispatcher (CD)	X	X			X				Year 1	X
Communications Dispatcher (CD)	X	X			X				Year 1	X
Communications Officer (CO)	X	X	X	X	X				Year 1	
Fire Prevention / Alarm (FP)	X	X			X					
Fire Prevention / Alarm (FP)										
Suppression Company Officer (SCO)	X	X	Year 1	Year 1	X					
Suppression Company Officer (SCO)	X	X	Year 1	Year 1	X					
Suppression Company Officer (SCO)	X	X	Year 1	Year 1	X					
Suppression Company Officer (SCO)	X	X	Year 1	Year 1	X					
Suppression Company Officer (SCO)	X	X	X	X	X					X
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X		X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X					
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X	X	X	X	X	X
Suppression Company Officer (SCO)	X	X			X					
Suppression Company Officer (SCO)	X	X	X	X	X					
Suppression Company Officer (SCO)	X	X	X	X	X					X
Suppression Captain (SCpt)	X	X	X	X	X			Year 1		
Suppression Captain (SCpt)	X	X	Year 1	Year 1	X					X

Suppression Captain (SCpt)	X	X	X	X	X					
Suppression Captain (SCpt)	X	X	X	X	X					
Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	
Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	X
Suppression Chief (SC)	X	X		X	X	X	X	X	X	
Suppression Chief (SC)	X	X	X	X	X	X	X	X	X	
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X	X		X					X
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					X
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X	X	X	X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					X

Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					

Suppression Non-Company Officer (SNCO)	X				X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Suppression Non-Company Officer (SNCO)	X	X			X					
Completed	97	96	20	17	97	10	10	10	10	18
Total Members	99	99	99	99	99	99	99	99	99	99
Percentage of completion	98%	97%	20%	17%	98%	10%	10%	10%	10%	18%
Year one members (Yellow highlights)	0	0	5	5	0	0	0	1	9	0
Year one Total Percentage of Completion	98%	97%	25%	22%	98%	10%	10%	11%	19%	18%
% increase in training	0%	0%	5%	5%	0%	0%	0%	1%	9%	0%
Year two members (Green highlights)	1	1	5	6	0	0	0	3	0	4
Year two Total Percentage of Completion	99%	98%	30%	28%	98%	10%	10%	14%	19%	22%
% increase in training	1%	1%	5%	6%	0%	0%	0%	3%	0%	4%
Year three members (Red highlights)	0	0	2	2	1	1	1	1	1	11
Year three Total Percentage of Completion	99%	98%	32%	30%	99%	11%	11%	15%	20%	33%
% increase in training	0%	0%	2%	2%	1%	1%	1%	1%	1%	11%
Year four members (Blue highlights)	0	0	0	0	0	5	5	5	4	1
Year four Total Percentage of Completion	99%	98%	32%	30%	99%	16%	16%	20%	24%	34%
% increase in training	0%	0%	0%	0%	0%	5%	5%	5%	4%	1%