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Improving Pre-Incident Planning for Fayetteville Fire Department

Benjamin Major Jr.

Fayetteville Fire Department

Fayetteville, NC

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Certification Statement

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ABSTRACT

The Fayetteville Fire Department provides services to approximately 180,000 of the City of Fayetteville's 210,000 citizens. The remaining 30,000 citizens reside on Ft. Bragg Military Post and receive fire and rescue services from the Ft. Bragg Fire Department. Parts of the post were voluntarily annexed into the city in 2008. As the City of Fayetteville continues to grow, the number of target hazards within Fayetteville Fire Department's jurisdiction continues to increase. The Fayetteville Fire Department employs a pre-fire plan policy that was developed decades ago and revised in 1996. However, the plan is thought to be outdated and insufficient as to not allow for adequate storage, retrieval and utilization of information in the field.

The purpose of this research paper is to answer the following questions: a.) What are the standards and best practices for electronic pre-planning systems? b.) How are electronic pre-planning systems currently being used by other fire departments? c.) How does the companion pre-plan program for Fayetteville fire Department's current Computer Aided Dispatch (CAD) and Record Management System (RMS) allow for in the field use? d.) What components of the current Fayetteville Fire Department procedures can be included in a electronic pre-incident planning system?

A questionnaire was used to survey other departments to understand what types of pre-incident plans software are used in the industry, as well as in what manners they are being used. A literary review included research to understand industry standards and best practices used with pre-plan programs. Also a comparison was made between the Fayetteville Fire Department pre-plan policy and NFPA 1620, Recommended Practice for Pre-Incident Planning. The results showed that the Fayetteville Fire Department pre-

plan program was in par with industry standards. However, it also revealed that the program is not being used to it its fullest potential.

Recommendations derived from this project includes the Fayetteville Fire Department continuing its strategy of moving to an electronic pre-incident planning program to garner more accessible and usable information on the emergency scene. Ultimately, the capability to assess pre-incident planning information should be afforded to all emergency response vehicles to ensure on-scene decision-making is based on relevant information.

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INTRODUCTION

The City of Fayetteville is located in the southeastern region of North Carolina. It is the sixth largest city in the state of North Carolina. With a population of close to 210,000 people and 147 square miles, the City of Fayetteville continues to grow as a community. As a growing municipality, the City of Fayetteville can anticipate new businesses and industries to take root in its community. This will increase the number of target hazards and various types of occupancies to which the Fayetteville Fire Department must be prepared to respond in times of emergencies. As described through its mission statement, Fayetteville Fire Department strives to reduce property loss and to mitigate the consequences of fire, accident and disaster in the community. Pre-incident planning is one of the first steps a fire department can take towards establishing effective emergency management techniques. Pre-incident planning helps emergency responders to prepare for responses to specific occupancies within in their response areas. (Compton & Granito 2002).

Currently the Fayetteville Fire Department uses its Fire Company Pre-Fire Plan program to conduct pre-incident planning surveys of various target hazards. The survey allows companies to familiarize themselves with the processes and operations of specific occupancies and to identify construction features that can influence firefighting operations. (Appendix A) In an optimum world, fire companies could access information pertaining to an occupancy through a completed pre-incident plan while either responding to an incident or while on the scene. The problem is the Fayetteville Fire Department's pre-plan system is outdated and inefficient, and does not allow for useful storage, retrieval or utilization of data in the field. This can have an impact on the

effectiveness and efficiency of fire department operations as companies attempt to mitigate fire and other emergencies to which they respond.

The purpose of this project is to investigate an effective pre-incident planning system utilizing an electronic pre-planning program that will be integrated with the Fayetteville Fire Department's computer aided dispatch (CAD) and fire record management systems (RMS). The project will use an action research method to answer the following questions:

- a.) What are the standards and best practices for electronic pre-planning systems?
- b.) How are electronic pre-planning systems currently being used by other fire departments?
- c.) How does the companion pre-plan program for Fayetteville fire Department's current Computer Aided Dispatch (CAD) and Record Management System (RMS) allow for in the field use?
- d.) What components of the current Fayetteville Fire Department procedures can be included in the new system?

BACKGROUND AND SIGNIFICANCE

The Fayetteville Fire Department is a career department employing 302 personnel. To keep abreast of a changing fire service and to continue to perform at high levels of skills, the firefighters on the department maintain several certifications through the State of North Carolina. On average each firefighter maintain 5 – 6 certifications ranging from firefighter, emergency medical technician, and driver operator to more specialized certifications such as emergency rescue technician and hazardous materials

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technician/specialist. They operate out of 15 strategically located stations, throughout the city. The stations house a total of 14 engine companies, 4 truck companies, 3 special rescue units, 2 airport crash vehicles which provide protection for the Fayetteville Regional Airport, and other specialized units including a regional hazardous materials response team and a structural collapse search and rescue team. Each specialized team responds with a compliment of response apparatus and equipment. Additional resources are realized through automatic aid contracts with 5 adjacent fire departments.

The city is divided into 3 battalions, with the Fayetteville Fire Department providing services to 180,000 citizens sprawled throughout the 96 square miles of the city. The remaining 30,000 of its 210,000 citizens live on the adjacent Ft. Bragg Army Post, which although annexed in September 2008 by the City of Fayetteville, still provides its own fire protection.

The City of Fayetteville touts itself as a growing military town with a diverse population as well as diverse business and industry communities. Like many other municipalities, the City of Fayetteville and its surrounding governmental units offer a wide array of incentives in attempts to lure new businesses and industries to the area. To date those attempts have only been moderately successful. Even though the city has always enjoyed strong relationships with Ft. Bragg Military Post and with Pope Air Force Base, neither relationships nor the proximity of either of the entities have done much to garner any interest of new businesses and industries to locate to the area. However, with the federal government's 2005 approval of the defense Base Realignment and Closure Act (BRAC) the City of Fayetteville is bracing for an influx of 6366 military and civilian Department of Defense positions to the surrounding areas. Including family members, the

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number of new people moving to the area will increase by more than 18,000 people. An additional 25,000 – 30,000 is expected to follow as defense contractors and their families report to the area. The increases are predicted to have a significant impact, increasing the demand on the education and health care systems, on housing, retail and the hospitality industries, as well as many other types of industries in the area. (BRAC, n.d.)

As expected with any military town, the City of Fayetteville has a large transient community. Along with military families, two universities and a large community college contribute to the transient nature of many of the citizens. As a result an ample amount of multi-family occupancies and complexes pepper the city's landscape. The additional relocation of military units and civilian personnel, along with each of their connected families will only increase the demand for multi-family housing occupancies and additional jobs.

The trends of an aging baby-boomer generation will also impact then demand for multi-family housing. The trends reveal that these aging Americans are beginning to migrate more towards multi-family housing units. The housing units require less outside and structural maintenance by their residents. The move provides an option to living alone in single-family occupancies void of family members and close neighbors. The movement will lead to a boom in the construction of additional multi-family complexes consisting of apartments, condominiums, townhomes and other types of closely positioned residential occupancies. (How Empty Nesters Are Housing Trends, 2007)

Also as a result of aging baby boomers, an increase in retirement homes and communities can be anticipated. The growth, trends, and changing dynamics of the population in the

area will help lead to an increase in target hazards within the Fayetteville Fire Department's response areas.

To familiarize itself with target and special hazards, Fayetteville Fire Department employs a pre-incident plan system. (Appendix A) The system was developed numerous years ago and revised in 1996. As a part of the program, companies are required to identify target hazards within their response districts and conduct a pre-incident survey on one of the identified occupancies each month. As pre-incident plans for target hazards are completed, companies may conduct pre-incident plans on other occupancies of concern in their response districts. A new pre-incident plan is completed on occupancy during the odd numbered months of the year. Companies are required to conduct an update on a pre-incident surveyed occupancy during the even months of the year. (City of Fayetteville 1996)

To be effective, pre-incident plans must be complete and accessible. During pre-incident plan surveys, companies within the Fayetteville Fire Department tour properties collecting owner and occupant information. Rough draft drawings of buildings, including the measurements of their dimensions are completed. Special features that will be of concern during an emergency response are noted in on the plan. The features should include fire and life safety features such as sprinkler shut-offs and fire alarm panel locations. Also included are locations of hazardous storage, operations and other possible sources of hazards. After the company returns to the station the rough draft copy of the pre-plan is transferred to department pre-incident survey forms, which are made available through the training division. The company officer is responsible for entering the pre-incident planned occupancy's name and address into the department's record

management system. The department uses FireHouse record management software to manage incident, training, inspection and other critical reports. The program offers a Pre-incident plan module. However, currently the department does not taken utilize the module. A hard copy of completed pre-plan forms is submitted to the training division with the company's end-of-the-month paperwork. At the training division a copy is made and the original is sent back to the originating company where it is placed in its Pre-incident plan notebook. The notebook, a large 3 ring binder is kept on the apparatus.

For many years, copies of a pre-incident plan were distributed to each engine company throughout Fayetteville Fire Department. But as the city began to grow so did the number of pre-incident plans. The 3-ring pre-incident plan binders become overloaded to the point where as additional notebooks were required. Today companies sometimes have 2 or 3 manuals filled with pre-incident plans. Some binders were moved from the interior cab of apparatus and placed in exterior compartments of some units based on their designs. Managing pre-incident plans in each book also became more difficult. Even though the pre-incident plans are kept in alphabetical order, officers are required to flip through pages of binders to access a plan. Accessing plans while enroute to an emergency incident became virtually impossible. As a result of the number of plans accumulating in each company's binder and the increased workload placed on the training division, copies of a pre-incident plan are no longer provided to every company. Instead, a copy of a pre-incident plan for a particular occupancy is maintained only at the training division as a back-up and for record keeping, and in the binder of the first responding company to that occupancy.

The pre-incident planning of a facility has been beneficial to the particular company that conducts the survey. The company gains a first hand knowledge of the occupancy's operations and the facility's construction features. Other than this benefit, the Fayetteville Fire Department's pre-incident plan program has become archaic. Companies on opposing shifts may not gain the same levels of familiarity the occupancy. Responding companies are unable to access the pre-incident plan to obtain critical information while enroute to the incident. Even if a pre-incident plan notebook is available in the cab of a second or third responding company, the company will not have access to the pre-incident plan information.

In 2007, Fayetteville Fire Department budgeted funding for software to begin upgrading it's current computer aided dispatch CAD and records management system (RMS). The move was to help prepare the system to advance to an electronic pre-incident planning program. Additional funding has been requested in the department's capital improvements plan to purchase and install mobile computers in fire department apparatus. Improving Fayetteville Fire Department's pre-incident planning system will improve its efficiency when units respond to emergency incidents. It will reduce the risk of injuries citizens as well as of first responders as they mitigate fire, disasters and other types of accidents to which they respond.

This research project will examine best practices and standards of pre-planning systems and how the companion mobile pre-incident plan solution to the RMS used by Fayetteville Fire Department will help improve the department's currently used program. It relates to the United States Fire Administration's (USFA) operational objective of reducing the loss of life of firefighters as a result of fire and other disasters. It also bears a

correlation with the National Fire Academy's Executive Analysis of Fire Service Operations in Emergency Management in that pre-incident planning considers risk assessment, emergency operations and management of operational components of the Fayetteville Fire Department. (USFA, 2008)

LITERATURE REVIEW

For this project a literature review was conducted to understand the standards and some of the best practices for pre-incident planning programs and how other organizations have approached the subject of pre-incident planning. The review included a search of literary works and reports discussing pre-incident planning as it relates to emergency response as well as articles written in fire service professional and trade journals.

The Fire Chief's Handbook relates that pre-incident planning should be a must for every fire department. Pre-incident planning is extremely important as it provides for the safety of firefighters and provides a great opportunity for first responders to perform appropriately on the scene of a fire or other disaster. (Marinucci, 2003) According to the 4th edition of the IFSTA Essentials manual a pre-incident plan of an occupancy will provide firefighters beforehand data to help evaluate conditions during an emergency at the occupancy. This is necessary if to safely, efficiently, and effectively control the emergency incident. (IFSTA 1998, pp. 659-660)

Without a pre-incident plan, responders rarely have complete information on the scene. However, with available pre-incident plans, almost half of the factors that will affect decisions to be made can be known in advance. Pre-incident planning is essential to successful fire operations in large and complex properties. When an incident

commander does not know of these plans or have access to information regarding these factors, he will ultimately make tactical decisions on the scene based on only the available visible information before him. (Klaene & Sanders, 2000)

Massey writes, “Pre-plans can make or break the entire operation, whether it be in a chemical plant, hospital, shopping mall or high rise building.” (Massey 2004) Pre-incident planning calls for assessing the risks associated with a particular type of occupancy. It requires fire companies to identify potential risks to which they may respond in emergency situations. (Compton & Granito, 2002, p.51) As Plaughner and Burns explains, pre-incident planning addresses critical fire protection issues. This includes the layout of the structure, types of construction, the contents and location of the types of fire protection systems available. (Plaughner and Burns, 1992, p.9/79) The vast majority of the fire service agrees that pre-incident planning helps to build a basis on which officers responding to a specific type of occupancy can make fire behavior predictions, which in turn enables them to make more informed decisions that will have vital effects on mitigating an emergency situation.

Many authors are consistent in defining pertinent information that should be included in pre-plans. NFPA 1620 list factors that should be evaluated pre-incident planning for emergency incidents. They include:

1. The type of building construction and contents
2. The occupant characteristics
3. Protection systems
4. Capability of public or industrial responding personnel
5. Availability of mutual aid

6. Water supply

7. Exposure factors

Other beneficial information includes owner and occupant contact information and emergency contacts. Ideally a pre-incident plan will include a plot plan drawings of the property indicating the locations of buildings and access to these locations. They will also include elevation and floor plans. The plans should describe important features of buildings, life safety considerations, factors to be considered for extinguishment of fires, as well as other required resources for emergency responses. (Klaene & Sanders, 2000)

Many authors and fire departments also agree that most organizations do not have the resources or means to conduct pre-incident plan surveys for every occupancy within their jurisdiction. The number of surveys could easily total in the thousands for even the smaller towns and cities. Most fire departments will begin by conducting pre-incident plan surveys of particular target hazards within their jurisdictions. Hart believes that each jurisdiction should determine what constitutes a target hazard for its organization. (Hart 2001) Through its standard operating policy, the Fayetteville Fire Department has identified a target hazard as any facility or process that when involved in fire or other type of disaster could lead to a large loss of life or property. Hart adds that target hazards can be separated into different categories to include schools and day cares, residential day-care facilities and nursing homes, hospitals and institutional occupancies, places of assembly, shopping malls and other mercantile occupancies, high-rise buildings, multi-family dwellings, hotels and motels, hazardous occupancies, electronic data processing centers, and federal, state and local buildings and facilities, including fire and police stations. In section 4.2 of NFPA 1620, it states that considerations for pre-incident plans should be given to occupancies based on the following factors:

- 1.) Potential life safety hazard
- 2.) Structure size and complexity
- 3.) Value
- 4.) Importance to community
- 5.) Location
- 6.) Presence of chemicals
- 7.) Susceptibility to natural disasters

Fire departments should also be aware of the most common types of occupancies to which they respond, but at the same time be aware of unique structures that offer the potential for a response. In many jurisdictions it may be residential occupancies that generate the majority of fire calls, dictating that the emergency response to specific types of residential structures should be pre-planned. For instance, in some regions it may not be common for many single-family dwellings to have basements. Yet, companies need to have an idea of how to attack a fire that may have spread to a basement of a dwelling within their response areas.

Regardless of the type of structure, pre-plans should not be so complex as to be rendered difficult to use. Plans should be simple enough to retain its usefulness and once completed decisions must be made regarding how data should be stored, retrieved and utilized. (NFPA 1620) Pre-incident plans should be maintained and stored in a manner that is convenient so to be relatively easily accessed in the event of an incident. Doing so will make the plans more likely to be used. (Compton & Granito, 2002) NFPA 1620 goes on to say that “copies of the plan should be distributed to appropriate responding personnel” and the plan “should be the foundation for decision-making during an

emergency situation and provide important data that will assist the incident commander in developing appropriate strategies and tactics for managing the incident.” (pp. 7-8)

Many fire departments still use a system of binders containing information and data in their pre-incident planning programs. Although these types of systems may be adequate, they have their limitations. The limitations include a lack of storage space on some response units, which results in less convenience for their use, and a lack of the capacity to allow real-time updates of information.

However, technological advances are giving emergency first responders advantages that they have not had in the past. They gain the ability to gather and use information through databases with the use of computers in vehicles and other mobile devices in the field. Coupled with GPS capabilities, improved technology make it possible for all emergency responders to make strategic and tactical decisions based pertinent information that is available in completed pre-incident plans. (Johnson, 2008)

As we have become less of a paper society and technology has improved, systems of retaining paper pre-incident plan documents in 3-ring notebooks are becoming somewhat obsolete. Technology has created opportunities for pre-plan data including photos and other graphics to be loaded onto networks and mobile computers or other electronic devices where the information is readily accessible on a moments notice. (Preplanners LLC, 2007) Some fire departments take advantage of companies like Preplanners, LLC to provide them with electric copies of pre-plans formatted on CD-Rom for storage and use. For some departments, these pre-plans are not as easily updated as other versions of electronic records.

As vice-president of operations of The CAD Zone Inc., White describes how fire chiefs see paper pre-fire diagrams as a “necessary evil.” But over the past 8 years, software programs have been developed with the capability of producing diagrams of structures using NFPA recognized symbols. An advantage of The CAD Zone Inc.’s Fire Zone’s software is pre-incident plans can be managed in centralized database allowing for quick retrieval during an emergency. Incident commanders can access the pre-incident plan enroute or on the scene. They can then formulizing more efficient strategies for plans of attack. Several departments including South Elgin Fire Department in Illinois uses The Fire Zone program. (White, 2003)

ACS Firehouse Software produces a records management program used by many fire departments across the nation. Users include the Raleigh, Greensboro and Fayetteville Fire Departments in North Carolina. The records are kept on a centralized database. Firehouse also offers a mobile suite of applications that provides access to records in the field allowing critical decisions to be made based on most current information. The software also provides the capability for a synthesized voice to read occupancy information aloud when the occupancy record is opened for review. This may be a benefit while enroute to an incident. (Firehouse, n.d.) The program can also be integrated with other CAD software providing a paperless solution process.

In 2002, VisionAir released VisionMobile, its version of a mobile solutions module for fire personnel. The module enables responding fire companies to access and update site plans, water supply information and other records while on the emergency scene. It benefits first responders by also offering access to online tools and databases. (Busines/Technology (ed.), 2002)

The literary review reveals that fire departments and vendors are basing their pre-incident programs on NFPA 1620, which is a nationally recognized standard. The fire service as a whole also understands the relationship between firefighter safety and effective use of pre-incident surveys. The National Fallen Firefighters Foundation in an effort to affect firefighter safety has developed a national campaign to help create a path for change. Sixteen initiatives were established including initiative # 8, which is to “utilize available technology wherever it can produce higher levels of health and safety.” (National Fallen Firefighters Foundation, 2003)

Several customized and commercially available pre-incident planning programs are accessible on the market. Each is geared towards providing the tools and capabilities necessary to build effective pre-incident plan programs. Virtually all programs make use of a department’s available databases. Each department must consider which features are more important to its organization and in what manner their programs will be used.

PROCEDURES

To first step to improving the pre-incident planning program used by the Fayetteville Fire Department included reviewing the current system to determine if any gaps between existed between the program and what is listed in NFPA 1620, Recommended Practice for Pre-Incident Planning. During the review, major components of both documents were compared. The information was important in that designing a program based on a recognizable standard assures that adequate pre-incident planning for occupancies is being met. It also reduced the potential for liability that has been associated with pre-incident planning efforts. Forms in the appendices of NFPA were also compared to forms used by Fayetteville Fire Department. The forms were reviewed

for completeness of information, the type of occupancy information and tactical information requested, and the ease of use.

After a comparison of NFPA 1620 and the Fayetteville Fire Department Policy Company Pre-Fire Plan Program policy, interviews were conducted with three Fayetteville Fire Department officers. The first interview was with Captain Dominique Guay who is assigned to station 1. Station 1 leads the department in call volume at 13% of the total calls. The second officer interviewed was Captain Michael Godwin, who has over 30 years of experience. He is assigned to station 9, which runs 10.2% of the department's total call volume. The third interview was with Lt. Chris Johnson, a younger officer who is assigned to station 6, which runs 9% of the department's calls.

Each officer was asked the following questions:

- 1.) Where are pre-fire plan notebooks located on your response units?
- 2.) How often do you access pre-fire plans enroute or on the scene of an incident?
- 3.) Are pre-incident plans reviewed post incident?
- 4.) What components of our current system are most important?
- 5.) What components would be important if we were to go to an electronic based pre-plan program?
- 6.) How would the implementation of an electronic based pre-plan system improve our program?

Also as a part of research, an electronic questionnaire was employed through an internet based survey program. (Appendix B) A link to the questionnaire was sent to over 400 fire departments of different sizes. Some departments were selected randomly while others were chosen based on knowledge of their pre-incident planning systems. Some

questions used were patterned after a survey designed and conducted by Tony Dowell, a student in the NFA Executive Fire Officer Program. (Dowell, 2008) The main goals of the questionnaire were to:

- 1.) Determine what types of electronic pre-planning software, if any, other departments are using.
- 2.) Identify what other department using electronic system see as vital information to be included in pre-fire plan programs.
- 3.) To gain an idea of whether or not departments were actually using the pre-incident plans in the field and what contributed to the use or lack of use by personnel.

Limitations

One limitation to this research is that it is assumed that individuals responding to the questionnaires were knowledgeable of their department's pre-incident program and with members' of their department familiarity and training levels in regards to the program. A couple of questions were based on the feelings and attitude of users of whom the respondents may not have had direct contact or knowledge of their capabilities. Most respondents answered questions based on emergency fire response. However, pre-incident planning has a place in many disciplines and can be used in non-emergency events as well as emergency responses. Also an assumption must be made that the questionnaire was completed only once for each responding department. Lastly, the design of the questionnaires could have contributed to vague responses, particularly under the comment sections. Some questions could have been too broad or too general resulting in the respondent providing less specific responses.

RESULTS

Information from this project was collected from the comparison of NFPA 1620 and the Fayetteville Fire Department Policy Company Pre-Fire Plan Program policy, from the interviews with Fayetteville Fire Department personnel and the questionnaire completed by various departments, as well as through literature reviewed. The information was used to answer the project's research questions.

The comparison of NFPA 1620 and Fayetteville Fire Department Policy Company Pre-Fire Plan Program policy revealed that even though the policy itself did not reference NFPA 1620, it closely follow the principles and philosophy presented in the NFPA standard. The Company Pre-Fire Plan policy takes into account factors that could potentially affect facilities in emergency situations. The factors included building features, occupancy features, and department capabilities along with facility responsibilities, which also are addressed in NFPA 1620.

The policy also included pre-incident plan forms that are similar to those in Annex E of the NFPA standard. Like the NFPA sample form, the pre-incident plan' policy forms request occupant contact information, building construction and features and data required to formulate strategies and tactics including required water flows, hazardous materials storage and quick assess information. Both documents prompt officers conducting the pre-fire plan survey to consider the number of response units that may be required depending on percentages of involvement in the event of a fire at a facility. The Fayetteville Fire Department document establishes percentage increments of 25%, 50%, 75% and 100% whereas NFPA 1620 only uses 50% and 100% increments of

involvement. Both documents provide for plot plans and building floor plans to be included in the pre-plan.

Separate interviews were conducted with Fayetteville Fire Department personnel. The interviews were conducted while each member was on-duty at his assigned station. The first interview was conducted with Captain Guay. He revealed that pre-incident plan notebooks are located in the cab section of Engine 1 in a book storage area. However, on Truck 1 the pre-incident plan notebooks are located in an exterior compartment above the wheel well behind the driver. Guay stated that he and his company actually utilizes pre-incident plans “more than the average” company on the department. He estimated that he looked at pre-plans when responding to up to 20% of the fire calls to which he is dispatched as the first-in company. In most cases he is trying to identify hydrant locations and possibly contact information. He also shared that post-incident review of plans may occur if incident critiques are conducted or if changes to the facility or occupants are noted on the scene.

According to Captain Guay, the most useful component of the Fayetteville Fire Department’s pre-incident plan program is the first page of the document showing the layout of the structure on the property and hydrant locations. For him a close second is the building’s floor plan and fire protection features. He would look for the same features in an electronic pre-incident planning program. He also expressed that it would be important that the program tie in with existing records such as fire inspection records.

According to Captain Godwin, pre-incident plan notebooks are kept in the cab of the apparatus on both, Engine 9 and Truck 9. However, the notebooks are rarely used in route to an emergency scene. Preplans at station 9 have been used on the scene on

occasion. Captain Godwin shared that on two occasions during his career, building layouts drawings accessible in the pre-incident plans have been used to assist or direct crews during interior operations during incidents involving large structures. Other than these two occasions, a pre-incident plan may have been used to “access owner or contact information if it wasn’t available through the communications center.”

Captain Godwin agreed that pre-plans should be use more often, but added that “flipping through pages” of notebooks while enroute is a barrier to effective use of the pre-incident plans. He stated that the most important components of the department’s program is it forces companies to conduct pre-incident plan surveys that help them become familiar with their areas. The information included on the actual forms is also valuable. He believes that implementation of an electronic pre-plan system should include graphics to allow for floor plans and that an electronic system would lend to more ease of use when accessing information.

The last interview was conduct with Lt. Johnson. He also agreed that officers on the department should access pre-incident plans more often when responding or on the scene of incidents. Station 6’s personnel refer to pre-incident plans if they are not familiar with the site or facility to which they are responding. In most cases they are looking for access to roofs or attics and utility controls. Like most other apparatus within the department, the pre-incident plan notebooks are located in the cab of the units of Engine 6 and Truck 6. Lt. Johnson states that the same information available in the department’s current pre-incident plan documents should be available in any electronic version of pre-incident planning systems.

The questionnaire sent to other fire departments yielded 132 responses. (Appendix C) The survey revealed that fire departments across the nation are using various types of pre-incident planning programs ranging from custom designed programs to commercially available programs compatible with various CAD systems. Eighty-three respondents stated that their department uses a type of pre-incident planning software. Eleven of the 83 respondents use FireZone or some combination of the product with other sources as part of their pre-fire plan program. Eleven other departments stated that they use FireHouse or a combination of FireHouse interfaced with other CAD and RMS types of programs. Seven departments used First Look Pro Software and 5 other departments used Visio. Many of the other responding departments are using a combination of customized in-house and commercially available systems.

All users of the FireHouse software commented that they were either somewhat satisfied or very satisfied with the program's software. Each who responded stated that the program was relative easy for personnel to use. However all, with the exception of one of the respondents stated that they were not satisfied with their department's use of the pre-incident plan program.

Only 104 people responded to the question of whether or not their pre-planning software complimented their department's CAD and RMS. Thirty-six of those respondents shared that it was the case. Along with occupant information and data relating to the construction and water availability, the capabilities that departments desired most in an electronic pre-incident plan program were accessibility of floor plans, showing the location of utilities and fire protection features. About 23% of those departments responding to how data is stored said that pre-incident plan information is

stored on a server and units have access to real time updates. Just over 47% store information on mobile computers or hard drives that must be synced for updated information.

Forty-nine percent of people that responded stated that pre-incident planning software used by their department lend to ease of use in the field. However, only 23% responding frequently accessed pre-incident plans before responding or while enroute to a dispatched structure fire or other incident. Fifty-three percent stated that they seldom accessed information and another 24% said they never access information in either case. After arriving on the scene, over 26% of the respondents said they frequently access information from pre-fire plans. Over 57% said that pre-plans are sometimes accessed after arriving on the scene, while 16% relayed that they are never accessed after arriving on the scene of a emergency incident. Approximately 73% of the people responding to the questionnaire said they were somewhat or very satisfied with the pre-planning software used by their department, however nearly 50% said they were not satisfied with their department's use of the program.

DISCUSSION

The results of this project reveal that most organizations realize the benefits of an effective pre-incident planning program. Organizations understand that conducting pre-incident surveys of target hazards within in communities can reduce risks to emergency response agencies, their responders and to the citizens they serve. However as noted in the results of the pre-incident plan survey, several departments including the Fayetteville Fire Department do not take full advantage of pre-incident planning programs that they currently have in place. NFPA 1620 recommends that any effective pre-incident plan

should help emergency first responders identify factors that may be vital to the ultimate outcome of a fire or other disastrous incident. The outcomes include ensuring the safety of all responding personnel.

Changing times in today's world dictates that organizations critique their pre-incident planning programs. Changes in the way fire departments conduct business are in essence driven by:

- a.) Firefighter life safety initiatives
- b.) Nationally recognized standards such as NFPA 1620 and Homeland Security directives
- c.) Improvements in technology and the demand for immediate information
- d.) Growing communities and databases of information within public safety organizations

An inevitable increase in target hazards in the City of Fayetteville as a result of BRAC and notable trends across the nation challenges the Fayetteville Fire Department to implement a pre-incident planning program that allows for effective management and access of information. As the number of target hazards increase, so does the potential for fire or other disaster to occur. As the potential for incidents to occur at a facility, so does the need to be able to utilize information available for the location of the incident.

Research during this project reveals that valuable information is collected and recorded through Fayetteville Fire Department's current pre-incident plan program. Pre-incident plans completed by engine companies meet recommendations set forth through the NFPA 1620 standard. Conversely, the research also shows that responding officers and scene incident commanders under utilize the information. Rather, they depend on

information they gather during the incident, on firefighter's work skills and knowledge and to some extent on luck when developing strategic plans and implementing tactics.

Although electronic means of managing pre-incident plans are not a requirement through any common standards, a growing number of fire departments and other public safety agencies are looking towards electronic methods of storing and retrieving pre-incident plan information. Improved technology is not only making it possible to retrieve stored information, but it is can enable up-to-date information to be made available. The information can be made available to all emergency response units within a department. Depending on the types of systems, information can even be made available to other agencies that provide mutual aid and other assistance. Those agencies include emergency medical services and law enforcement.

Fayetteville Fire Department uses FireHouse software as a RMS. The software is well known throughout the fire service and in the local area. Incident reporting, fire inspection records and apparatus and equipment inventories are currently managed throughout the Fayetteville Fire Department's system. The program is integrated with VisionAir CAD application, which is used by the City of Fayetteville's police and fire departments. The FireHouse RMS was upgraded to the manufacturers Enterprise version, which allows multiple users to access and update data located in a central location. The move created the groundwork that enables the department to move to future automations such as implementing the use of mobile laptops and viewing CAD and GIS Software, thus setting up the opportunity to migrate to an electronic based pre-incident planning program.

Research shows that pre-incident planning is important to the incident commander as they present information required to make effective decisions that will affect the safety of all emergency response personnel. With that said the information in plans should be current and immediately accessible on the scene of incident or disaster.

Recommendations

What components of the current Fayetteville Fire Department pre-plan procedures can be included an electronic based pre-incident planning system? The Fayetteville Fire Department has taken the first steps towards moving its pre-incident planning program towards an electronic process with the upgrade of its current CAD and RMS. The upgrade has permitted information gathered and dispatched during emergencies through the department's communication center to be automatically included in the FireHouse RMS. The FireHouse RMS also currently allows occupancy information collected during fire inspections to be included in pre-incidents records. This is where the Fayetteville Fire Department falls short in its use of the system. The department continues to use its paper based pre-fire program, placing paper hard copies of pre-fire plans in binders that are place on apparatus.

Even though the Fayetteville Fire Department's current pre-plan policy does not reference NFPA 1620, information it directs companies to collect is relevant and congruent to the information recommended through NFPA 1620. The need exists to begin a process of entering all information from existing paper copies of pre-fire plans into the FireHouse database system. Although this appears to be a daunting task, much of the information should already exist in the system in the inspection module currently used by the department's fire inspectors. The information can be migrated to the pre-

incident plan module. This sets up the opportunity for the department's pre-plan program to become mobile and more consistent between companies. Hard copies of preplans can be printed and added to the pre-plan notebooks located on all response units.

The next step should be to purchase and install mobile computers in all first responding units. Funding has been budgeted for purchases through the department's CIP. The FireHouse RMS software should be installed on each computer giving use access to fire department records. Currently a mobile computer is installed in each battalion commander's vehicle. The computer has an air card installed allowing full access to the internet. However, the department's RMS is not accessible on the computer. A mobile version of FireHouse Preplan is available that allows internet access to a fire department's databases and records. This would be ideal in that it allows CAD information to be viewed in real time. However, although it is desirable to have all of the computers equipped with the ability to access the internet, it is not needed immediately to create a mobile pre-incident planning system were records are easily accessed. Computers installed in vehicles can be synced with the FireHouse RMS by removing the computer daily and connecting it to the department's IT network via hard wired cable in each fire station. Once placed back into the vehicles, it gives company officers a wealth of data and pre-incident plans from which they can access information on any scene.

Based on the findings of this report it is apparent that the Fayetteville Fire Department should continue with its strategies to establish a more effective pre-incident plan program through available technology. By doing so, officers in the field will be better able to access and utilize data gained through the surveys, ensuring that decision

made will have a positive impact on reducing the loss of property and the risks to firefighters and to the community.

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Appendix A

City Of Fayetteville Fire Department Standard Operating Procedure		Manual #	Page 35 of 9	
Subject Company Pre-Fire Plan Program	Number	Revised	Effective Date	Supersede
	501		9/9/96	
Approved By				

1.0 PURPOSE:

The Fire Company Pre-Fire Plan program has been designed to conduct pre-fire planning inspections of various target hazards and identify construction features that can influence firefighting operations. A pre-fire plan form will be used for analyzing a typical building in order to more effectively control a major fire.

2.0 RESPONSIBILITIES:

It will be the responsibility of the company officer to direct and report all pre-plans. The company officer or acting company officer will be responsible for the proper completion of the pre-plan records and reports for each inspection made by his company. The company officer will be responsible for planning of scheduled pre-plan times on the assigned days so that time, scheduling of other planned activities will not conflict with, or replace scheduled inspection times. Official cancellations of scheduled pre-plans will at times, be required to maintain adequate fire protection coverage or for other reasons such as adverse weather conditions. In the absence of official cancellations, it will be the company officer's responsibility to insure that the pre-plan schedule is followed. It will be the responsibility of the company officer or the acting company officer, to see that one pre-plan is turned in to the Battalion Commander by the end of the month.

New pre-fire plans will be turned in on the following months: January, March, May, July, September, November.

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Updated pre-fire Plans will be turned in on the following months: February, April, June, August, October, December.

3.0 GUIDELINES FOR PRE-FIRE PLANNING:

1. Select TARGET HAZARD for pre-fire planning. A target hazard may be defined as a facility or process, which could produce or stimulate a fire that could cause a large loss of life or property. Some examples of target hazards are: Lumber yards, oil storage areas, shopping centers, hospitals, theaters, fur storage vaults, apartment complexes, schools, etc. Once all target hazards have been pre-planned, begin pre-planning businesses, restaurants, clothing stores, hardware stores, office complexes, etc.
2. Make an appointment with the manager of the occupancy well in advance of your intended visit.
3. Check district and hydrant maps:
 - A. Size of water mains.
 - B. Location of the hydrant(s).
 - C. Types of hydrants available for this occupancy.
 - D. Select a response route.
4. Approaching the occupancy:
 - A. You should follow the normal response route.
 - B. Make a trip around the block prior to making the inspection.
5. After Arriving at the pre-plan building, contact the manager and explain again the purpose of your inspection and your intentions. Request someone such as the manager or another employee to escort you during your visit to answer any questions you may have.
6. Approach the occupancy from the front. From this approach, take note of the following:
 - A. Building construction and dimensions.
 - B. Fire escape and exterior stairway locations.
 - C. Sprinkler and exterior standpipe inlets.

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- D. Check means of ingress.
 - E. Overhead wires.
 - F. Obstructions to laying lines, raising ladders, etc.
 - G. Problems involving forcible entry.
 - H. Exposures.
7. Make a walk around the occupancy and check all sides:
- A. Make an accurate estimate of all the exposure hazards.
 - B. Estimate where ladders will be needed and what lengths will be required.
 - C. Estimate the number of lines required to combat a large fire in the building.
8. The roof is generally the best place to start the inspection of the building itself:
- A. Note roof construction.
 - B. Note roof access.
 - C. Note ventilation problems.
 - D. Note roof hazards.
 - E. Check attic area.
 - F. Check exposures from the roof
9. Locate Standpipes.
10. Check for sprinklers
11. Locate all Stairways
12. Identify all vertical openings
13. Note items that will be hazardous to firefighters during firefighting operations.
14. Throughout the inspection, be on the lookout for those things that are likely to cause a fire.
15. Locate all gas, water and electrical controls
16. If business has a basement, check for means of entry and egress, means of ventilation and type of fire protection and chemical storage.

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17. Conclude the inspection and thank the person assisting you.

18. After gathering all information relative to firefighting operations, it should be placed on the appropriate Pre-Fire Forms

NOTE: Pre-Fire Planning is a vital part of the size-up phase of fire fighting. The goal is to learn as much as you can about a particular building and its contents so that, if a fire should occur, you will be able to make a size-up based on accurate information.

4.0 GUIDELINES FOR COMPLETING SKETCH FOR PRE-FIRE PLAN

4.1 During the process of drawing the Pre-Fire Plan, it is suggested that a rough draft sketch be drawn on notebook paper or graph paper, and then transferred to the proper Pre-Fire Plan forms for final draft. During the final draft, please use the following forms:

PRE-FIRE SURVEY	FORM # FIRE-025-90
QUICK ACCESS	FORM # FIRE-023-90
HAZ-MAT SURVEY	FORM # FIRE 024-90
PRE-FIRE DATA SHEET	FORM # 112 (7/96)
GRAPH PAPER	

1. Sketch each floor, basement, and attic
2. Sketch the roof if necessary to show roof access or venting devices.
3. Show approaches to the facility.
4. Indicate the size of the facility (Length and Width)
5. Show location of attic access doors/ ladders/ etc.
6. Show roof access ladders.
7. Indicate the master electrical shutoffs
8. Indicate the master gas shutoffs

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9. Indicate the North direction
10. Indicate specific types of doors for other than standard personnel doors.
11. Show fences and gates.
12. Show all partitions and doors (direction is of help but not necessary)
13. Show room numbers or names if they are marked in the facility, otherwise indicate the use of the room, such as office, closet, etc.
14. Show the location of stairs and stairwells.
15. Show location of elevators.
16. Indicate fire walls and fire doors.
17. Indicate fire/smoke partition in concealed spaces such as attics.
18. Show the location of all water available to fight a fire including hydrant, lakes, rivers, etc.
19. Show the location of fire alarm panels.
20. Show the location of all CO², halon and dry chemical fire protection systems.
21. Indicate the location of all sprinkler system risers.
22. If facility is only partially sprinkled, indicate the area protected.
23. If facility has more than one riser, indicate which area is protected by each riser.
24. If the facility does not have a sprinkler system or if the facility is completely protected by a sprinkler system, place the appropriate symbol at the top of the sketch.
25. If the facility is partially sprinkled, place the appropriate symbol in the area sprinkled.

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26. Show the location of all post indicator valves and indicate which riser(s) they control.
27. Show Fire Department connection and indicate that they support standpipe or sprinklers.
28. Show the location of all standpipe hose cabinets and outlets.
29. Show the location of installed fire pumps.
30. Indicate the location of hazards in the facility such as explosives, radiation, flammable liquids, toxic substances, etc. that constitute an uncommon hazard to firefighters

NOTE: Facilities in which hazardous materials are frequently relocated require special precautions, if possible indicate the permanent location of the material on the sketch. If the material is frequently relocated, maintain the necessary information in the Fire Alarm Center for radio transmission to responding firefighting crews and fill out the Hazardous Material Pre-Plan Survey form.

5.0 USE OF QUICK ACCESS PRE-FIRE PLAN FORM

1. Indicate what water is required. Use N.F.A. (National Fire Academy) method when calculating NFF (Needed Fire Flow). At the proper location on the form, indicate GPM flow or (Needed Fire Flow) by using the following formula.

$$\frac{L * W}{3} * (\text{number of stories})$$

EXAMPLE: The building being pre planned is 125 feet long and 75 feet wide and is 1 story.

$$\frac{125 * 75}{3} = \frac{9375}{3} = (3125 * 1) = 3125 \text{ gpm (NFF)}$$

Using the same building, but 2 stories tall, the formula would be the same but multiplied by 2

$$\frac{125 * 75}{3} = \frac{9375}{3} = (3125 * 2) = 9375 \text{ gpm (NFF)}$$

3

3

If the building being pre-planned has exposures on the sides, the same formula is used but a percentage is added for exposures. If exterior structures are close, or may be exposed to fire from original fire building, or are closer than 50 feet, 25 percent of the actual required fire flow for the building should be added to provide protection for each exposure.

EXAMPLE: The building being pre-planned is 125 feet long and 75 feet wide and is single story with two exposures closer than 50 feet. You would figure .25% for each exposure.

$$\frac{125 * 75}{3} = \frac{9375}{3} = (3125 * 1) = 3125 * .50 = (1562 + 3125) = 4687 \text{ gpm (NFF)}$$

2. List the responding units and any special units needed for fire extinguishment.
3. Determine through preplanning what your strategic objectives will be based on the particular occupancy.
4. Include a prediction of the fire behavior.
5. List anticipated problems in firefighting based on:
 - A. Access
 - B. Contents hazards
 - C. Rescue problems
 - D. Forcible entry
 - E. Ventilation
 - F. Salvage
6. Identify the hazards to personnel:
 - A. Structural problems
 - B. Chemicals
 - C. Fast fire spread
7. Are there sprinklers or standpipes located in the building. Are special tools needed for sprinklers or standpipes.

6.0 PRE-FIRE PLANNING HAZARDOUS MATERIAL SURVEY FORM

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1. When companies pre-plan facilities which store, manufacture or process chemicals in sufficient quantities to be of hazard to responding agencies a HAZARDOUS MATERIALS SURVEY FORM shall be included in the pre-plan. The completed pre-plan shall be forwarded to the Training Division. During the follow-up procedure, the initial company performing the pre-plan may be included in the Hazardous Materials assessment.

** Sufficient quantities - Any amount of Explosives A, Explosives B, Flammable Solids, Water Reactive, Poison A or Radioactives. Any other classification of materials with quantities greater than 20 gallons, 100 lbs. Or cylinders with a capacity of 40 lbs.

2. Due to the complexity of some of the Hazardous Materials and limited research material, only certain portions of the Haz-Mat survey Form will be completed by the Engine Company.
3. ADDRESS: Fill in the address of the building being pre-planned
4. DATE: Fill in the correct date of the pre-plan
5. BRAND NAME: Where the chemical has a brand name such as "GO-JO SOAP", or "BEST YET" cleaning solution.
6. CHEMICAL NAME: Obtain chemical name from MSDS sheets or on the label of the product. Fill in the entire chemical name, being sure the spelling of the name is correct.
7. TYPE OF MATERIAL: cleaning solution, oxidizer, corrosive, stabilizer, petroleum product, etc.
8. CLASSIFICATION: Indicate whether the material is FLAMMABLE LIQUID, COMPRESSED GAS, RADIOACTIVE, ETC. Many times the classification of the material can be found on the MSDS sheet or in the Hazardous Materials Handbook carried on the Fire Dept. Vehicle.

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9. STORAGE: Indicate the amount of the material, the location and storage, how is it separated by other materials and how material is protected.
10. All other information will be completed by the Haz-Mat Division when the survey form has been forwarded to them.

NOTE: Information on the material can be found at various locations including MSDS sheets, Haz-Mat books located on the fire vehicles, or Station #2 Haz-Mat division. You are encouraged to gather as much information as possible. If you have any Questions about any materials you are preplanning, contact the Hazardous Materials Division.

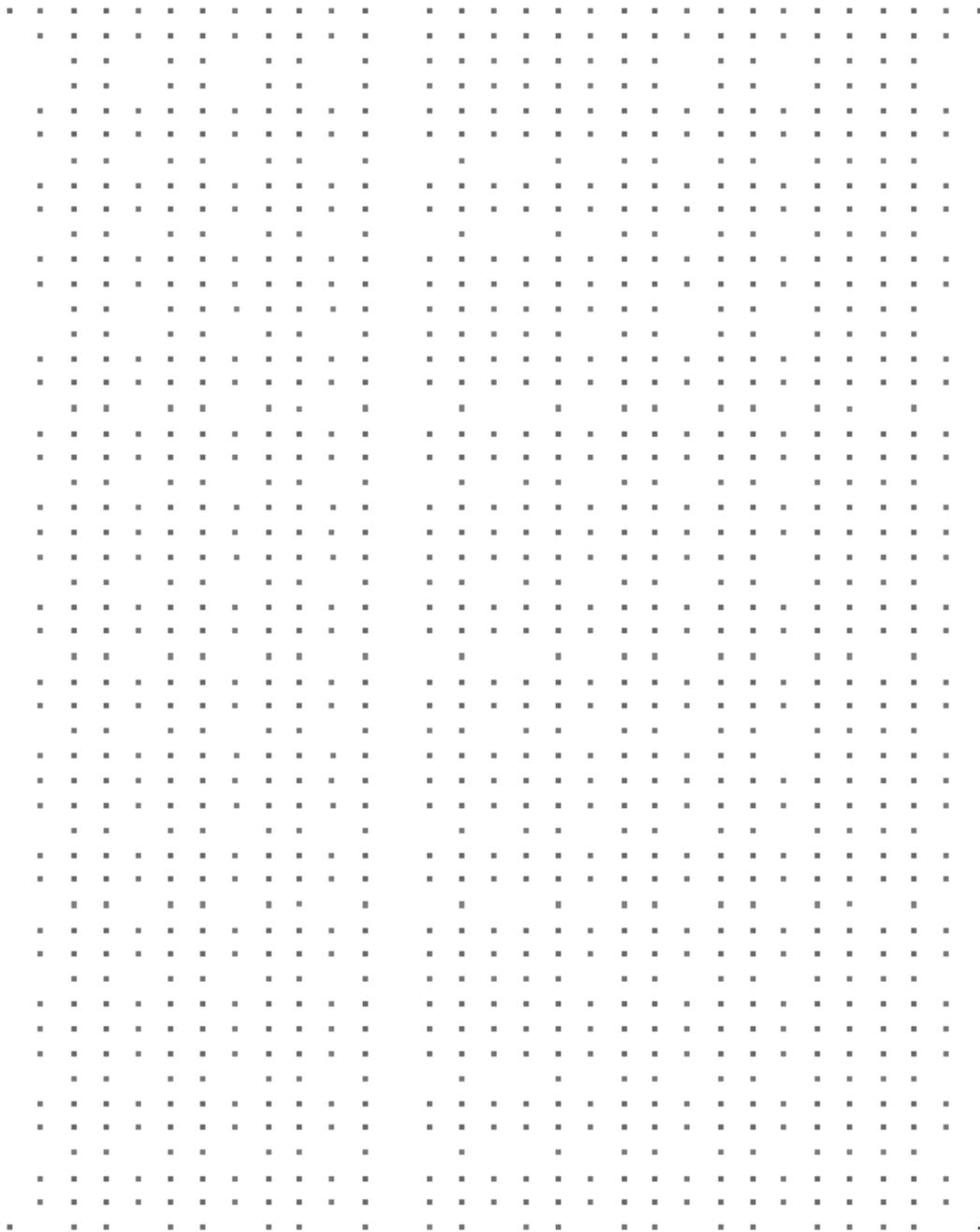
Construction Type:	Type I	Type II	Type III	Type IV	Type V
Number of Stories:	_____		Basement:	Yes	No
Roof Construction:	_____		Truss:	Yes	No
Roof Deck Material:	_____		Roof Covering:	_____	
Floor Construction:	_____		Truss:	Yes	No
Wall Construction:	_____				
Strategy:					

Fire Behavior Prediction					

Problems/Hazards to Personnel:					

Water Supply:					

Standpipe:	Yes	No	Sprinkler:	Yes	No
FDC Location: _____					
Specialty Fire Suppression System(s):			Yes	No	
Type/Location: _____					
Electric:	PBX	Lumber Elev	Semi Elev	Proctor Elevator	
Gas:	Propane	LPG	_____		
Water:	PWC	Aqua	_____		
Exposure(s):	Yes	No	_____		
Location: _____					
Company Officer (Print): _____					
Company Officer Signature _____			Date _____		
Revised Revised 7/01					



PRE-INCIDENT HAZARDOUS MATERIALS SURVEY

<u>PRODUCT NAME</u>	<u>UNSCA NUMBER</u>	<u>DOT HAZARD CLASS</u>	<u>ERG GUIDE PAGE</u>	<u>CONTAINER TYPE</u>	<u>QUANTITY</u>
.
.
.
.
.
.

MSDS Location: _____

Product Storage Location: _____

The following information should be obtained by referring to the Emergency Response Guidebook. If multiple products are stored, the most restrictive data should be entered below.

Evacuation/Isolation Distances

FIRE: Large _____ Small _____

SPILL: Large _____ Small _____

Fire Suppression Considerations:

Spill/Leak Considerations:

Reviewed Revised 7/08

Appendix B – Pre-incident Plan Survey

1. Pre-incident planning survey

This survey is part of an applied research paper for the Executive Fire Officer Program sponsored through the NFA. The results of this survey will be used as my organization moves from our current paper based pre-incident planning system, implementing an electronic pre-incident planning system.

This survey is short and will only require a couple of minutes to complete. The information you provide will be beneficial to us as we review available pre-plan software. Your responses will remain anonymous.

Thank you in advance for your assistance.

Benjamin Major
Asst. Chief
Fayetteville Fire Department
Fayetteville, NC 28301

1. What is the size of your department?

- less than 100 personnel
- 101 to 200 personnel
- 201 to 300 personnel
- 301 to 400 personnel
- 401 to 500 personnel
- over 500 personnel

2. What is the population of the district your department serves?

- less than 50,000
- 50,001 - 100,000
- 101,001 - 200,000
- 200,001 - 300,000
- 300,001 - 400,000
- 400,001 - 500,000
- over 500,000

3. Does your department use a type of pre-incident planning software?

- Yes
- No

4. Which of the following statements best describes your departments pre-planning software?

- The software was developed in house with the use of commonly recognized software. (i.e. word processing, graphics program, etc.)
- The software was developed specifically for your department by a outside vendor or agency
- The software used is a standard product available by a commonly recognized vendor

Please identify the name and version of any pre-plan software product used by your department::

5. Does your department's pre-planning software compliment the department's computer aided dispatch and records management system?

- Yes
- No
- Unsure

Additional comments:

6. How long has your department used its pre-incident planning software?

- 0 - 2 years
- 3 - 5 years
- 6 - 8 years
- over 8 years

7. Please rate the following input data in terms of importance to pre-plan software. Also check the box denoting if the software used by your department has each feature:

	Available in our program	1 - Not important	2 - Somewhat important	3 - Important	4 - Very important	5 - Extremely important
Owner contact information	<input type="checkbox"/>					
Occupant contact information	<input type="checkbox"/>					
Floor plans	<input type="checkbox"/>					
Building construction	<input type="checkbox"/>					
Ability to insert photographs	<input type="checkbox"/>					
Ability to insert 3 dimensional graphics	<input type="checkbox"/>					
Fire protection features	<input type="checkbox"/>					
Available water supply	<input type="checkbox"/>					
Location of utilities	<input type="checkbox"/>					
Special hazards	<input type="checkbox"/>					
Incident/event modeling	<input type="checkbox"/>					
GIS capability	<input type="checkbox"/>					

Additional comments or list any other component you view as important:

8. Which of the following statements are more fair as they apply to your department and its pre-plan software? (Check all that apply.)

- Most personnel enter information into the system with no difficulty.
- Most personnel require some assistance in entering information.
- Most personnel are able to use the pre-plan software program effectively.
- Only the most computer literate personnel are capable of effectively using the pre-plan program.

9. How is pre-plan data stored and accessed within your department?

- Data is stored on a server and is accessible to all response units through mobile computers. (Web based)
- Data is stored on individual hard drives or mobile computers and computers must be synced.
- Mobile computers are not used within your department

Additional comments:

10. Does your department's pre-planning software allow for real time updates within the system?

- Yes
- No
- Not sure

Additional comments:

11. Does the features of the pre-planning software used by your department lend to ease of use in the field?

- Yes
- No
- Not sure

Additional comments:

12. How often are pre-plans accessed before or enroute to a dispatched structure fire or incident?

- Pre-plans are frequently accessed before responding or enroute to a dispatched structure fire or other incident.
- Pre-plans are seldom accessed before responding or enroute to a dispatched structure fire or other incident.
- Pre-plans are never accessed before responding or enroute to a dispatched structure fire or other incident.

Additional comments:

13. How often are pre-plans accessed while on the scene of a structure fire or other emergency incident?

- Pre-plans are frequently accessed after arriving on the scene of a structure fire or other emergency incident.
- Pre-plans are sometimes accessed after arriving on the scene of a structure fire or other emergency incident.
- Pre-plans are never accessed after arriving on the scene of a structure fire or other emergency incident.

Additional comments:

14. How satisfied are you with the pre-planning software used by your department?

- Very satisfied
- Somewhat satisfied
- Not satisfied

Additional comments:

15. How satisfied are you with your department's use of its pre-planning software program?

- Very satisfied
- Somewhat satisfied
- Not satisfied

Additional comments:

16. If I can contact you for additional information or clarification of a response, please provide your contact information below.**Again, thank you for your assistance through this survey.**

Name:

Email Address:

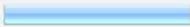
Phone Number:

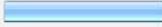
Appendix C - Pre-incident Survey Results

1. What is the size of your department?			
		Response Percent	Response Count
less than 100 personnel		51.5%	68
101 to 200 personnel		27.3%	36
201 to 300 personnel		4.5%	6
301 to 400 personnel		2.3%	3
401 to 500 personnel		3.0%	4
over 500 personnel		11.4%	15
<i>answered question</i>			132
<i>skipped question</i>			0

2. What is the population of the district your department serves?			
		Response Percent	Response Count
less than 50,000		41.2%	54
50,001 - 100,000		26.7%	35
101,001 - 200,000		12.2%	16
200,001 - 300,000		6.9%	9
300,001 - 400,000		4.6%	6
400,001 - 500,000		1.5%	2
over 500,000		6.9%	9
<i>answered question</i>			131
<i>skipped question</i>			1

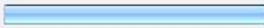
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3. Does your department use a type of pre-incident planning software?				
			Response Percent	Response Count
Yes			63.4%	83
No			36.6%	48
<i>answered question</i>				131
<i>skipped question</i>				1

4. Which of the following statements best describes your departments pre-planning software?				
			Response Percent	Response Count
The software was developed in house with the use of commonly recognized software. (i.e. word processing, graphics program, etc.)			31.1%	28
The software was developed specifically for your department by a outside vendor or agency			6.7%	6
The software used is a standard product available by a commonly recognized vendor			62.2%	56
Please identify the name and version of any pre-plan software product used by your department::				75
<i>answered question</i>				90
<i>skipped question</i>				42

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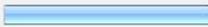
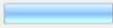
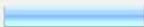
5. Does your department's pre-planning software compliment the department's computer aided dispatch and records management system?				
			Response Percent	Response Count
Yes			34.6%	36
No			59.6%	62
Unsure			5.8%	6
			Additional comments:	31
			answered question	104
			skipped question	28

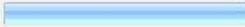
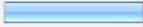
6. How long has your department used its pre-incident planning software?				
			Response Percent	Response Count
0 - 2 years			51.5%	51
3 - 5 years			25.3%	25
6 - 8 years			13.1%	13
over 8 years			10.1%	10
			answered question	99
			skipped question	33

Improving Pre-Incident

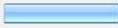
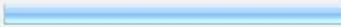
7. Please rate the following input data in terms of importance to pre-plan software. Also check the box denoting if the software used by your department has each feature:							
	Available in our program	1 - Not important	2 - Somewhat important	3 - Important	4 - Very important	5 - Extremely important	Response Count
Owner contact information	55.7% (54)	1.0% (1)	10.3% (10)	23.7% (23)	20.6% (20)	36.1% (35)	97
Occupant contact information	52.6% (51)	2.1% (2)	12.4% (12)	33.0% (32)	21.6% (21)	25.8% (25)	97
Floor plans	51.5% (50)	2.1% (2)	1.0% (1)	8.2% (8)	23.7% (23)	57.7% (56)	97
Building construction	53.6% (52)	0.0% (0)	0.0% (0)	12.4% (12)	24.7% (24)	54.6% (53)	97
Ability to insert photographs	37.8% (37)	1.0% (1)	18.4% (18)	27.6% (27)	26.5% (26)	18.4% (18)	98
Ability to insert 3-dimensional graphics	13.6% (12)	21.6% (19)	26.1% (23)	26.1% (23)	15.9% (14)	9.1% (8)	88
Fire protection features	55.8% (53)	0.0% (0)	0.0% (0)	5.3% (5)	31.6% (30)	54.7% (52)	95
Available water supply	50.5% (49)	0.0% (0)	2.1% (2)	12.4% (12)	27.8% (27)	49.5% (48)	97
Location of utilities	57.3% (55)	0.0% (0)	1.0% (1)	7.3% (7)	37.5% (36)	46.9% (45)	96
Special hazards	55.2% (53)	0.0% (0)	0.0% (0)	5.2% (5)	30.2% (29)	56.3% (54)	96
Incident/event modeling	14.0% (12)	14.0% (12)	19.8% (17)	37.2% (32)	22.1% (19)	3.5% (3)	86
GIS capability	19.8% (18)	6.6% (6)	22.0% (20)	28.6% (26)	27.5% (25)	9.9% (9)	91
Additional comments or list any other component you view as important:							10
answered question							98
skipped question							34

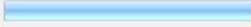
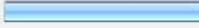
Improving Pre-Incident

8. Which of the following statements are more fair as they apply to your department and its pre-plan software? (Check all that apply.)			
		Response Percent	Response Count
Most personnel enter information into the system with no difficulty.		23.4%	22
Most personnel require some assistance in entering information.		40.4%	38
Most personnel are able to use the pre-plan software program effectively.		21.3%	20
Only the most computer literate personnel are capable of effectively using the pre-plan program.		27.7%	26
<i>answered question</i>			94
<i>skipped question</i>			38

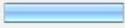
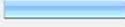
9. How is pre-plan data stored and accessed within your department?			
		Response Percent	Response Count
Data is stored on a server and is accessible to all response units through mobile computers. (Web based)		25.3%	24
Data is stored on individual hard drives on mobile computers and computers must be synced.		47.4%	45
Mobile computers are not used within your department		27.4%	26
Additional comments:			30
<i>answered question</i>			95
<i>skipped question</i>			37

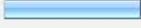
Improving Pre-Incident

10. Does your department's pre-planning software allow for real time updates within the system?			
		Response Percent	Response Count
Yes		22.2%	22
No		66.7%	66
Not sure		11.1%	11
Additional comments:			6
answered question			99
skipped question			33

11. Does the features of the pre-planning software used by your department lend to ease of use in the field?			
		Response Percent	Response Count
Yes		49.0%	47
No		38.5%	37
Not sure		12.5%	12
Additional comments:			16
answered question			96
skipped question			36

Improving Pre-Incident

12. How often are pre-plans accessed before or enroute to a dispatched structure fire or incident?			
		Response Percent	Response Count
Pre-plans are frequently accessed before responding or enroute to a dispatched structure fire or other incident.		23.0%	23
Pre-plans are seldom accessed before responding or enroute to a dispatched structure fire or other incident.		53.0%	53
Pre-plans are never accessed before responding or enroute to a dispatched structure fire or other incident.		24.0%	24
Additional comments:			16
answered question			100
skipped question			32

13. How often are pre-plans accessed while on the scene of a structure fire or other emergency incident?			
		Response Percent	Response Count
Pre-plans are frequently accessed after arriving on the scene of a structure fire or other emergency incident.		26.7%	27
Pre-plans are sometimes accessed after arriving on the scene of a structure fire or other emergency incident.		57.4%	58
Pre-plans are never accessed after arriving on the scene of a structure fire or other emergency incident.		15.8%	16
Additional comments:			10
answered question			101
skipped question			31

Improving Pre-Incident

14. How satisfied are you with the pre-planning software used by your department?			
		Response Percent	Response Count
Very satisfied		17.9%	17
Somewhat satisfied		54.7%	52
Not satisfied		27.4%	26
Additional comments:			19
answered question			95
skipped question			37

15. How satisfied are you with your department's use of it's pre-planning software program?			
		Response Percent	Response Count
Very satisfied		10.6%	10
Somewhat satisfied		41.5%	39
Not satisfied		47.9%	45
Additional comments:			16
answered question			94
skipped question			38

16. If I can contact you for additional information or clarification of a response, please provide your contact information below. Again, thank you for your assistance through this survey.			
		Response Percent	Response Count
Name:		100.0%	86
Email Address:		100.0%	86
Phone Number:		97.7%	84
answered question			86
skipped question			46