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Strategies for Community Risk Reduction

Effective Pre-incident Planning

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CERTIFICATION STATEMENT

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another.

Signed: _____

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Abstract

The problem of effectively managing a fire department pre-incident planning program was the research focus. Determining efficient and sustainable processes to assure high quality pre-incident plans was the primary purpose of the research. Descriptive research methodology was used. Research questions identified the processes and methods that could be employed to assure accurate and timely production and maintenance of preplan documents in electronic and printed form. The practicality of partnerships with allied agencies was also explored. Two questionnaires and interviews were used to determine local agency preferences, existing pre-fire planning practices and satisfaction levels in U.S. fire agencies. A literature review identified previous and current practices in pre-fire planning and noted emerging technologies. The research made a case to implement aerial photo-based pre-incident plans and to develop partnerships with allied agencies to create a common operating picture.

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Introduction

The San Ramon Valley Fire Protection District (SRVFPD) pre-incident survey process is not meeting the needs of the agency in its current form. This has resulted in an inability to consistently disseminate appropriate premise information to first responders in a timely, accurate and professional manner. The purpose of this research is to identify efficient and sustainable organizational processes to place high quality pre-incident surveys into the hands of first responders.

Producing high quality pre-incident surveys and developing effective and efficient processes that can quickly press them into service could assist in reducing the loss of life and property, including the lives of firefighters. But the task of surveying and drafting a large number of targeted locations, even when using specialized pre-incident planning software applications, is an arduous undertaking.

With the now routine deployment of sophisticated mobile data computers, pre-incident planning implementations should accommodate electronic (digital) as well as printed versions of the plan documents. Electronic files offer significant advantages including the ability to quickly and easily make modifications to existing plans and to store essentially unlimited numbers of them with minimal physical space requirements. However, the reliability of a spiral bound printed preplan book remains difficult to rival.

To share the formidable cost and effort involved in creating and maintaining pre-incident survey programs, fire agencies are partnering with allied agencies including police and sheriff departments, building departments and even school districts. Each of these partners utilizes the plans in different yet compatible ways. This synergistic

approach improves the quality of the plans for all partners while potential reducing expenses and staff requirements for each (Smith, 2006).

To begin this research it was imperative to determine how fire agencies across the country are addressing the challenges of providing and using pre-incident planning documents in a first responder environment. Three research questions were used to guide this research. The first research question asked what processes and methods can be employed to assure that pre-fire plan documents can be produced and maintained in a timely and accurate manner. The second question asked what technology exists that allow pre-fire plan documents to be easily utilized and maintained in both electronic and printed formats. The third question asked are partnerships with allied agencies, such as school district and police departments, practical for multiple-use building drawings. Aligned with the three research questions, the researcher used descriptive research methodology to analyze, synthesize, and present the findings.

<div align="center">Background and Significance</div>

In early 2007 the SRVFPD pre-fire program was conducted entirely by suppression personnel working 56-hour a week shift schedules. Individual company officers were assigned targeted buildings from a pre-established list. The assignments were made by a suppression fire captain charged with the managing the program. His work on the program is in addition to his regular duties. He is not compensated for this additional responsibility to serve as the program coordinator. He performs the requisite program management responsibilities while on duty with little supervision or oversight. The casual nature of this assignment allowed the program to essentially stall completely

at times and could contribute, to some degree, to the inconsistent quality and low plan production rates that plague the program.

Once a company officer is assigned a building or complex, he or she is solely responsible to make all arrangements and preparations to visit the site. This may include telephone calls to the building engineer, property manager or other responsible party to schedule an escorted tour, secure keys or gather other required information. The company officer may also visit the Fire Prevention Division offices to review the contents of the premise file.

Once onsite at the assigned premise, the officer and crew must translate the physical buildings and surroundings into a finished picture using drawing and drafting skills. The accuracy and detail of the drawings produced here are critical as they serve as the foundation for every other link in the plan creation process. Optimally, the officer or a member of his or her crew is detail oriented and skilled in free hand and mechanical drawing and lettering. Unfortunately, this is not usually the case and significant shortcomings in the drawings are introduced and produce flaws that are destined to travel through the entire creation chain.

The completed hand drawings and other accumulated ancillary materials are then returned to the program coordinator. The coordinator subsequently assigns this material to one of a number of specially trained suppression members that are responsible for redrawing the information gathered in the field into an electronic format utilizing a computer-based design tool. These members perform this work while on duty and while not engaged in other required or routine activities such as incident response, training and station maintenance. They are compensated for attending training courses to learn how to

use the software but do not receive any additional compensation for performing the

computer-aided drafting tasks. The SRVFPD uses *The Fire Zone* software package from

The CAD Zone (Firehouse.com, 2008) of Beaverton, Oregon.

Just as abilities vary greatly at the initial hand drawing stage, the true skills

required to use sophisticated computer-aided design tools can be daunting. These tools in

the hands of design professionals can produce stunning results. But in the hands of non-

career operators, such as firefighters, finished plans can be inconsistent and

disappointing. Many of the key advantages of design software, such as production speed,

are simply not seen with occasional operators. On several occasions the district has found

the need to go back and retrain several of these individuals.

Ultimately the completed plans are placed on each piece of fire apparatus.

However, the SRVFPD currently has no method of informing the responding crews that a

plan exists for the reported incident address. Knowing that a specific plan exists at the

time of dispatch remains an obstacle to effective use. This missing component requires

that the officer or other crew member either have personal knowledge of the plan

existence or manually check an index on every dispatch. This time consuming and

commonly overlooked step further reduces the overall effectiveness of the pre-incident

plan program and could potentially increase response times.

The United States Fire Administration (U.S. Fire Administration [USFA], 2008)

has operational objectives to reduce the loss of life from fire for those ages 14 and

younger, those over the age of 65, and firefighters. At the International Association of

Fire Chiefs (International Association of Fire Chiefs [IAFC], 2004) sponsored Health

Care Fire Safety Roundtable Forum, a key initiative called for the development of "a

comprehensive program for fire departments to perform pre-incident planning with each

health care/long-term care (LTC) facility in their jurisdictions in accordance with NFPA

1620" (p. 5) directly impacting the target audience of those over the age of 65. At the

National Fire Service Research Agenda Symposium conducted by the National Fallen

Firefighters Foundation, the need for pre-incident planning was identified as a high

priority for effectively managing emergency operations in direct support of improving

firefighter life safety (National Fallen Firefighters Foundation [NFFF], 2005). A well

executed pre-incident planning program can significantly improve the outcome of a fire

incident by assuring that arriving firefighters are well informed, including knowledge of

access points, stairwell locations, building systems and premise hazards.

Another USFA (U.S. Fire Administration, 2008) operational objective is the

development of comprehensive community-based all-hazard risk reduction plans. An

effective pre-incident planning program is an integral component to any comprehensive

all-hazard risk reduction plan. The Strategies for Community Risk Reduction curriculum

teaches the facilitation of interventions to diminish adverse outcomes (U.S. Department

of Homeland Security [DHS], 2007) which is also a fundamental goal of pre-incident

planning. This research provided an opportunity to improve the efficiency and

effectiveness of the SRVFPD pre-incident planning program and thus reduce the impact

of fire and other incidents that occur within the community every day.

<div align="center">Literature Review</div>

The fire service uses the terms preplanning, pre-fire planning and pre-incident

planning somewhat interchangeably. Technically pre-fire planning is a subset of pre-

incident planning. Codino (2007) reinforces that the term pre-incident planning allows

fire personnel to describe and address not just fires, but the all-risk environment that fire agencies face in schools, shopping malls, airports and other infrastructure facilities. Expanding preplanning efforts beyond fire events is prudent. First responders face a wide variety of incidents including hazardous materials, structural collapse and even terrorist attacks. The National Fire Protection Association (National Fire Protection Association [NFPA], 2003) describes a pre-incident plan as documentation of "the protection, construction and operational features of an occupancy" (p. 5) for use by responding personnel to manage fires and other emergencies. A pre-incident survey should not be confused with a fire inspection, which is primarily concerned with fire code compliance. A pre-incident inspection is conducted to improve operations should an emergency incident occur at the location (Volk, 1989). Although Levey (1979) notes that pre-fire surveys can be beneficial in the reduction or elimination of hazards through discovery and greater awareness.

Volk (1989) aptly stated that most fire agencies realize the importance of surveying and documenting a building before an incident occurs. Such work provides extremely valuable information that improves the ability to fight a fire or address other emergencies occurring at the specific location. Firefighters who are unfamiliar with building systems could lose critical time searching for basic items such as a fire department connection. If first responders are unaware of a building's contents they may not be able to attack a fire or address a hazardous materials incident safely. As suggested by Volk, having knowledge of a facility's contents and hazards in advance is of the utmost importance to first responders. Schroll (1982) noted that effective diagrams or surveys should include all surrounding areas, including streets, emergency vehicle access

points and particularly adjacent exposures. Carter (1989) emphasized that successful

mitigation of an event is dependent on a database of knowledge peculiar to the buildings

or complex involved. He further states that "your chances for operational success are

greatly enhanced by any information you are able to gather in advance" (p. 22).

Firefighter safety is also greatly improved by the elimination of any knowledge gaps.

Kalman (1993) restates the near universal fire service goal of delivering the best service

possible, but points out that knowing what you face when you arrive on a scene is

integral to the service level being provided.

Bromann (2000) suggests that organization and quality are paramount ingredients

for pre-incident plan success. He also emphasizes that the plan documents must be easily

read and accurate. But, Coleman, O'Neal and Lasky (2007) acknowledge that initiating

and maintaining a high quality program is difficult. They emphasize that it takes effort on

many different fronts to get it done right. The task of creating plans can be viewed as

unpleasant and not all company officers make it a priority. According to Coleman et al.,

firefighters would rather be doing a live burn or an extrication drill than drawing a pre-

fire plan. Codino (2007) goes as far as saying, "even as important as pre-fire planning

may be, it seems increasing like a luxury to accomplish" (p. 62). Feagley (1992) cautions

against creating preplans in a hurried manner or with a just get it done mentality. He

stresses the importance of reviewing and assessing the hazards thoroughly and taking the

time to complete each task adequately. He does not consider preplanning to be a routine

task. He emphasizes that it must be approached systematically and include only relevant

data. Carter (1989) also makes the point that once you have gathered all the data

necessary to begin creating a plan that you carefully filter it for truly useful information.

He feels a large number of preplan approaches fail due to gathering and presenting too much extraneous information. Excess details that are not useful to the first responders and are burdensome to the process, lead to inefficient and ineffective programs. Carter noted that pre-incident surveys should essentially contain enough information to allow a company officer to perform a building size-up before arrival.

In 1977, Adrianowycz, Chin, Meunier, and Sweeney helped the Worchester Fire Department implement a microfiche based pre-fire system in one of the first moves away from a solely paper-based approach. In 1993, Kalman describes the impractical task the Austin, Texas fire department faced with needing to carry 3,000 pre-fire plan documents in their command vehicles. He detailed a solution whereby they used cellular fax machines to address the problem. These solutions still used paper-based original plans as source documents making these advancements just storage solutions. Today, thirty years after the Worchester microfiche methods, the fire service has a wide variety of computer-based solutions to store and access pre-incident documents electronically. White (2003) purports that commercial pre-incident planning software offers fast and easy retrieval during emergencies via mobile data computers but also allows the plans to be printed for hard copy needs or to satisfy user preference. One consideration of electronic preplans is that some popular software programs require the software be installed on any computer needing to view a preplan created or stored in the application. Codino (2007) stresses that in environments of this nature all users and all partner agencies must purchase and install the specific application on every computer that will need to view any of the preplan data. Conversely, Coleman, O'Neal and Lasky (2007) feel the ultimate goal is to incorporate the drawings into the Adobe Portable Document format (Wikipedia, 2008), also know as

PDF, for retrieving and viewing the plan documents from any computer without a

requirement to purchase any specific application. Jakubowski (2003) feels that all fire

departments should be heading in the direction of doing electronic preplanning. He

discusses the concept of mobile data computers (MDC) located in the apparatus receiving

information automatically based on information sent from the computer-aided dispatch

system to the MDC at the time the incident is dispatch. Finucane and Price (2002)

described a system in use in the City of Johnson City, TN fire department where

dispatchers give unique preplan identification numbers and map color codes to

responding crews at the time of dispatch. This alerts responding crews that a preplan

exists for the reported address and assists them in locating the specific plan document

without referring to a separate index.

     Grube (2005) recommends looking at buildings from above when conducting pre-

incident planning activities. Since most fire departments don't have aircraft, he suggests

contacting local police agencies and requesting the opportunity to take digital photos

from the sky. He feels these images are a form of preplan themselves and that they offer a

unique perspective to the various hazards fire departments face. Parow (2003) also feels

that aerial photography will enhance a fire department's capability in planning and

response. He says the ability to annotate the photo with special hazard location and

building information is a very important capability. The National Fire Protection

Association Standard 170 ([NFPA], 2006) provides standardized symbols for this

purpose. Parow feels annotated aerial photos could be used as a self-contained pre-

incident survey. Crowley (1993) wrote that "aerial photographs can be especially helpful

for preplanning buildings with special hazards and examining buildings, such as schools,

that have high life-hazard concern" (p. 10). He states "aerial photography provides a good visual representation for firefighters and officers" (p. 10) by providing a high vantage point view not easily duplicated from the ground.

According to Codino (2007), police departments, communication centers and other allied professionals do not commonly have access to the pre-incident plans held by most fire agencies. He feels if they did, the agencies could mitigate events in a more efficient and unified manner. Codino illustrated how a police department used the same preplan the fire department created for its needs to plan a police action in an apartment complex. Feagley (1992) purported mutual sharing of preplans calling it a crucial element in the process. He recommends interfacing with the building department, public works departments and utility companies. He points out that nearly every department and expertise a city or county uses on a daily basis can be called into action during an emergency. He feels the fire service should identify these services and include them in the preplanning process. Levey (1979) feels partnering with property owners would be a mutually rewarding strategy. This reinforces Kirsch (1992) who wrote "Factory Mutual has long encouraged pre-fire planning sessions between facility personnel and the local fire department. Such sessions give both parties an opportunity to sit down together to exchange information and coordinate action in the event of a fire" (p. 6). Viera (1993) documented that rapport with facility personnel who have access to all areas of the facility, as well as the knowledge and authority to share necessary information with their local fire department is vital. The researcher interviewed representatives of the allied agencies that work in concert with the San Ramon Valley Fire Protection District

(SRVFPD) to form a basis for evaluating the feasibility of partnering on pre-incident

planning efforts in the district. This information will be presented in the Results Section.

In summary, the literature showed that effective pre-incident planning is critical,

improving both incident outcomes and service levels. Plans need to contain relevant data

with the right balance of detail for operational needs. Using cumbersome processes and

collecting too much information can lead to poor support and participation level at the

company level, a critical preplanning misstep. Choosing a universal format that works

well for both printed uses and electronic display is important. Viewing the target premise

from above using aerial photography offers a unique and valuable perspective and may

form the basis for an efficiently produced self-contained plan. The sharing of plans with

allied agencies and building owners offers an ideal forum and opportunity to build and

strengthen valuable professional relationships.

<div align="center">Procedures</div>

Participants

Questionnaires

Two questionnaires were conducted in support of this research effort. The first

questionnaire called the *San Ramon Valley Aerial Photo-based Preplan Questionnaire*

(SRVAPQ) (Appendix E) was distributed to all thirty-nine suppression division fire

captains in the San Ramon Valley Fire Protection District. An email describing the

purpose of the questionnaire was sent directly to their district email address. The body of

the message contained a link to the online questionnaire. Thirty-two captains voluntarily

answered the questionnaire. Seven captains did not answer the questionnaire.

The second questionnaire, called the *National Pre-incident Planning Questionnaire* (NPIPQ) (Appendix F) was sent to all subscribers of the *Daily Dispatch* service (http://www.dailydispatch.com). An advertisement promoting the questionnaire was purchased from the service. Subscribers to the Daily Dispatch (Western Fire Chiefs Association [WFCA], 2008) service receive a daily email newsletter that provides fire service related news highlights of the day. The service is sponsored by the International Association of Fire Chiefs (INFOCUS Marketing, 2008) and has a daily readership of approximately 20,000 fire service members (J. L. Heintz, personal communications, December 14, 2008). Screen shots from the Daily Dispatch advertisement text and link encouraging visitors to answer the questionnaire are shown in Appendix C. Two hundred and thirty-seven individuals voluntarily participated in the online survey. All participants decided to click or ignore the link advertising the survey. The link read *San Ramon Valley FPD Conducting Survey on Pre-Fire Planning - Take their brief questionnaire!* The questionnaire was available from December 14, 2007 through January 31, 2008, a period of 48 days. The daily newsletter contained the link each day during this period. To generate additional attention, on January 22, 2008 the text on the link was changed to *San Ramon Valley FPD Conducting Survey on Pre-Fire Planning – Survey closes in just a few days!!!* The link was again changed for the same purpose on morning of the final day to read *San Ramon Valley FPD Conducting Survey on Pre-Fire Planning – Last Day to Participate!!!* The final screen of the questionnaire thanked the respondent and encouraged them to forward a link to the questionnaire to others. The text of that sentence which included the associated link read *to improve the quality of this research please share this questionnaire with other agencies by sending them this link.* This potentially

expanded the survey population beyond Daily Dispatch subscribers. Screen shots of the

Daily Dispatch newsletter showing the links and text described above appear in

Appendix C.

Interviews

R. Riordan, the Emergency Preparedness Manager for the City of San Ramon, together

with G. Gilbert, the Emergency Services Manager for the Town of Danville, were

interviewed in the researcher's office (personal communications, November 20, 2007). G.

Gilbert is also a former police chief for the Town of Danville. The researcher also met

with T. Jamison (personal communications, December 5, 2007) the Director of

Emergency Management for the San Ramon Valley Unified School District (SRVUSD)

in his office to conduct the same interview as was held with R. Riordan and G. Gilbert.

These three representatives of the allied agencies were selected because they are the

individuals responsible for the pre-incident planning documents in their respective

organizations.

Materials and Procedures

Questionnaires

The SRVAPQ was constructed using SurveyMonkey.com (Westin, 2005) using

the provided *Create a New Survey* wizard tool. SRVAPQ contained two multiple choice,

single answer questions and two comment/essay boxes for a total of four questions. A

complete copy of the SRVAPQ appears in Appendix E. Prior to issuing the questionnaire,

all SRVFPD captains were presented three sample aerial photo based pre-incident

surveys and instructed to review and discuss them with their crews. This crew interaction

was designed to assist the officers in making more accurate responses to the questions

presented in the questionnaire. The original samples were printed in color on 11" by 17" bond paper. Representations of these samples are shown in Appendix G.

The NPIPQ was constructed using SurveyMonkey.com (Westin, 2005) using the provided *Create a New Survey* wizard tool. The questionnaire contained nine multiple choice, single answer questions, seven multiple choice, multiple answer questions, one comment/essay box, and one set of demographic questions, for a total of eighteen questions. Due to simple logic programmed in the questionnaire the maximum number of questions a single respondent could be presented was sixteen. The minimum number of questions a single respondent could be presented was two. The questionnaire logic simply prevented illogical question sequencing. For example, if the respondent selected *No* in response the question *Do your responding companies currently have pre-arrival access to pre-fire plans*, then they were not asked *In what form are pre-fire plans available to responding personnel* but instead jumped forward to the question *Do your companies have access to pre-fire plans after they arrive at scene*.

The questionnaire content was created by carefully analyzing the research questions and formulating questions to solicit pertinent and objective responses fundamental to the research problem and purpose. The first question of the NPIPQ asked for the Name, Agency, Address, City/Town, State, Zip/Postal Code, and Email address of the respondent. One hundred fifty-nine respondents provided complete responses to this question. This contact information allowed for follow up of a particular group of respondents if so desired. No such follow up contact was made for this research. A complete copy of the NPIPQ appears in Appendix F.

Interviews

Interviews were conducted with appropriate personnel from the three potential partner agencies to the fire district. These agencies were the City of San Ramon, the Town of Danville and the San Ramon Valley Unified School District. These public agencies were selected because they are entirely incorporated within the fire district jurisdiction and operationally interact with one another on a routine basis. They also include the vast majority of the target hazards. Each agency provided one representative to be interviewed. R. Riordan and G. Gilbert (personal communications, November 20, 2008) were interview together. Each representative was asked the same eight questions. The questions were designed to solicit objective opinions on the level of interest in partnering on pre-incident planning activities, satisfaction levels of current practices, benefits and drawbacks of a joint-use plan, and other potential partners in the effort. The specific questions asked each of the three representatives are shown in Appendix D.

The findings of the interview with R. Riordan and G. Gilbert (personal communications, November 20, 2008) and the interview with T. Jamison (personal communications, December 5, 2007) are presented in the Results Section along with findings of the *San Ramon Valley Aerial Photo-based Preplan Questionnaire* (SRVAPQ) and the *National Pre-incident Planning Questionnaire* (NPIPQ).

Limitations

Questionnaires

A limitation of the research is that it is not known if, or how often, the link on the final screen of the *National Pre-incident Planning Questionnaire* (NPIPQ) (Appendix F) was forwarded or utilized. This potentially creates sample bias if subscribers to the Daily

Dispatch are not representative of the fire service as a whole. Also, since no restrictions were placed on the participant pool and all subscribers in all states were presented with same opportunity to click the ad links leading to the questionnaire an additional limitation is the assumption that preplan practices are not different for various sizes and types of agencies. The questionnaire targeted fire service members in all fifty states and in all size and types of agencies. The respondents that provided demographic information showed that thirty-eight states were included. Seventy-three respondents did not indicating their state. The researcher believes this audience is appropriate however for the universally applicable research questions posed in this research. Nothing technically prevented participants from answering the questionnaire more than once.

All captains who participated in the SRVAPQ used the same questionnaire. The questionnaire was only available online. Participants were not provided any instruction beyond basic navigation within the questionnaire. Participants were allowed to move forward or backwards within the questionnaire and to change previous responses until they exited. Participants were not required to complete the questionnaire once underway and could exit at any point. Participants could not return and complete an incomplete questionnaire once they exited. Completed questions from incomplete questionnaires were included in the final results. No time restrictions were placed on the participants.

All respondents who participated in the NPIPQ used the same questionnaire. The questionnaire was only available online. Participants were not provided any instruction beyond basic navigation within the questionnaire. Participants were only allowed to move forward within the questionnaire so were not able to back up and change responses on previous pages. Participants were not required to complete the questionnaire once

underway and could exit at any point. Participants could not return and complete an

incomplete questionnaire once they exited. Completed questions from incomplete

questionnaires were included in the final results. No time restrictions were placed on the

participants.

Definition of Terms

Aerial photo-based pre-incident plan. A form of pre-incident plan that utilizes

aerial photography of target buildings or other locations as a basis for the survey or plan

document (Grube, 2005).

Aerial photography. Aerial photography is the taking of photographs from above

with a camera in or mounted to an aircraft (Webster's Online Dictionary, 2008).

Common Operating Picture. A single identical display of relevant information

shared by more than one command. A common operational picture facilitates

collaborative planning and assists all echelons to achieve situational awareness (U.S.

Joint Forces Command, 2008).

Computer-aided design tool. A sophisticated software package containing

advanced graphics and drawing features. Used by engineers, architects, and designers for

drawing and design applications (MassMind, 2008).

Drafting. The practice of creating accurate representations of objects for

technical, architectural and engineering needs. A practitioner of the craft is known as a

draftsman. Today the mechanics of the drafting task have been greatly accelerated

through the use of Computer-aided systems (Merriam-Webster Online Dictionary, 2008).

Emergency Preparedness Manager. An Emergency Preparedness Manager has

the knowledge, skills and ability to effectively manage a comprehensive emergency

management program including mitigation, preparedness, response and recovery (International Association of Emergency Managers, 2008).

First Responder. The term "first responder" refers to those individuals who in the early stages of an incident are responsible for the protection and preservation of life, property, evidence, and the environment, including emergency response providers as defined in section 2 of the Homeland Security Act of 2002 (6 U.S.C. 101), as well as emergency management, public health, clinical care, public works, and other skilled support personnel (such as equipment operators) that provide immediate support services during prevention, response, and recovery operations. (Homeland Security Presidential Directive, 2003).

JPEG. JPEG (pronounced "jay-peg") is a digital file format designed for compressing and storing still images of natural, real-world scenes. JPEG stands for Joint Photographic Experts Group, the original name of the committee that wrote the standard (Internet FAQ Archives, 2008).

Microfiche. A microfiche is a 4 by 5 inch (10.2 by 15.2 cm) piece of photographic film, containing printed information in a size too small to be seen by the naked eye. The major advantages of microfiche include storage in a small space, stability of the format, and no special knowledge needed to read it. As long as a microfiche machine is available to magnify the print to readable size, anyone who can read the language can read a microfiche (Wisegeek, 2008).

Mobile data computer. A mobile data computer (MDC) is an in-vehicle computer (mounted in the fire apparatus) and is primarily used to communicate with the computer-

aided dispatch system and supporting applications. An MDC may also provide other functionality such as Internet access (Rossback, 2005).

NPIPQ. An abbreviation for the National Pre-incident Planning Questionnaire created for this applied research project.

Portable Document Format. The Portable Document Format (PDF) is the file format created by Adobe Systems in 1993 for document exchange. PDF is fixed-layout document format used for representing documents in a manner independent of the application software, hardware, and operating system. Each PDF file encapsulates a complete description of a document that includes the text, fonts, images, and graphics that compose the document (Wikipedia, 2008).

Pre-fire planning. Pre-fire planning is technically a subset of all-risk pre-incident planning specifically addressing pre-event planning for fire incidents (Codino, 2007).

Pre-incident planning. Documentation of the protection, construction and operational features of an occupancy for use by responding personnel to manage fire and other emergencies (National Fire Protection Association [NFPA], 2003).

SRVAPQ. An abbreviation for the San Ramon Valley Aerial Photo-based Preplan Questionnaire created for this applied research project.

SRVFPD. An abbreviation for the San Ramon Valley Fire Protection District, the focus agency of this applied research project. The district is located in San Ramon, California.

Survey Monkey. Survey Monkey is web-based tool for the creation of online surveys. Its primary strength is its intuitive interface which makes it easy to create and

distribute surveys. It also has the ability to branch questions based on participant

responses and to export collected data in a wide range of formats (Westin, 2005).

Unified Command. Unified Command is an important element in multi-

jurisdictional or multi-agency incident management, as it provides guidelines to enable

agencies with different legal, geographic, and functional responsibilities to coordinate,

plan, and interact effectively (Federal Emergency Management Agency [FEMA], 2008).

Results

The first research question asked what processes and methods can be employed to

assure that pre-fire plan documents can be produced and maintained in a timely and

accurate manner. Aerial photo-based plans may offer a combination that saves

considerable time and have the precision accuracy of a photograph. But would such plans

meet the practical needs of San Ramon Valley fire personnel. The SRVAPQ (Appendix

E) was developed to make this assessment. The SRVAPQ was used primarily to assess

the feasibility of replacing the existing pre-fire plan procedures with aerial photo-based

plans in the SRVFPD. As shown in Table 1, all respondents (100%) answered that they

preferred the aerial photo-based plans to the existing method.

Table 1

Preferred Pre-fire Plan Method

Response	Percent	Count
Existing "TIPS" pre-fire plan program	0%	0
Aerial photo based pre-fire plan program	100.0%	32
Total		32

The second SRVAPQ question asked the respondents how many pre-fire plan walk-through inspections they felt a fire company could complete every month. This question was asked to contrast the current pre-incident survey rates with the estimated rate that could be achieved with aerial-photo based plans. These results are shown in Table 2.

Table 2

Monthly Pre-fire Plan Frequency

Response	Percent	Count
Less than 1	3.1%	1
1	18.8%	6
2	37.5%	12
3	18.8%	6
More than 3	21.9%	7
Total		32

Although these rates are considerably higher than current methods they are not contrasted since these are only perceived walk-through rates and do not include production time. These numbers show that the SRVFPD officers believe the aerial photo-based plans will result in more pre-incident surveys being completed. To further explore research question one, the third SRVAPQ question asked about general concerns or suggestions that the respondent had about conducting pre-fire plan activities. The aerial photo-based pre-incident plan approach eliminates both the hand drawing and computer redrawing steps of the process. One officer commented that this recovered time could be used to get familiar with more buildings and their layouts. There were several comments related to

keeping the crews together during survey activities. The comments directly related to the aerial format were positive. Several captains reinforced the need for good support and follow up from the Fire Prevention bureau. Although difficult to precisely quantify, comment text strongly supported pre-incident planning activities in general with one even stating that more time should be allocated to them. One comment expressed concern that pre-incident planning activities could be the precursor to company-based code inspections. To further explore aerial photo-based plans in response to research question one, the fourth SRVAPQ question asked for input on possible improvements to the aerial photo based pre-fire sample plans the officer were provided. Although some suggestions for improvement were acknowledged, no negative comments were received in response to the aerial photo-based preplan samples provided. Much of the input focused on suggestions related to incremental improvements in such areas as symbol size, text font and color, building features and hazards to callout, plan indexing, and other matters related to plan annotation.

Research question one sought to identify the processes and methods that could be employed to assure that pre-fire plan documents could be produced and maintained in a timely and accurate manner. With experience, if aerial photo-based plans were deemed effective and acceptable, they would form such a basis by eliminating much of the surveying and drawing requirements. Research question two asked what technology exists that allow pre-fire plan documents to be easily utilized and maintained in both electronic and printed formats. Aerial photo-based plans fit this requirement well since their original format of JPEG (Internet FAQ Archives, 2008) is easily and widely used in

a digital form and is also, by design, well suited for high-quality printing in various formats. The essay/comment responses of the SRVAPQ are detailed in Appendix A.

The NPIPQ (Appendix F) was used to assess the existing pre-fire planning practices and satisfaction levels in fire agencies across the country. The first NPIPQ question was demographic in nature and served primarily to document the validity of the questionnaire distribution. A complete listing of respondents that provided demographic information in response to NPIPQ question one is included in Appendix B, Table B1 (email addresses have been excluded). The results of NPIPQ question two found that over two-thirds of the respondents had access to pre-fire plan documents while enroute to an incident (Table 3).

Table 3

Pre-arrival Access to Pre-fire Plans

Response	Percent	Count
Yes	67.9%	57
No	32.1%	27
Total		84

Of those respondents, nearly all had access to them in a printed form while more than a third could also access them electronically on an MDC or other device, as shown in Table 4.

Table 4

Form Pre-fire Plans are Available to Responding Personnel

Response	Percent	Count
Printed document (books, binders, etc.)	90.8%	139
Electronic (MDC, laptop PC, etc.)	37.9%	58
Other		7
Answered Question		153

NPIPQ question two respondents also reported that in most cases they had no indication

that a preplan existed at the time they were dispatched. Very few were given preplan

information during the initial voice dispatch. Even less received an indication at the time

of dispatch in another form such as a dispatch tear sheet or alphanumeric pager message.

Four percent of the respondents reported that they received the information from dispatch

after the initial dispatch but while they were still enroute to the incident. Fifteen percent

reported that the existence of a preplan was shown on their wall maps or in their map

books. Twenty-four percent reported that their MDC's indicated when a preplan was

available. These indications methods are detailed in Table 5.

Table 5

Indication to Responding Personnel that Pre-fire Plan Exists

Response	Percent	Count
No indication is provided	68.3%	112
Number/alert included in initial voice dispatch	8.5%	14

Alert is included in other dispatch form	7.9%	13
Shown on response maps	15.2%	25
Voice update from Dispatch while enroute	4.3%	7
Indicated on Mobile Data Computer	24.4%	40
Answered Question		164

NPIPQ question five was presented to respondents answering *No* to question two. Answering *No* to question two and *No* to question five would end the survey as these respondents did not have preplan documents available for field use. Seventy-three percent of respondents answering *No* to question 2 also answered *No* to question five.

Twenty-seven percent answered *Yes* indicating that while they did not have access to preplan documents while enroute to an incident, they did once they arrived on scene. NPIPQ question six showed that once on scene most respondents had access to printed plan documents while nearly a quarter had electronic access as detailed in Table 6.

Table 6

Form Pre-fire Plans are Available to Onscene Personnel

Response	Percent	Count
Printed document (books, binders, etc.)	94.1%	16
Electronic (MDC, laptop PC, etc.)	23.5%	4
Fax (sent from Dispatch, etc.)	0.0%	0
Other (Answers: High-Rise Buildings only)		1
Answered Question		17

NPIPQ question seven results, as shown in Table 7, showed that suppression and operations personnel create most pre-fire documents. Thirty-nine percent answered that fire prevention or other risk reduction staff also created pre-fire plans. Very few use outside contractors or other non-employees.

Table 7

Who Creates Pre-fire Plans

Response	Percent	Count
Suppression/Operations personnel	91.4%	149
Fire Prevention/Risk Reduction personnel	38.7%	63
Non-employee consultant/vendor/contractor	3.7%	6
Other (shown below)		10

Work together

The pre-fire plan starts in plan review and is followed by a company officer that goes to the site to finish and provides the needed pictures.

Environmental Health Department provides HM RMPP's.

Fire Inspectors

Chapter 6.95 plans include preplans for only large generator / users of hazardous materials only.

County Fire Marshal while some FD's conduct their own.

New construction permits must be
submitted with CAD drawing.

Plan is to have each occupancy provide
them following a provided template and
instructions

Both operations and fire prevention

Building owner; hazmat only

Answered Question	163

NPIPQ question eight results, as shown in Table 8, indicated that more than half of the respondent's plans have a hand drawn component. Thirty-two percent used commercial software specifically designed for pre-fire plan creation in their process. Thirty-eight percent used other commercial software that was not designed specifically for pre-fire plan creation. Twenty-two percent incorporated aerial photography in their preplanning process.

Table 8

How are Pre-fire Plans Produced

Response	Percent	Count
Hand drawn	54.9%	90
Commercial software, pre-fire plan specific	32.3%	53
Commercial software, not pre-fire plan specific	38.4%	63
Aerial photo-based	22.0%	36
Other (shown below)		9

We are in the process of adding our GIS
satellite photos.

ACD Canvas

ESRI ArcView

Not sure of name

Some commercial drawn; not up to date

We have a mix but future plans will be
responsibility of facility and required to be
maintained under the Fire Code

Google Earth

PowerPoint

Draft completed then final product done
on computer with unknown program; possibly
Red Alert

Answered Question	164

NPIPQ question nine results, as shown in Table 9, indicated that only a small number of respondents were very satisfied with the process they use to create pre-fire plans. Twenty-eight percent answered that they were satisfied. The largest percentage answered that they were somewhat satisfied. Twenty percent of the respondents answered that they were not satisfied.

Table 9

Satisfaction with Current Production Method

Response	Percent	Count
Very satisfied	8.5%	14
Satisfied	28.5%	47
Somewhat satisfied	42.4%	70
Not satisfied	20.6%	34
Total		165

NPIPQ question ten results, as shown in Table 10, indicated that only a small number of respondents were very satisfied with the rate that new pre-fire plans could be created with their current practices. Twenty-four percent answered that they were satisfied. The largest percentage answered that they were somewhat satisfied. More than a third of the respondents answered that they were not satisfied.

Table 10

Satisfaction with Current Production Rate

Response	Percent	Count
Very satisfied	5.5%	9
Satisfied	24.2%	40
Somewhat satisfied	36.4%	60
Not satisfied	33.9%	56
Total		165

NPIPQ question eleven results, as shown in Table 11, indicated that only a small number

of respondents were very satisfied with the accuracy and overall quality of their finished

plans. Forty-one percent the respondents answered that they were satisfied. Forty percent

answered that they were somewhat satisfied. A small number of the respondents

answered that they were not satisfied with accuracy and quality.

Table 11

Satisfaction with Accuracy and Overall Quality of Finished Plans

Response	Percent	Count
Very satisfied	10.3%	17
Satisfied	41.2%	68
Somewhat satisfied	40.6%	67
Not satisfied	7.9%	13
Total		165

NPIPQ question twelve results, as shown in Table 12, indicated how often

individual plans are updated. Only one respondent answered that they updated plans

quarterly. Four percent answered that they were updated every six months. Twenty-two

percent answered that they were updated annually. Thirty-two percent answered that they

were updated as changes occurred or as needed. Twenty-nine percent simply answered

that update periods varied greatly.

Table 12

Approximately How Often are Individual Plans Updated

Response	Percent	Count
Quarterly	0.6%	1
Every six months	4.2%	7
Annually	22.4%	37
Every two years	8.5%	14
As changes occur/as needed	32.1%	53
Varies greatly	29.1%	48
Never	3.0%	5
Other		4

      Not on a schedule, on discovery of fire crew

      Dependent upon how motivated the company officer is to update the plans

      We are in process of updates some are from the 70's

      We are doing our first update in several years

Total		165

NPIPQ question thirteen showed that nearly half the respondents (45.7%) routinely share their preplans with other allied agencies. However, NPIPQ question

fourteen showed that the vast majority (89.1%) of those allied agencies do not participate in the creation of those plans. Of the small number of those that do participate (10.9%), NPIPQ question fifteen results, as shown in Table 13, indicated that most assist by providing supporting or update information. Slightly more than a third actually create a portion or all of the plans. More than half also had policies supporting the preplan effort.

Table 13

How Do Other Allied Agencies Assist With the Creation of Plans

Response	Percent	Count
Provide funding	5.3%	1
Provide supporting or update information	42.1%	8
Produce a share or all of the plans	36.8%	7
Supporting policies	52.6%	10
Other		1
Occupancies/facilities will be required to submit under a proposed change to the City's Fire Code		
Answered Question		19

Also, of the small number that do participate (10.9%), NPIPQ question sixteen showed that respondents answered that building departments were the most common partner (Table 14).

Table 14

Who are the Supporting or Partner Agencies

Response	Percent	Count
Police agency	31.6%	6
School district	21.1%	4
Building department	68.4%	13
Other	36.8%	7
Other, specified (shown below)		6
Adjacent fire agencies via PDF's		
HM business SB198 facilities		
GIS		
Other fire department, Fire		
Contractors and building owners		
Answered Question		19

NPIPQ question seventeen found that only a small number of respondents (15.8%) answered that they have new construction building plan submission policies for the specific purpose of supporting the preplan program. NPIPQ question eighteen asked what plan submission policies were required in support of the preplan program. Two respondents provided details on such policies. The complete text of those essay/comment responses are detailed in Appendix B, Table B2.

Research question three sought to determine if partnerships with allied agencies, such as school districts and police departments, were practical for multiple use building

drawings. With nearly half the respondents indicating that that they routinely share their preplans with other allied agencies, the research shows this approach to be relatively common. However, NPIPQ question fourteen shows that the majority (89.1%) of the work being done on these plans falls on the fire agencies. The entire results of the NPIPQ are detailed in Appendix B.

The purpose of the interviews was to gauge the level of interest in developing a partnership for the creation of joint use pre-incident plan surveys. In the interview with R. Riordan and G. Gilbert (personal communications, November 20, 2008) both agreed that implementing an efficient and effective pre-incident planning program was challenging. They both lacked the staff to create new plans at an acceptable rate and agreed that the quality and currency of their own plan documents varied greatly. Both recognized a significant advantage to creating a common operating picture since joint operations were common. Although there was considerable interest in pursuing this concept, both felt that a review of the state of the art practices in pre-incident planning would need to be completed and form the basis of any new initiative. The only obstacle that was raised was the question of format. It was discussed if a single plan format could simultaneously meet the diverse operational needs of each potential partner. The city and town for example would want surveys that in some cases would cover a whole downtown area for event planning, not just a single structure like the sample fire department plans the researcher presented. This issue would need to be explored further. The researcher asked the two if there were any other potential partners that should be interviewed. They recommended that the researcher meet with T. Jamison, the Emergency Manager for the San Ramon Valley Unified School District (SRVUSD). The meeting adjourned with the two of them

agreeing to discuss the concepts presented with the stakeholders in their respective organizations.

T. Jamison (personal communications, December 5, 2007) was immediately intrigued by the thought of jointly developed plan documents and explained that he had a pressing need to improve the school district's pre-incident planning process. He was asked the same eight questions as R. Riordan and G. Gilbert. He firmly stated his support for the concept and asked to participate in any further discussions the fire district would hold. When asked if he saw any drawbacks to the approach he stated that he did not. These interviews support research question three asking if partnerships with allied agencies, such as school districts and police departments are practical for multiple use building drawings. All three interview participants indicated strong interest when asked the interview question relating to exploring a partnership with the fire district for joint-use plans. They also expressed the general dissatisfaction with current methods and production rates and saw added benefits to creating a common operating picture.

In summary, the results showed that the SRVFPD officers embrace changing to aerial photo-based pre-incident plans and that such a change may allow for more timely and accurate plan creation and maintenance of both printed and electronic plans. The NPIPQ showed that although pre-incident planning programs are commonplace, fire service members across the country are generally not impressed with their current implementations. The NPIPQ also showed that partnerships with allied agencies may not be being used to their full potential in light of the interview results. The interviews suggested that pursuing partnership may offer cost savings opportunities, improved relationships, and more efficient incident operations.

Discussion

The results of the NPIPQ (Appendix F) question, *how satisfied are you with the method you currently use to produce the plans* (Table 9) are interesting. The majority (65%) of the respondents answered that they where either *Not Satisfied* or only *Somewhat Satisfied* with their current pre-fire plan creation methods. With over thirty years of collective fire service experience in creating pre-fire and pre-incident planning documents (Adrianowycz, Chin, Meunier, and Sweeney, 1977), this low satisfaction rate is confounding. With this task clearly so valuable (Volk, 1989) and so important for operational success (Carter, 1989) it seems the fire service would have found a sound, repeatable approach by now. With all the focus and initiatives on agency service levels it is surprising that effective pre-incident planning still appears to be elusive to most agencies. Kalman (1993) reinforced that knowing what you face when you arrive on a scene, the key concept of pre-incident planning, defines in part the service level being provided by the agency.

The responses to the NPIPQ question, *how satisfied are you with the rate at which new plans can be created* (Table 10) are also revealing. Only a small percentage (25%) of respondents answered that they where either *Very Satisfied* or *Satisfied* with their current production rates. The interviews with R. Riordan and G. Gilbert (personal communications, November 20, 2008) confirmed this, at least in their cases, when they stated that they both lacked sufficient staff to create new plans at an acceptable rate. The need for firefighters or other non-drafting professional to hand draw plans in the field and then redraw plans into an electronic format are too cumbersome and core to the problem of poor production. Firefighters are not draftspersons and placing them in this role is

counterproductive. It is fundamentally too far outside their natural and primary skill sets to be an efficient use of their time. Not only are they often slow and inaccurate when performing this task, they look at the buildings through the eyes of a mechanical drawer – not the eyes of a tactical firefighter or strategic company officer. The need to conduct pre-incident planning activities is crucial but how they are created is the dilemma.

Requiring station personnel to redraw the field gathered and drawn information only serves to compound the problem further. The researcher concurs with Coleman, O'Neal and Lasky (2007) when they say that firefighters prefer to perform tasks directly related to their basic job functions. Given a choice, most will prefer operational tasks to mechanical drawing or the computer-aided drawing work of the draftsperson or survey crew. They clearly understand the value and use of the completed plans, but find the complex tasks required to produce the plans diverge significantly from their formal training and skill sets. However, if the time required to create the plans could be recaptured and redirected, far more surveys could be accomplished and improvements in operational effectiveness would logically follow. The research suggests that aerial photo-based pre-incident plans could resolve most of the production issues.

An aerial photo replaces both the need for the field drawing and computer-aided redrawing steps in the plan creation process. This evolutionary approach requires only that preplan symbols or icons be placed on top of an aerial photo image just as Parow (2003) espoused. Creation of such a layer is routine task in most drawing and photo software products available today. In the SRVAPQ (Appendix E) every single SRVFPD officer preferred the aerial photo-based plans to the traditional method (Table 1) – a surprising result. The aerial photo-based plans also attempt to include only the

information needed by first responders which also may have contributed to those results. This point was stressed by Carter (1989) who felt that the information that was included in the plan be carefully weighed for usefulness. He felt the entire program could collapse if the approach sought to gather and document more information than was necessary to allow a responding company to make a practical building size-up while enroute. This also assists in keeping the plans current longer by not including highly dynamic information such as a manager's after-hour telephone numbers or the layout of movable room partitions.

Also revealing was that a large majority of the respondents (70%) that had a preplanning document available to responding personnel had no way of alerting them that a preplan existed for the reported location (Table 5). Finucane and Price (2002) described a system where dispatchers gave unique preplan identification information to first responders. Indicating that a preplan exists, or better yet, providing a preplan number or other reference code at the time of dispatch would likely improve the use of the plans by reminding personnel that they are available for the reported location and by helping them access them faster. Appendix I shows a sample computer-aided dispatch screen that contains such information for dispatcher use. Symbols, colors, or codes could also be placed on wall maps and run books to perform a similar function. Appendix H shows a sample map page that contains such information for first responder use. More sophisticated MDC-based systems should include obvious clues to the existence of a plan as well. Appendix J shows a sample MDC screen that provides such functionality. MDC's create the need for plan documents to be available electronically. Coleman, O'Neal and Lasky (2007) felt that storing the documents in a format that would not

require the use of special software would be beneficial. They specifically discussed the

Adobe PDF format (Wikipedia, 2008) but another universal format, JPEG (Internet FAQ

Archives, 2008), would be an excellent choice for aerial photo-based plans. The name

JPEG stands for Joint Photographic Experts Group, the name of the committee that

created the standard. JPEG is the format nearly all digital cameras use today and

necessarily has broad support.

Another key discovery in this research was the concept of partnering in the

creation of pre-incident plan documents. With the emphasis today being place on

interoperability and the concept of Unified Command by National Incident Management

System (Federal Emergency Management Agency, 2008) initiatives and other mandates,

it make sense for local agencies to create a common operating picture through joint pre-

incident planning documents. Beyond this obvious advantage, partnering creates the

opportunity to strengthen key operational and community relationships, keep documents

accurate and current through more frequent use, and share expenses associated with plan

creation and maintenance. Viera (1993) documented how vital this type of rapport is to

the local agency. Levey (1979) recognized the many advantages of partnering on preplan

projects. The school district is a prime example of this real opportunity. Not only would

the school district likely fund the pre-incident plan development of its schools and other

facilities, it would take a lead role in keeping them accurate. In the San Ramon Valley

Fire Protection District (SRVFPD) jurisdiction, this would represent thirty-seven

relatively complex school facilities that the fire district, to a large degree, would not need

to fund or maintain. The interviews with the three partner agencies unexpectedly created

significant interest and subsequent conversation in the concept. Informal discussions on

the potential approach almost immediately began to occur between the parties

interviewed. Others, including the SRVFPD Fire Chief, began to ask questions about the

meetings. This interest was created with only a single interview indicating to the

researcher that the concept is sound and exciting to others.

In summary, the low satisfaction expressed by the majority of the respondents in

production methods, production rates, and plan accuracy and quality, calls out to the fire

service to explore more efficient and effective ways to produce preplans. Firefighters

could be spending their preplanning time familiarizing themselves with as many

buildings as possible from an operational perspective. Aerial photo-based plans offer an

opportunity to eliminate the most time-consuming and problematic steps and could be

seriously considered. Plans should be reevaluated for necessary and appropriate content

and scaled back to reasonable levels for true operational needs. Adding a notification

component, if one doesn't already exist, could place the plans in action faster and

increase frequency of use. Working cooperatively with key partners might offer

significant benefits including better working relationships both on incidents and off,

provides more opportunity to keep plans current and relevant, and shares personnel and

other program expenses.

Recommendations

The SRVFPD is encouraged to seriously consider overhauling its pre-incident

plan creation methods. The current practice of hand drawing plans and redrawing them to

produce an electronic version is too cumbersome and is leading to low production rates

and in many cases poor quality finished plans. Although a preliminary examination of

aerial photo-based pre-incident plans look very promising, the District should explore the

nuances of this somewhat unproven method.

Aerial photo-based plans offer considerable promise by eliminating the time-

consuming drawing tasks. But are there drawbacks to this method? It is recommended

that the District create a significant number of aerial photo-based pre-incident plans for

field use and testing. These plans should be created in the likeness of the sample plans

created initially for concept review by the SRVFPD officers and incorporate the

suggestions they made in the SRVAPQ. If successful, this method presents the SRVFPD

with the opportunity to greatly increase the production rate of consistent and high-quality

printed and electronic plans potentially leading to improved and safer operational

effectiveness. The SRVFPD should also explore methods to alert personnel to the

existence of the plans at the time of dispatch. This will require changes to the computer-

aided dispatch system and to the printed run books and wall maps in use today. The

district should also consider following up on the initial discussions with the San Ramon

Police Department, the Danville Police Department and the San Ramon Unified School

District on partnering on pre-incident planning activities. In addition, the district should

consider adding additional partners such as the Contra Costa County Sheriff's Office and

the local building officials.

To pursue aerial photo-based plans beyond the conceptual phase, the district will

need to evaluate potential contractors, develop a budget and supporting arguments, and

consider the ramifications of outsourcing work traditionally done by on-duty firefighters.

Policies specifically supporting the preplanning efforts and costs could also be explored.

Requiring a new construction plan to include a site layout page that included standardized

icons or symbols for a predetermined list of key items could lead to simplified plan creation. A fee to fund the aerial photography of new sites might also be investigated.

The NPIPQ (Appendix F) showed that currently there is relatively little use of aerial photography in fire service pre-incident planning. Future research focusing specifically on this topic would likely be useful to the fire service community. That research should more tightly define the term *aerial photo-based* to eliminate confusion with low resolution imagery from satellite and other wide area high elevation photography not specifically designed for pre-incident planning purposes. This research also showed that there are a relatively small number of agencies that have plan submittal requirements specifically supporting pre-incident planning efforts. This would also be an interesting future applied research effort as most agencies would benefit from such policies.

Those desiring to replicate this research should begin by meeting with the stakeholders of the allied agencies who might desire to partner on such an effort. Evaluating the satisfaction level of current efforts in their respective agencies will establish the interest in jointly exploring a new approach or joining forces on an existing method that is proving effective. This meeting might also lead to funding opportunities or grants that are only open to projects with an interoperability component that no single agency could pursue without the other partners.

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Appendix A

San Ramon Valley Aerial Photo-based Preplan Results

Table A1

General Concerns or Suggestions in Regards to Pre-fire Plan Activities

Response
Quantity that can be completed will depend upon other activities during any given month. It is possible that more than three could be done; it is also possible that less than three can be done. Hopefully, the reduced amount of time needed to draw, etc. will allow us to spend more time in the buildings familiarizing ourselves with their layout.
In the two company stations it would be good to get both companies freed up to preplan together.
Cooperation and follow up accountability from the Fire Prevention Bureau whenever it is necessary to have a Knox box installed, water gong replaced etc.
I would like as much notice as possible. I feel it's great to do it as a company.
Question two was hard to answer. There are variables that might (would) change the amount we would be able to cover (i.e. calls, training, details). I would suggest starting out low and "see how it goes". If you're succeeding at one, try two. Give it some time and evaluate. Let's not set ourselves up for failure.
Working ten days a month, and out of those ten days the competing demands of training, move-ups, incidents, daily duties, vacation and trades, can make it difficult to expect more than one preplan every month in my opinion.
Big improvement. User friendly and designed for firefighter use.

Appendix A

San Ramon Valley Aerial Photo-based Preplan Results (Cont.)

Table A1 (Cont.)

General Concerns or Suggestions in Regards to Pre-fire Plan Activities

Response
I believe this is one of the most valuable things we can do to educate and prepare ourselves prior to an emergency.
Not enough time allotted to pre-fire planning.
I would like to take the full crew on the walk-around. It does not make sense to me to leave anyone behind for "Homeland Security" issues stated in the past if we can lock the doors to the vehicles and leave them in a highly visible space. This is being done already which is putting Captains at risk of discipline for using common sense.
I would not want this to become company inspections.
Although captains like to have control of their station it might be good to have a certain number of walk-throughs assigned in a certain period (i.e. complete six in a quarter). This allows captain discretion for specific scheduling but places finite control on completion.
I think this one of the most important activities we can do with our crews. As was suggested in the captains meeting, if we could time our visits with an Inspector, it would increase our knowledge of the businesses and buildings in our area, as well as any potential threats to us that we would not have otherwise thought to look for.
All personnel on the unit participate (nobody stays with the apparatus) Both companies of a two-company station participate.

Answered Question	14

Appendix A

San Ramon Valley Aerial Photo-based Preplan Results (Cont.)

Table A2

Ideas for Improving the Aerial Photo based Pre-fire Plans

Response
Color in the fire hydrants so they stand out more.
In the meeting it was discussed that each preplan would have a number assigned to it. This number would be part of the dispatch ("preplan #150"). I think the aerial view is a good direction to take on this project. My only concern is the arbitrary numbers that are going to be assigned to each one. Despite the fact that it is not the cleanest method, I do like the current way of categorizing the plans alphabetically by the name of the street that they are on. This eliminates the need for a table of contents that needs to be updated every time a new preplan comes out, and makes it convenient for an officer to find the plan whether or not dispatch gave the preplan number.
I'm surprised that we are considering outsourcing. Good work.
Keep it simple; Knox Box, Gas, Electrical, Hydrants.
Perhaps increase the size of the added symbols; make them stand-out more.
Make the symbols larger.
The common symbols: P.I.V's, fire department connections, annunciator panels, Knox boxes, water mains, electrical breaker panels, entrances, stairwells, etc. need to be OVERSIZED for quick and easy reference.
The hazards should be in red and bold. I noticed on one, the overhead power lines were marked, but it was hard to see it because it was in the same font and color as other markings on the pre-fire plan. Other than that it looks good.

Appendix A

San Ramon Valley Aerial Photo-based Preplan Results (Cont.)

Table A2 (Cont.)

Ideas for Improving the Aerial Photo based Pre-fire Plans

Response

The ones you presented looked great.

None, they look good! Wish it was an option over a year ago!!!

Make utility, FDC and PIV indicators larger if possible.

Add East, West and South directional arrows to map. Could symbols be colored, enlarged, etc. to stand out more? May be difficult to read at night.

The example plans are great. The general notes section is obviously very important. In the cases where it won't fit well on the page then maybe it can be placed on an attached sheet, or on the back of the page. The location of Medeco keys is also very important.

Looks great.

More individual building detail, construction features, roof type, alarm panel location, etc.

If there is an abundance of tree cover I would like to see the photo enhanced with computer drawings to show the outline of the building through the trees. The new photo based pre-fire plan is a big improvement as long as all information from the current plans are included.

Make sure there is a good legend.

Appendix A

San Ramon Valley Aerial Photo-based Preplan Results (Cont.)

Table A2 (Cont.)

Ideas for Improving the Aerial Photo based Pre-fire Plans

Response

Internal layout is often more important for large occupancies. Finding interior feature can be challenging even if identified from the outside. Not all occupancies need this but maybe some sort of addendum that gives the internal layout for large square footage or complex occupancies.

I will have to wait and see how the photos and information match up to what we observe during the preplan walk-throughs.

The common symbols: P.I.V's, fire department connections, annunciator panels, Knox boxes, water mains, electrical breaker panels, entrances, stairwells, etc. need to be OVERSIZED for quick and easy reference.

The hydrants and utilities need to be marked better so they do not blend in. If you could fill in the circles with a solid color so they stand out.

If the plans are just as they appeared in the meeting, then they are a vast improvement over the current system. I like the idea of having the page included in the dispatch for quick reference. Maybe on the reverse side of the page, a slightly pulled back view of the building which would show all streets, buildings, etc. that surround the target hazard for easy reference during an emergency (directing units, evacuations, etc.).

Include a legend with symbols/abbreviations; include the SRVFPD map page coordinates.

Answered Question	23

Appendix B

National Pre-incident Planning Results

Table B1

Contact/Agency Information (Question 1)

Response

Brad Goss, Harriman City Fire, 1968 Ruritan Rd, Harriman, TN, 37748

Daniel Ghiorso, Woodside Fire Protection District, 3111 Woodside Rd., Woodside, CA, 94062

Eric Day, South Plattsburgh Fire Department, PO Box 2009, Plattsburgh, NY, 12901

Keith E. Woodley, Ashland Fire & Rescue, 455 Siskiyou Blvd., Ashland, OR, 97520

Richard Lockhart, ███████████████████████

Scott Van Boerum, Green Valley Fire District, 1285 W Camino Encanto, Green Valley, AZ, 85614

Cameron Long, Tulare F.D., 800 S. Blackstone St., Tulare, CA, 93274

John Klopfenstein, King County Fire Marshal Division, 900 Oakesdale Ave SW, Renton, WA, 98058

Walter E. Meredith, Past Chief, Aetna H, H & L. Co, PO Box 0148, Newark, DE, 19715-0148

Bob Hoey, Setauket FD, 190 Main St., East Setauket, NY, 11733

Kevin Lanford, Orange Beach Fire Rescue, PO Box 458, Orange Beach, AL, 36561

Doug Hutchison, Klickitat County Fire District 14, PO Box 101, Lyle, WA, 98653

Bill McHenry, Cheyenne Fire & Rescue, 2101 O'Neil Avenue, Cheyenne, WY, 82001

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response
Steve Lauer, Libby Vol Fire Dept., PO Box 796, Libby, MT, 59923
Loren Renhard, Aurora Fire District, PO Box 231, 21390 Main St., Aurora, OR, 97002
Gerry Gray, Red Bluff FD, 555 Washington St., Red Bluff, CA, 96080
Jeff Clet████████████████████
John House, Oak Island Fire and Rescue, 101 E. Oak Island Drive, Oak Island, NC, 28465
Rod Conway, Keizer Fire District, 661 Chemawa Rd NE, Keizer, OR, 97303
Greg Knoll, Riverdale F.D., 725 West 138th Street, Riverdale, IL, 60827
Jack Northcutt, National Park Service, Crater Lake Engine Company, PO Box 7, Crater Lake, OR, 97604
Mike Ryan, Santa Clara City Fire, 1900 Walsh Ave., Santa Clara, 95050
Paul Becker, Belgium Cold Springs Fire Department., 9017 Dinglehole Rd., Baldwinsville, NY, 13027
Chief Daryl Rausch, City of Monroe Fire Dept., 1110 Eighteenth Avenue, Monroe, WI, 53566-1850
John Waters, Upper Merion Fire Rescue Services, 175 W. Valley Forge Road, King of Prussia, PA, 19406

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response
JoAnne Lewis, Ross Valley Fire Department, 777 San Anselmo Ave., San Anselmo, CA, 94960
James P. Stanton, Kensington Vol Fire Dept., PO Box 222, Kensington, MD, 20895
Michael J. Thompson, Aberdeen Fire and Rescue Department, 111 2nd Avenue SE, Aberdeen, SD, 57401
Jim McFadden, Demarest FD, 44 Highland Ave, Demarest, NJ, 7627
Kent Smead, Vernon Fire/EMS, 1830 Main St., Vernon, TX, 76384
Gert Zoutendijk, Lake Oswego Fire Department, P.O. Box 369, Lake Oswego, OR, 97034
George Crosiar, Stayton Fire District, 1988 W. Ida St., Stayton, OR, 97383
Robert Fash, Las Vegas Fire & Rescue, 500 N. Casino Center Bl., Las Vegas, NV, 89101
Trey Young, City of Weaverville Fire Department, 3 Monticello Road, Weaverville, NC, 28787
Scott Mullen, Stayton Fire District, 1988 W. Ida, Stayton, OR, 97383
Scott Hansen, San Marcos Fire Department, 1 Civic Center Dr, San Marcos, CA, 92069

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Lieutenant Riley, Monroe Twp Fire Dist #2, 130 Applegarth Road, Monroe Twp., NJ, 8850

Jeremy Young, Fort Osage Fire Prot District, 400 East Monroe, Buckner, MO, 64016

Timothy P. Schuck, Upper Dublin Township, 801 Loch Alsh Road, Fort Washington, PA, 19043

Eric Wentworth, McChord AFB Fire and Emergency Services, 555 Barnes Blvd, McChord AFB, WA, 98438

Larry Merkle, Monroe Township Volunteer Fire Dept, 15331 S Dixie Hwy, Monroe, MI, 48161

Glenn Broska, Twinsburg Fire Department, 10069 Ravenna RD, Twinsburg, OH, 44087

Bruce, Peterson, █████████████████████

Greg Benson, Elgin Fire Department, 550 Summit, Elgin, IL, 60120

Thomas M. Konik, Marysville Fire Department, 1355 Delaware Ave., Marysville, MI, 48040-1568

Douglas Brown, Caldwell Fire & Rescue, 310 S. 7th Ave., Caldwell, ID, 83605

M. Kovacs, Murphys Fire Protection District, P.O. Box 1260, Murphys, CA, 95247

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Jim Reid, El Paso County Sheriff's Office, 101 W. Costilla, Colorado Springs, CO, 80903

Albert W. Schlick III, Wauconda Fire District, 109 West Liberty Street, Wauconda, IL, 60084

Nick Hoffman, Mt. Morris Fire Protection District, Mt. Morris, IL, 61054

Sam Phillips, Hillsboro Oregon Fire & Rescue, 240 S First Avenue, Hillsboro, OR, 97123

Daniel Olson, South Kitsap Fire and Rescue, 1974 Fircrest Dr SE, Port Orchard, WA, 98367

Scott Mitchell, Harrisburg Fire & Rescue, PO Box 241, Harrisburg, OR, 97446

Steve Henrichson, St Joseph Fire Department, 401 S 7th, St Joseph, MO, 64507

Mark Wendelsdorf, Caldwell Fire & Rescue, 310 South 7th Ave, Caldwell, ID, 83605

Wallace Holstad, ███████████████████████

Ron Smith, Campbell County Fire Department, 200 Rohan Ave, Gillette, WY, 82716

Robert L. Gill, Fire Chief, Pioneer Fire Protection District, P.O. Box 128, 7061 Mt. Aukum Road, Station-38, Somerset, CA, 95684-0128

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Vance L. Duncan III, City of Erie (PA), Bureau of Fire, 311 Marsh St, Erie, PA, 16508

Gary Foster, Aberdeen Fire Dept., PO Box 852, Aberdeen, ID, 83210

Robert Newell, Hamburg VFD, 5502 Oakridge Drive, Hamburg, NY, 14075

Steve Pegra, City of Xenia Fire Div., 225 E. Main Street, Maineville, OH, 45385

Ethan Holmes, Wyomissing Fire Department, 1259 Penn Ave, Wyomissing, PA, 19610

Curtis Teague, Concord Department of Fire & Life Safety, 100 Warren C. Coleman Blvd N, Concord, NC, 28025

George Glenn, Maumelle Fire Dept., 100 Millwood Circle, Maumelle, AR, 72113

Mike Brown, Mesa Fire Department, 13 W. 1st St., Mesa, AZ, 85201

Jeffrey W. Siems, █████████████████████████

Jacob Boothby, Central Mat-Su Fire Department, 101 W Swanson Ave., Wasilla, AK, 99654

Wayne DePew, Kerhonkson Fire District, 333 Main Street, Kerhonkson, NY, 12446

Adrian Montoya, City of Brea Fire Dept, 1 Civic Center Circle, Brea, CA, 92821

Greg Loveall, Columbia River Fire & Rescue, 270 Columbia Blvd., St Helens, OR, 97051

Bart Hadley, Lawton Fire Department, 623 SW 'D' Ave., Lawton, OK, 73501

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Bill McLaughlin, Whatcom Fire District 4, 4142 Britton Loop, Bellingham, WA, 988226

Don Kinney, Little Rock Fire Department, 624 South Chester Street, Little Rock, AR, 72201

Frank Colelli, Montgomery Township Dept. of Services, 1001 Stump Rd, Montgomeryville, PA, 18936

Bill Wennhold, San Andreas Fire District, PO Box 88, San Andreas, CA, 95249

Larry Rauch, Frankfort Fire District, 333 W Nebraska St, Frankfort, IL, 60423

Mike Lewis, Byron Fire Protection District, PO Box 904, 123 N Franklin St, Byron, IL, 61010

Ron Schindall, South Bossier Fire District Two, 3551 Hwy 527, Elm Grove, LA, 71051

Kenneth Chadwick, Gwinnett County Department of Fire and Emergency Services, 408 Hurricane Shoals Road, Lawrenceville, GA, 30553

Chris Budzinski, City of Brevard Fire Department, 95 West Main Street, Brevard, NC, 28712

Jeff Pricher, Cascade Locks Fire & EMS, P.O. Box 308, Cascade Locks, OR, 97014

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Ted J. Pagels, FIREPROSe, LLC, PO Box 8513, Green Bay, WI, 54308-8513

Watsonville FD, 115 Second St., Watsonville, CA, 95076

Tim Leidig, York Center Fire Protection District, 1517 S. Meyers Road, Lombard, IL, 60148

Chief Todd Hillman, Sandusky Community Fire Department, 161 S. Elk Street, Sandusky, MI, 48471

Jose Periut, ██████████████████████████████

Bill Cherwien, ██████████████████████████████

Mark Einwich, Geneva Fire Department, 200 East Side DR, Geneva, IL, 60134

Russ Marks, Mariposa Public Utility District Fire, PO Box 494, Mariposa, CA, 95338

Matt Fink, East Whiteland Township FD, 170 Planebrook Rd, Frazer, PA, 19355

Marty Nelson, Lane County Fire District #1, P.O. Box 275, Veneta, OR, 97487

A.C. Hosta, Seven Hills F.D., 7195 Broadview Dr, Seven Hills, OH, 44131

Michael Schlags, Santa Barbara County Fire Department, Fire Station No. 18, 17200 Calle Mariposa Reina, Gaviota, CA, 93117

Robert Strauch, Los Banos Fire Department, 333 7th Street, Los Banos, CA, 93635

Al Lawler, Mtn Home AFB FD, 355 Alpine, Mtn Home AFB, ID, 83648

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Bill White, Niles Fire Department, 8360 Dempster, Niles, IL, 60714

W. Jones, ████████████████████████

Mark Shippee, Camp Parks Fire and Emergency Services, 520 Mitchell Drive, Camp Parks, CA, 94568

John F. Fowler, Pendleton Fire and Ambulance Service, 911 SW Court Avenue, Pendleton, OR, 97801

Douglas L. Goodin, San Francisco Fire Department, 175 Apollo Court, Novato, CA, 94947-2878

Thomas J. Maloney, Office of the Fire Marshal Snohomish County, 3000 Rockefeller Avenue, M/S 604, Everett, WA, 98201

Tony Athans, Naval Station Ingleside Fire Dept, 290 Coral Sea Rd. STE 164, Ingleside, TX, 78362

Lt. Steve Bridges, Waco Fire Department, 1016 Columbus Ave., Waco, TX, 76701

Mark C. Goodman, Concord Fire Department, 250 International Drive, Concord, NC, 28027

Michael Ahlin, ████████████████████████

Shane Gattis, Calhan Fire Protection District, 725 4th St., Calhan, CO, 80808

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Archie Koenemund, Sandia National Laboratories, 1611 Inovation Parkway, Mail Stop 1468, Albuquerque, NM, 87123

William Riddle, Sycamore Fire Department, 535 DeKalb Avenue, Sycamore, IL, 60178

Matt Love, Woodmen Valley Fire, 1150 West Woodmen Road, Colorado Springs, CO, 80919

Larry Urban, Hinesville F.D., 103 Liberty St., Hinesville, GA, 31313

John J. Brazil, Harbor RFPD, P.O. Box 2001, Harbor, OR, 67415

Mark Crowley, Tukwila Fire Department, 444 Andover Park East, Tukwila, WA, 98188

Robert Lloyd, Tiverton Fire Department, 85 Main Road, Tiverton, RI, 2878

Tom Lozier, Athol Fire Dept., 2251 Main St, Athol, MA, 1331

David Ury, Black Forest Fire/ Rescue, 11445 Teachout Rd, Colorado Springs, CO, 80908

Jeff Bellinghausen,

Jeremy C. Gardner, Tri-County Fire Protection District, PO Box 97, Rush, CO, 80833

Mark Northrop, Rogue River Fire District, P.O. Box 1170, Rogue River, OR, 97537

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Chief Joseph Michael Carilli, Coventry Volunteer Fire Association Inc., P O Box 1, Coventry, CT, 6238

Jerry Ozog, Hampden Township VFC, 295 South Sporting Hill Road, Mechanicsburg, PA, 17050

Jeff Yeats, Stratmoor Hills Fire Department, 2160 B Street, Colorado Springs, CO, 80906

Dan Smith, Hornell Fire Department, 110 Broadway, Hornell, NY, 14843

Phillip Beckman, Palmer Lake Fire & Rescue, PO Box 302, Palmer Lake, CO, 80133

Capt. Jimmy Grostick, TCFPD#5 / Black Lake Fire Dept, 5911 Black Lake Blvd SW, Olympia, WA, 98512

John Zanzi, Sebastopol Fire Department, 7425 Bodega Ave., Sebastopol, CA, 95472

D. Steven Kepner, Bristol VFD, 4457 Elm Tree Rd., Bloomfield, NY, 14469

Ed Nied, Tucson Fire, 10001 S. Wilmot Rd, Tucson, AZ, 85713

Randy Wilkey, Gardner Volunteer Fire Department, 206 Depot Street, PO Box 523, Gardner, IL, 60424-0523

Bill Nelson, Troy FD, 500 W. Big Beaver Rd., Troy, MI, 48084

Jim Jack, City of Chico Fire Rescue, 842 Salem St., Chico, CA, 95928

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Scott C. Kline, Hoodland Fire District #74, 69634 E. Highway 26, Welches, OR, 97067

Jay Butler, City of San Marcos Fire Department, 1 Civic Center Dr, San Marcos, CA, 92082

Peter LeDuc, Deputy Fire Chief, Riviera Beach Fire Rescue, 600 W. Blue Heron Blvd., Riviera Beach, FL, 33404

Tom Owens, City of Fairfax Fire Department, 4081 University Drive, Fairfax, VA, 22030

David Pinney, Wellsville Volunteer Fire Department, P.O.1156, Wellsville, NY, 14895

Andrew E Pilecki, Wendelville Fire Dept, 4660 Kriston Lande, North Tonawanda, NY, 14120

Stephen Charles, Berthoud Firte Protection District, 275 Mountain Ave., P.O. Box 570, Berthoud, CO, 80513

Clifford L. Mason, Madison Township Fire Department, 4567 Firehouse Lane, Groveport, OH, 43125

Lt. Kevin Brown, Mt. Morris Twp Fire Department, 5413 Bicentennial Dr., Mt. Morris, MI, 48458

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response

Rob Archibald, Coralville Fire Department, 1501 5th Street, Coralville, IA, 52241

Patrick Foley, Waterville Maine Fire Department, 7 College Ave., Waterville, ME

Greg Daugherty, Fort Osage Fire District, 400 E Monroe, Buckner, MO, 64016

Ed Mund, East Olympia Fire District 6, PO Box 578, East Olympia, WA, 98540

Tom Phelps, Philomath Fire & Rescue, PO Box 247, 1035 Main Street, Philomath, OR, 97370

Doug Smith, Clark County Fire Dist. 6, 8800 N.E. Hazeel Dell Avenue, Vancouver, WA, 98665

Steve Wilson, El Centro Fire Department, 775 State Street, El Centro, CA, 92243

Jeremy Channell, Franklin Fire Department, 500 New Hwy 96W, Franklin, TN, 37064

David Herron, ███████████████████████

Justin Buckingham, CALFIRE, 137 Mill Creek Dr, Willits, CA, 95490

Stan Engler, Renton Fire and Emergency Services, 1055 S Grady Way, Renton, WA, 98055

Robert Ladd, Spokane County Fire District 8, PO Box 345, 12100 E Palouse Hwy, Valleyford, WA, 99036

Hugh Stott, West Chicago Fire District, 200 Fremont, W. Chicago, IL, 60185

Appendix B

National Pre-incident Planning Results (Cont.)

Table B1 (Cont.)

Contact/Agency Information (Question 1)

Response
Randy Stites, ███████████████████████████
Ray Maseda, Hartsdale Fire District, 300 West Hartsdale Ave, Hartsdale, NY, 10530
John Stock, Dundee FD, PO Box 220, 759 Hwy 99W, Dundee, OR, 97115-0220
Steve Henrichson, St Joseph Fire Department, 401 S. 7th, St Joseph, MO, 64501
Scott Mullins, Eureka Fire Protection District, PO Box 97, 4849 Highway 109, Eureka, MO, 63025
Richard Boothby, Central Mat-Su Fire Department, 101 W. Swanson Ave., Wasilla, AK, 99654

Answered Question	159

Appendix B

National Pre-incident Planning Results (Cont.)

Table B2

What Do Your Plan Submission Policies Require (Question 18)

Response
"As-Built" drawings provided to the fire department in a standard electronic format for import into our Fire Zone software.
Primarily the building plans must be submitted in a CAD compatible digital format.

Answered Question	2

Appendix C

Daily Dispatch Advertisement Text and Link Screen Capture

Daily Dispatch Announcement Page from December 14, 2007

Dispatch Date: Friday, December 14, 2007

Missouri Valley Association of Fire Chiefs - *A Division of the IAFC*   Wyoming Fire Chiefs Association

THE DAILY DISPATCH   Wyoming

STATE NEWS

Fire strikes Casper diner
Source: Casper Star-Tribune (WY) circ: 30,600
Indexed At: 12/14/07 10:30 AM
Abstract: ... the popular diner's vent system, said Casper Fire-EMS Fire Prevention Officer Justin Smith. Details on damage to the restaurant weren't immediately available, but the building ...

Keep an eye out for emergency workers
Source: Cheyenne Wyoming Tribune-Eagle (WY) circ: 15,400
Indexed At: 12/14/07 8:42 AM
Abstract: ... or vehicles involved. For Karl Zunker, Laramie County Fire District 10 chief, that concern was validated Wednesday when he was struck by a tractor-trailer while ...

ANNOUNCEMENTS

- *****San Ramon Valley FPD Conducting Survey on Pre-Fire Planning** - Take their brief questionnaire!
- **Atlanta Firefighters Make Daring Rescue** - Car Dangling from Parking Deck
- **Fire Service Bookstore** - Get your PHTLS products here!
- **Take-5 Safety Drills** - New Set - Safety Drill Resources for your Organization
- **Volunteer Responder Incentive Protection Act** - Close to Passage - Contact Your Senators
- 2008 Harvard Fire Executive Fellowship Program - Application Procedures Announced
- FEMA/DHS Fire Act Grant Award Announcements - Search for grants awarded in your state
- Firefighter Fatality Investigation Report - NIOSH: Tennese - FF Falls through Floor
- Firefighter Fatality Investigation Report - NIOSH: New York - Floor Collapse Claims 2 FFs
- FireRescue GPO - Announcing Publicly Awarded Contracts
- House Passes Tax Relief - For Volunteer Firefighters and EMS Personnel
- Houston Firefighters Rescue Seniors from High-Rise - Video
- Our Fallen Heroes - Remembering the the Worcester Cold Storage Warehouse Fire
- Powerpoint Presentation Demonstrates the Importance of PPE - PA Firefighter caught in flashover
- Visit the Daily Dispatch Website - **To view news from other states and late breaking national news**
- Post Announcements at classifieds@dailydispatch.com

Clicking on the hyperlinked text *San Ramon Valley FPD Conducting Survey on Pre-Fire Planning* above would take respondents to another web page containing a headline and three sentence introduction to the survey. The Wyoming page is shown only as an example. All state pages appeared the same with only the State News section changing to reflect state-specific content.

Appendix C

Daily Dispatch Advertisement Text and Link Screen Capture (Cont.)

Survey Introduction Text from Daily Dispatch Announcement Page Link

Respondents clicking on the *click here* hyperlink were taken directly to the online survey.

Daily Dispatch Announcement from January 22, 2008

On January 22, 2008, the text of *The Daily Dispatch* advertisement link was updated as

reflected in the screen capture.

Appendix C

Daily Dispatch Advertisement Text and Link Screen Capture (Cont.)

Daily Dispatch Announcement Page from January 31, 2008

Dispatch Date: Thursday, January 31, 2008

Missouri Valley Association of Fire Chiefs - *A Division of the IAFC*	Wyoming Fire Chiefs Association

THE DAILY DISPATCH   Wyoming

STATE NEWS

Blaze kills 100 animals

        Source: Cheyenne Wyoming Tribune-Eagle (WY) 15400

    Indexed At: 01/30/2008 8:29 PM

      Abstract: ... answering the necessary but painful question when a firefighter asked her to put a dollar amount on the damage. "You can't put a price ...

ANNOUNCEMENTS

- *L-O-D-D **Mississippi** - Walter Clyde Walker Jr., Fire Chief, Collinsville Volunteer Fire Dept., MS
- *L-O-D-D **North Carolina** - Herman S. Jones, Lieutenant, Raleigh Fire Dept., Raleigh, NC
- *L-O-D-D **West Virginia** - Robert L. McAtee, Sr., Firefighter, Huttonsville-Mill Creek Volunteer Fire Dept., Huttonsville, WV
- ***San Ramon Valley FPD Conducting Survey on Pre-Fire Planning** - Last Day to Participate!!!
- **Enhancing Safety Can't Wait** - IAFC Alert
- **Fire Service Bookstore** - Get your PHTLS products here!
- **Firefighter Fatality Report** - NIOSH
- **New Resources on Federal Taxation** - Available on IAFC Website
- **NFA Announces New Online Course** - Command & Control Decision Making at Multiple Alarm Incidents
- **VA Firefighter's Last Words Heard** - Fireground Audio and Report
- 2008 Harvard Fellowship Program Application Date is Soon Approaching - Application Procedures
- Campus Fire Safety Month - Help Raise Awareness
- FEMA/DHS Fire Act Grant Award Announcements - Search for grants awarded in your state
- Firefighter Fatality Investigation Report - NIOSH - 5 Reports
- Firefighter Fatality Investigation Report - PA firefighter trapped by collapsed canopy
- New Wildfire Training Aid for Rural Firefighters - USFA
- NIOSH Firefighter Fatality Investigation Report - Maryland Career FF Dies in Residential Row House Fire
- Powerpoint Presentation Demonstrates the Importance of PPE - PA Firefighter caught in flashover
- Senator Paul S. Sarbanes Fire Service Safety Leadership Award - Nomination Deadline 2-21-08
- Take-5 Safety Drills - New Set - Safety Drill Resources for your Organization
- Visit the Daily Dispatch Website - **To view news from other states and late breaking national news**
- Post Announcements at classifieds@dailydispatch.com

On January 31, 2008, the text of *The Daily Dispatch* advertisement link was updated as reflected in the screen capture.

Appendix D

Allied Agency Interview Questions

1. Do you have an interest in exploring a partnership with the fire district for the

    purpose of jointly creating pre-incident plans?

2. How do you currently produce your pre-incident plans?

3. How satisfied are you with your current methods? What's working and what's not?

4. Are current production rates acceptable?

5. Are you satisfied with the quality and currency of existing plans?

6. What potential benefits and/or drawbacks do foresee in working together to produce

    pre-incident plans.

7. Is the concept of a joint operating picture familiar and/or important to you?

8. Can you identify any other partners that we should consider for this effort?

Appendix E

San Ramon Valley Aerial Photo-based Preplan Questionnaire

San Ramon Valley Aerial Photo-based Preplan Questionnaire

Introduction

As previewed at the September Captain's meetings, the District is considering a new method of creating pre-fire plans for use in both printed (book) form and potentially in a digital format within the new Mobile Data Computers.

All fire captains are being asked to complete this quick four-question survey by October 15, 2007. Your feedback on the following page is appreciated and valued.

Rich

Next >>

San Ramon Valley Aerial Photo-based Preplan Questionnaire

Survey

＊1. Please indicate your preferred pre-fire plan method.

   Continue the existing "TIPS" pre-fire plan program

   Switch to the proposed aerial photo based pre-fire plan program

＊2. In your opinion, how many pre-fire plan walk-through inspections (observation only; no surveying, drawing, etc.) can a single company complete every month?

   Less than 1

   1

   2

   3

   More than 3

Appendix E

San Ramon Valley Aerial Photo-based Preplan Questionnaire (Cont.)

San Ramon Valley Aerial Photo-based Preplan Questionnaire

Survey

3. Please indicate any concerns or suggestions you have in regards to conducting pre-fire plan activities with your company.

4. Please detail any ideas you have for improving the aerial photo based pre-fire plans.

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San Ramon Valley Aerial Photo-based Preplan Questionnaire

Conclusion

Thank you for taking the time to share your thoughts. I'll distribute a link to the results after the survey closes on the 15th.

Rich

[<< Prev]   [Done >>]

Appendix F

National Pre-incident Planning Questionnaire

National Pre-incident Planning Questionnaire
Purpose

As part of the National Fire Academy Executive Fire Officer Program (EFOP) I am currently conducting research on fire department pre-fire planning methodologies. The brief questionnaire that follows will help to document, evaluate, and ultimately share the practices and satisfaction levels of the latest pre-incident survey approaches from across the country. If you have any questions or would simply like a copy of the results of this instrument, please contact me at rprice@srvfire.ca.gov. This questionnaire will close on January 31, 2008.

Richard Price, Assistant Chief, Operations
San Ramon Valley Fire Protection District (CA)

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National Pre-incident Planning Questionnaire
Contact/Agency Information

Please enter your contact information (optional).

Name: _____

Agency: _____

Address: _____

Address 2: _____

City/Town: _____

State/Province: -- select state --

ZIP/Postal Code: _____

Email Address: _____

[<< Prev] [Next >>]

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Pre-arrival Access

Do your responding companies currently have pre-arrival access to pre-fire plans?

○ Yes

○ No

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Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Plan Form

In what form are pre-fire plans available to responding personnel? Please check all that apply.

☐ Printed document (books, binders, etc.)

☐ Electronic (MDC, laptop PC, etc.)

Other (please specify)

[   ]

What indicates to responding personnel that a pre-fire plan exists for the reported incident address? Please check all that apply.

☐ No indication is provided (relies on prior crew knowledge, manually checking an index page, etc.)

☐ Preplan number/alert included in initial voice dispatch

☐ Alert is included in other dispatch form (incident printout, alphanumeric pager, etc.)

☐ Shown on response maps (color-coded parcel or building footprint, preplan symbol, etc.)

☐ Notification given via a voice update from Dispatch while enroute

☐ Indicated on Mobile Data Computer (map symbol, pre-plan button becomes enabled, etc.)

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Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Plan Creation

Who creates your pre-fire plans? Please check all that apply.

☐ Suppression/Operations personnel

☐ Fire Prevention/Risk Reduction personnel

☐ Non-employee consultant/vendor/contractor

Other (please specify)

[ ]

How are your pre-fire plans produced? Please check all that apply.

☐ Hand drawn

☐ Commercial software specifically designed for pre-fire plans (Fire Zone, FireLine, etc.)

☐ Commercial software not specifically designed for pre-fire plans (Visio, AutoCAD, etc.)

☐ Aerial photo based

Other (please specify)

[ ]

How satisfied are you with the method you currently use to produce the plans?

○ Very satisfied

○ Satisfied

○ Somewhat satisfied

○ Not satisfied

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Plan Creation

How satisfied are you with the rate at which new plans can be created?

- ◯ Very satisfied
- ◯ Satisfied
- ◯ Somewhat satisfied
- ◯ Not satisfied

How satisfied are you with the accuracy and overall quality of your finished plans?

- ◯ Very satisfied
- ◯ Satisfied
- ◯ Somewhat satisfied
- ◯ Not satisfied

Approximately how often are individual plans updated?

- ◯ Quarterly
- ◯ Every six months
- ◯ Annually
- ◯ Every two years
- ◯ As changes occur/as needed
- ◯ Varies greatly
- ◯ Never

Other (please specify)

[   ]

[<< Prev]   [Next >>]

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Allied Agencies

Do you routinely share your plans with other allied agencies (Police, School District, etc.)

○ Yes

○ No

Do other allied agencies routinely share in the creation of the plans (funding, production, etc.)

○ Yes

○ No

[<< Prev]   [Next >>]

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire

Allied Agencies

How do other allied agencies assist with the creation of the plans? Please check all that apply.

☐ Provide funding

☐ Provide supporting or update information

☐ Produce a share or all of the plans

☐ Supporting policies (Building Department has special new construction plan submission requirements, etc.)

Other (please specify)

[   ]

Who are the supporting or partner agencies? Please check all that apply.

☐ Police agency

☐ School district

☐ Building department

☐ Other

Other (please specify)

[   ]

[<< Prev]   [Next >>]

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Plan Submission

Do you have any new construction building plan submission policies (such as a required plan page with standardized pre-fire symbols) for the specific purpose of supporting the pre-fire plan program?

⊙ Yes

⊙ No

[<< Prev] [Next >>]

National Pre-incident Planning Questionnaire
Plan Submission Policy Description

What do your plan submission policies require in support of the pre-fire plan program?

[<< Prev] [Next >>]

Appendix F

National Pre-incident Planning Questionnaire (Cont.)

National Pre-incident Planning Questionnaire
Thank you!

I sincerely appreciate the time you have taken to complete this questionnaire. I hope that with your input today, combined with the input of others, the findings and subsequent report will help to reduce risk to our citizens and firefighters by helping first responders be better informed and prepared when they arrive on scene. If you would like additional information on the National Fire Academy Executive Fire Officer Program click here.

Over 10,000 research projects have been completed by EFOP students. If your agency needs information on a fire service topic chances are good that significant research has already been done. The Learning Resource Center (LRC) on the National Fire Academy campus in Maryland maintains one of the country's largest archives of fire service and public safety literature, including these applied research projects.

To improve the quality of this research please share this questionnaire with other agencies by sending them this link:

http://www.surveymonkey.com/s.aspx?
sm=98MEaAFrdWgimGywlB9R_2bw_3d_3d

[<< Prev]   [Done >>]

Appendix G

Aerial Photo-based Pre-incident Survey Samples

Note. From B. Haux (personal communication, December 23, 2007)

Appendix G

Aerial Photo based Pre-incident Survey Samples (Cont.)

Note. From B. Haux (personal communication, December 23, 2007)

Appendix G

Aerial Photo based Pre-incident Survey Samples (Cont.)

Note. From B. Haux (personal communication, December 23, 2007)

Appendix H

Sample Map Page with Preplan Symbols
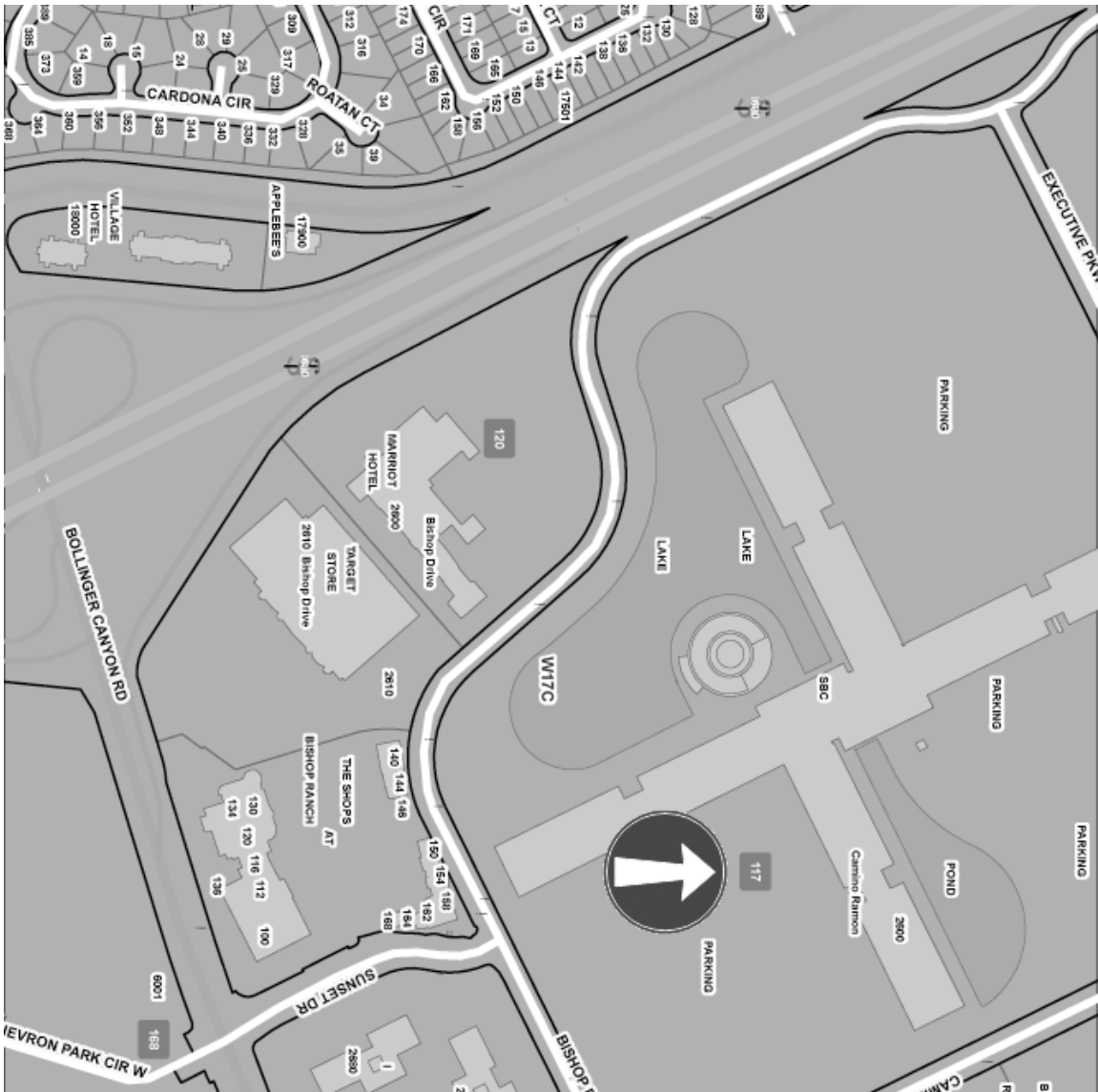
The dark round arrow icon above points to a preplan icon that includes the plan reference number. The round arrow icon is not part of the actual map but was added to the image to highlight the preplan symbol. There are two other preplan symbols on this map image that are not highlighted.

Note. From E. Kennelly (personal communication, January 18, 2008)

Appendix I

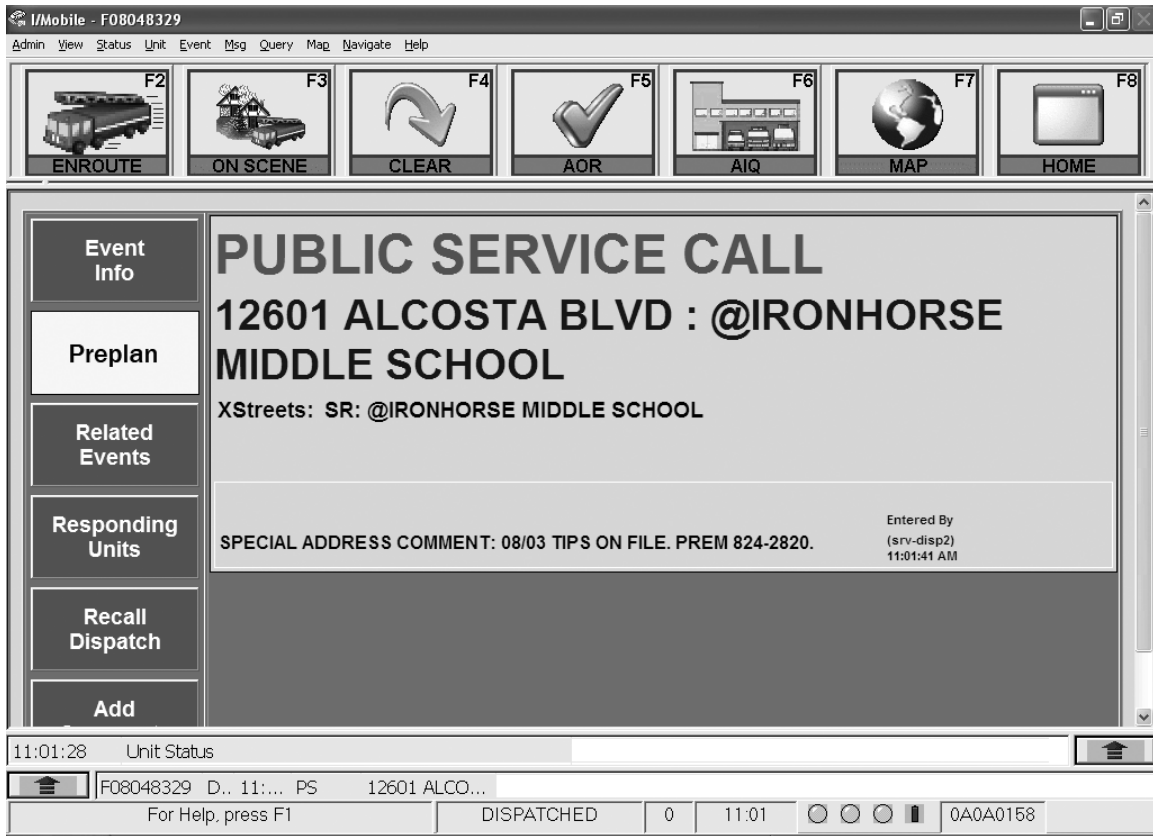Sample Dispatcher Screen Window with Preplan Field

The dark round arrow icon above points to a preplan field on a dispatcher's workstation.

The icon is not part of the actual window but was added to the image to highlight the

preplan field.

Note. From S. Rowan (personal communication, January 18, 2008)

Appendix J

Sample Mobile Data Screen with Preplan Functionality

In this sample Mobile Data Computer application screen, the preplan button has a background color indicating a preplan exists for the incident address. Selecting this button displays the preplan.

Note. From S. Call (personal communication, January 28, 2008)