

Running Head: EVALUATING DISASTER PREPAREDNESS PROGRAMS

Mission Ready: An Evaluation of the Virginia Beach Fire Department
Disaster Preparedness Program

Leading Community Risk Reduction

Thomas E. Poulin
Virginia Beach Fire Department
Municipal Center, Building 21
2408 Courthouse Drive
Virginia Beach, VA 23456

January 2006

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: T.E. Poulin

ABSTRACT

This research evaluated the Virginia Beach Fire Department disaster preparedness program to assess goal achievement. Using questionnaires, improvements to individual, station and departmental preparedness were assessed, while simultaneously identifying if perceptions were impacted by demographics, while also identifying potential program improvements. The findings indicated the majority of the respondents believed individual and organizational preparedness had been improved, but site preparation remained in need of improvement. The findings were not impacted by demographic factors, and recommended improvements included a modified training program based on department-specific needs and an expanded program of disaster exercises.

TABLE OF CONTENTS

Certification Statement..... 2

Abstract..... 3

Table of Contents..... 4

Introduction..... 5

Background and Significance..... 8

Literature Review..... 12

Procedures..... 20

Results..... 33

Discussion..... 47

Recommendations..... 56

Reference List..... 58

Table of Figures

Figure 1: Research Design Model..... 22

Appendices

Appendix A: Evaluation Authorization..... A-1

Appendix B: Questionnaire Blank..... B-1

Appendix C: Survey Advisory..... C-1

Appendix D: Questionnaire Distribution Advisory..... D-1

Appendix E: Survey Follow-Up..... E-1

Appendix F: Questionnaire Response Frequencies..... F-1

Appendix G: Questionnaire Comments..... G-1

Introduction

The Virginia Beach Fire Department (VBFD) is a large, diverse, organization serving a large coastal community in southeast Virginia. As one of the primary emergency response agencies in the city, the VBFD is expected to continue the provision of emergency service during and immediately after a disaster, whether natural or manmade. Prior to 2003, the VBFD had several renditions of a hurricane preparedness plan by which preparations and response were conducted, specifically aimed at the approach, impact and aftermath of a seasonal, Atlantic hurricane. While no community is ever safe from the potential ravages of large-scale disasters, manmade or natural, the historical record suggested that hurricanes were the greatest potential threat to the area, and most efforts were directed towards preparing for the hazards associated with them. Nonetheless, it is not prudent for any locality to ignore the potential threat of a natural or technological disaster, regardless of the identified potential of occurrence, or to fail to prepare to maintain emergency response operations should such a disaster strike, at least to some limited degree.

In December 2003, the Virginia Beach Fire Department (VBFD) initiated a multi-faceted program of disaster preparedness for employees, departmental work sites and the organization as a whole. The program has never been comprehensively evaluated, which could lead to the VBFD continuing processes that are ineffective, inefficient, or that fail to achieve the stated goal of making the VBFD better prepared to maintain operations in times of disaster. The purpose of this research is to evaluate the VBFD disaster preparedness program to

determine if it is achieving its stated goal of making the VBFD better prepared to maintain operations in times of disaster.

The primary research methodology used in this project was evaluative, using a mixed-methods approach, incorporating both quantitative and qualitative epistemologies. The quantitative methods permitted specific measurements to be taken and analyzed, while the qualitative methods involved soliciting broad-based opinions as a means of garnering differing perspectives and greater detail concerning the perceptions of employees. The data collected was analyzed using an interpretivist approach, seeking to understand and explain the materials collected during the research. The research was based on answering the following five research questions:

1. How do employees perceive their personal disaster preparedness level based on the effects of the program?
2. How do employees perceive their facility's disaster preparedness level based on the effects of the program?
3. How do employees perceive the organization's disaster preparedness level based on the effects of the program?
4. How are employee perceptions affected by personal demographic factors?
5. How do employees believe the disaster preparedness program could be improved?

To better understand the research findings, statistical analyses were conducted to identify correlations between specific demographic factors, as well as the correlations between specific reported perceptions of employees. The

data was collected through the responses to a questionnaire distributed to randomly selected employees. The results of these analyses aided in answering the research questions, specifically question four. The analysis of the data was based on the following hypotheses:

1. There is a relationship between the age of an employee and their perception of the effectiveness of the disaster preparedness program.
2. There is a relationship between the sex of an employee and their perception of the effectiveness of the disaster preparedness program.
3. There is a relationship between the educational level of an employee and their perception of the effectiveness of the disaster preparedness program.
4. There is a relationship between the position of an employee and their perception of the effectiveness of the disaster preparedness program.
5. There is a relationship between the disaster-related experience of an employee and their perception of the effectiveness of the disaster preparedness program.

To consider the disaster preparedness program effective, the research results should have suggested employees believed the program increased their preparedness, the preparedness of their work site, and the preparedness of the organization as a whole. Additionally, the results should not have been dependent on extraneous demographic factors such as age, sex, education or rank, which would suggest the perceptions of the program's effectiveness were linked to personal characteristics and not to a linkage between the program and

a process improvement. It was also posited there may have been a correlation between the disaster-related experiences of an employee and their perceptions towards the program, indicative of a belief the program had better prepared employees and the organization for a disaster than it had been under previous hurricane-focused plans.

Background and Significance

The City of Virginia Beach lies in the extreme southeast corner of Virginia. It is bounded on the east by the Atlantic Ocean, on the south by Currituck County, North Carolina, on the north by the Chesapeake Bay, and on the west by the cities of Norfolk and Chesapeake. Virginia Beach covers 310 square miles, and in 2000 had a year round population of 425,257, although in the middle of the tourist season the population may be substantially higher (United States Census Bureau, 2000). It is home to three naval bases, a U.S. Army post, several state parks, a federal wildlife refuge, and portions of an international airport run by a state authority. While largely known as a home to military-related occupations and tourism, the City of Virginia Beach is a growing home for other industries, including phone centers for several national and international companies.

Emergency response in the City of Virginia Beach is provided through an Emergency Response System, comprised of the Fire Department, the Police Department, the Department of Emergency Medical Services, and the Department of Communications and Emergency Technology, which houses the city's 911 center. The Virginia Beach Fire Department is a metro-sized

organization, operating out of nineteen stations, staffing twenty engines, six ladders, two heavy squads, two tankers, and four battalion chiefs on each of the three shifts. In addition, the Fire Department has a separate training facility, fire prevention office, fire education office, fire investigations office, and administrative staff positions sufficient to support the needs of the organization.

The Fire Chief is designated as the Emergency Services Coordinator for the City of Virginia Beach, and is supported in that secondary role by a civilian Deputy Emergency Services Coordinator. The Deputy Emergency Services Coordinator is the focal point for emergency planning in the City of Virginia Beach, serving as a training, advisory and communications resource for all city agencies, as well as for members of the public. An administrative assistant supports him, and the organization is in the process of employing a full-time emergency planner to further support that function.

An identification and analysis of risks for the City of Virginia Beach would suggest that the greatest potential threat to the area would be from hurricanes. While no area is completely free from the potential for other natural hazards, the historical record indicates that other disasters, such as tsunamis, severe earthquakes and volcanism are relatively unknown to the region. The area has been known to be struck by tornados, but the frequency is very low when compared to other regions of the United States, and their impact would likely be very localized. Hurricanes have impacted the area in the past. Early maps of the Hampton Roads region indicate that the northeastern portion of the City of Virginia Beach was an island in the 18th century, and that the mouths of several

rivers have moved some distance since first being charted. A large populated peninsula in Norfolk, VA, known as Willoughby Spit was created by several large hurricanes in the early part of the 19th century. In the past century, Virginia Beach was impacted by the hurricanes in 1933, 1963, 1985, 1998, 2003 and 2004. Clearly, hurricanes are the most probable natural disaster with the potential to devastate the area. Still, it is unwise to plan for only a single type of event.

The VBFD has had formal plans for preparing and responding to hurricanes since 1985, which were developed during the approach of Hurricane Gloria. That plan, and subsequent plans, was aimed primarily at the anticipated hazards and impact of a hurricane. After action reports from that storm, as well as other events since then, suggested employees and organizational management believed better plans were needed if the organization was to continue some level of emergency response during and after a disaster. During the 1990s through 2001, massive brush fires in the east, flooding in the mountains of Virginia, and the terrorist attacks of 1993, 1995 and 2001, reinforced the growing belief that the organization needed to be better prepared for any disaster at any time, as the VBFD would often not have the luxury of time that a slowly approaching hurricane gives for last minute preparations.

In 1973, the National Governor's Association adopted an All-Hazards approach to emergency management. Recognizing that many of the preparatory and response activities for any disaster are similar, they supported the adoption of processes that would seek to provide preparations for all disasters, both

natural and manmade, with necessary adjunctive plans for specific hazards that may be created or exacerbated by specific types of disaster. This was the model used for developing the VBFD disaster preparedness program.

The senior staff of the VBFD approved the disaster preparedness plan in December 2003. The program called for the development of two policies. The first was a Disaster Preparedness Standard Operating Procedure (SOP), and the second was an SOP on Special Event and Long-Term Incident Planning. The first SOP outlined roles and responsibilities related to preparation, response and recovery, while the second provided means for planning and reporting activities during any large-scale event. The disaster preparedness program, as encompassed in the SOPs, also called for basic training in emergency management. All employees were to complete independent study courses from the Emergency Management Institute's (EMI) on-line campus, focusing on the principles of emergency management and preparation for natural disasters. Additionally, all mid- and upper-managers were to take additional EMI courses on emergency planning. This was considered the most cost effective means of providing the training in a rapid and consistent manner, while creating the smallest possible impact on the organization's available time.

The program had been in effect for nearly two years when the evaluation was conducted. In that time, all of the training had been conducted, all of the work sites had been analyzed for the development of site-specific disaster plans, and portions of both SOPs had been implemented for disaster exercises, as well as for approaching storms, such as Hurricane Charlie. While it might be

considered wiser to await the aftermath of a large-scale event to fully evaluate the program, which is not feasible if the process is to be improved continuously. While the possibility of a large-scale disaster is always present, the probability is low. Consequently, the program will have to be evaluated on a partial basis from time to time, with a full evaluation being necessary after a large-scale event does occur. Failure to evaluate the program effectively may mean the organization is wasting resources, and may not achieve the program goal of preparing the organization to maintain operations during and after a disaster.

The research was wholly aligned with the objectives of the Leading Community Risk Reduction course, as it is directed at improving the preparedness of local government to sustain emergency operations to the public during the impact and aftermath of a disaster, potentially reducing the risk the community will face from the impact of the disaster. Simultaneously, this research is aligned with the objectives of the Executive Fire Officer Program, in that it seeks to evaluate and improve services relevant to current emergency management concerns in the United States, which have reached a higher level of salience in the aftermath of Hurricane Katrina.

Literature Review

The literature review for this research focused on three specific areas, all of which were related to the research questions. First, the literature review sought to determine what is considered to be adequate preparations for individuals, and what is the likely impact to those individuals if they are not prepared to weather a disaster, especially as it relates to their capacity to work.

Second, the literature review explored what is considered to be an adequate level of preparation for a work site or structure, in terms of its ability to remain usable during and after a disaster. Last, the literature review examined what appears to be an adequate level of preparation for governmental agencies, especially emergency response agencies, if they are to remain ready to provide some minimal level of service during and after a catastrophic event. Of these, the latter area is of primary concern to this research project, because the research purpose is to evaluate the VBFD disaster preparedness program to determine if it is achieving its stated goal of making the VBFD better prepared to maintain operations in times of disaster (VBFD, 2003, 1).

Much of the information on individual preparation for the average citizen applies equally to the employees of fire departments. The literature suggests that much of what would be considered individual preparation revolves around providing the basic necessities for each person, as well as for the acquisition of items needed for personal comfort (Virginia Department of Emergency Services, n.d., 1; Virginia Department of Emergency Management, n.d., 3). It appears that much of the information available is in the form of pamphlets, handouts, websites and other media developed for distribution to the general public. These media generally provide for basic requirements for human sustenance in times of disaster, suggesting that individuals should make plans to be wholly self-sustaining for a specific time (Virginia Department of Emergency Management, n.d., 2). For many years, the goal was to have individuals prepare themselves for up to three days without outside assistance, but after several large-scale

events in the early 1990s, such as Hurricane Andrew, many of the publications expanded the recommended time frame to five days, or longer (Federal Emergency Management Agency, 1992, 5; Virginia Department of Emergency Services, n.d., 22; Virginia Department of Emergency Management, n.d., 3). The VBFD disaster preparedness program calls for all employees to prepare themselves and their work sites for a minimum of three days, without external assistance.

Internal VBFD documents illustrate the importance of these types of issues in relation to perspectives of individual preparedness. In the remediation plan based on the After Action Report of Hurricane Isabel, it was noted that many in the organization believed the VBFD was remiss in not providing food and water to individuals, nor developed caches of supplies to meet the needs of individuals during a disaster (Pokorski, 2004, 7; Pokorski, 2004, 8). Additionally, during a review of the VBFD Emergency Operations Plan Annex, it was noted these types of issues had arisen in the After Action Reports of several incidents over the years, going back as far as Hurricane Gloria in 1985, suggesting not only the perceived importance of individual preparedness, but the perceived lack of preparation in that area by the VBFD (Poulin, 2004b, 7).

The individual disaster preparedness literature suggests that many aspects of preparedness are essentially the basics of survival. These include providing for water, food, shelter, and hygiene, followed closely by providing for minimal creature comforts in what is anticipated to be a very difficult time (Federal Emergency Management Agency, 1992, 2; Virginia Department of

Emergency Management, n.d., 3; Virginia Beach Office of Emergency Management, n.d., 1). Aside from these basics, the literature also includes stockpiling items unique to the needs of the individual, such as personal medications and cash, especially as pharmacies will likely be closed and power grid disruptions will make acquiring money from banking machines impossible (Federal Emergency Management Agency, 1992, 3; Virginia Beach Office of Emergency Management, n.d., 1; Virginia Department of Emergency Services, n.d., 22). The literature also discusses making plans for family needs, such as having a cell phone, and maintaining contact points outside the affected area, thus providing a relatively secure point in an area untouched by a disaster that may be used as a clearing house for personal and family information, thereby illuminating the importance of redundant communications systems (Virginia Beach Office of Emergency Management, n.d., 1; Virginia Department of Emergency Management, n.d., 2).

The preparation of sites to withstand a disaster may be viewed from two perspectives. The first, within the overall emergency management phase of mitigation, involves structural aspects of the building itself (Haddow and Bullock, 2006, 57). Illustrative of this, designing a structure to withstand the impact of a disaster, or properly insuring the property, will eliminate, or at least lessen, the risk the structure and its occupants shall face (Virginia Department of Emergency Management, n.d., 3; Virginia Department of Emergency Services, n.d., 23). These types of approaches require a concerted effort within the community, relying heavily on the contents of the building code and land use regulations

(Haddow and Bullock, 2006, 58). Some examples of these types of actions include installing hurricane straps on homes, building structures to be resistant to the effects of earthquakes, or flood proofing properties through a variety of means (Federal Emergency Management Agency, 1993, 1; Virginia Department of Emergency Services, n.d., 4).

The second perspective of preparing a site refers to actions the occupants may take as events unfold. These types of activities generally would be considered to fall in the preparation phase of emergency management, and often revolve around last minute, common-sense approaches to protecting goods and property (Haddow and Bullock, 2006, 158). An example of this type of activities would be policing grounds for loose items and debris, should strong winds be anticipated with the event (Federal Emergency Management Agency, 1993, 3; Virginia Beach Office of Emergency Management, n.d., 2). Similarly, taping windows in the approach of a hurricane, sand-bagging properties in anticipation of rising flood waters, or wetting vegetation and making a fire break during the approach of a wildfire are all examples of the latter types of activities associated with making sites better protecting, and therefore safer (Virginia Department of Emergency Services, n.d., 5).

Once more, internal VBFD documents support the perceived importance of site preparedness to employees, while also being illustrative of conflicting views on the subject. The remediation plan for Hurricane Isabel identified the widespread belief the organization should have provided additional chainsaws for the clearing of roadways, despite city-wide plans that placed the primary

responsibility for such tasks on the Highways Department and the Department of Parks and Recreation (Pokorski, 2004, 4; Pokorski, 2004, 8). The VBFD noted such issues could likely be addressed through a combination of training and command exercises, specifically of the Fire Department Control Center, which would support the testing of inter-organizational collaboration, which is incorporated into the disaster preparedness program (Poulin, 2004b, 8; Poulin 2004b, 10).

The VBFD has recognized many of these issues before. In an internal review of the After Action Report for Hurricane Isabel, which pre-dated the VBFD disaster preparedness program, it was reported many employees lacked the training and experience to fulfill certain roles during a disaster (Pokorski, 2004, 2). Additionally, it was noted the organization lacked plans to effectively integrate operations with other agencies of the City of Virginia Beach (Pokorski, 2004, 3). In the After Action Report for the Severe Weather Event, August 12-16, 2004, it was noted even when initiating planning efforts far before the anticipated event, some issues with inter-organizational efforts remained, suggesting an issue requiring additional training for senior personnel who might be called upon to serve in the Fire Department Control Center during some future event (Poulin, 2004a, 10).

Based on the literature review, it would appear that for organizations to be prepared to maintain operations during and after a disaster, it is highly desirable for them to have realistic and updated plans, meeting the needs of their organizations, including both the possibility and probability of a significant

disaster at any time (Bahme, 1978, 21; Heide, 1989, 47; Sylves, 1996, 16). The overall organization plan should include: contingency plans for unexpected events; a means of addressing disrupted communications; sufficient flexibility to permit decentralized decision-making should the chain-of-command become broken; and, support measures for preparation efforts of employees and worksites, recognizing them as invaluable parts of the overall organizational preparedness efforts (Bahme, 1978, 25; Heide, 1989, 82). It is also vitally important that any plans recognize the inter-governmental nature of emergency response in the United States, including the roles played by volunteer organizations (Bahme, 1978, 43; Haddow and Bullock, 2006, 86; Heide, 1989, 53; Heide, 1989, 112; Waugh and Sylves, 1996, 47).

According to the national disaster policies, disasters are considered to primarily be local events, with local emergency responders tasked with the primary responsibility to prepare and deliver an effective response (Haddow and Bullock, 2006, 91; Heide, 1989, 57). When local resources are overwhelmed, state resources may become available, and federal resources may become available once state resources are overwhelmed (Haddow and Bullock, 2006, 91; Waugh and Sylves, 1996, 56). This is highly salient, and should be stressed in the development and communication of any disaster preparedness program.

This is a simplistic view of the process, which does not include the bureaucratic process for documenting damage or requesting aid, or the shortcuts to seeking assistance that are available under unusual circumstances such as obvious terrorist events or the unfolding of an event of national significance, as

defined in the National Response Plan (Haddow and Bullock, 2006, 91). Such details are beyond the scope of this research, but should be kept in mind as one considers the finding of this study.

The VBFD disaster preparedness program addressed many of these issues. There is a training component for all employees, with additional training required of higher-ranking personnel. The program highly recommends individual preparations for each employee and their family, but cannot mandate such activities, off-duty or on-duty, without possibly becoming responsible for the financial burden of preparation efforts. The disaster preparedness program urges on-going efforts to make sites safer, and recognizes that the City of Virginia Beach has made a commitment that all new municipally-owned buildings shall be capable of withstanding a Category 2 hurricane, with winds of 96-100 miles per hour and an anticipated tidal surge of six to eight feet (Virginia Beach Office of Emergency Management, n.d., 3). The disaster preparedness plan and SOPs call for organizational members to work with other organizations inside and outside of city government to achieve its ultimate goal. The program calls for continued training and assessment, insuring the disaster preparedness program remains realistic and relevant (Bahme, 1978, 11; Heide, 1989, 33). Based on the literature review, if the program is effective, it will address the needs of the individual, the work site and the organization, insuring the VBFD is prepared to continue operations in the event of a disaster.

Procedures

This research was focused on evaluating a process change within the VBFD. Evaluation research bears a strong resemblance to both applied and theoretical forms of research, with the primary difference being the perspective of the researcher. Whereas theoretical research focuses on specific phenomena, and while applied research focuses on the development of a process improvement, evaluative research examines the potential benefits of a policy change, and determines whether the process change had an impact on the efficacy or efficiency of a program (Gay, 1987, 2). The initial step to the research project was to solicit departmental authorization for the project, which would lead credence to the effort and support the ultimate goal of the work, which was to develop information for use by the decision-makers of the VBFD to improve the program. The authorization was requested through an e-mail communication to the Fire Chief, and his approval was quickly received (see Appendix A).

Much of the research that is conducted used a single approach, either quantitative or qualitative. Such approaches are often self-limited, requiring the research to focus on a specific aspect of the phenomena, as opposed to seeking a global perspective on the problem being studied. Consequently, many researchers have adopted a mixed-methods approach, which provides for a more practicable means for garnering multiple perspectives, which should lead to a richer pool of data from which to develop more valid interpretations of the materials collected (Creswell, 2003, 18). In this study, the questionnaire

collected a variety of data on demographics and perceptions towards the disaster preparedness process, which could then be used to analyze the data through statistical testing for the quantitative approach, and through an interpretation of the comments for the qualitative approach.

Population

At the inception of this research project, the VBFD included 428 paid employees. This included personnel in the positions of Recruit Firefighter, Firefighter, Master Firefighter, Captain, Battalion Chief, District Chief, Deputy Chief, Fire Chief, and myriad civilian positions. The selection of a population for a research project is highly critical, with the validity and reliability of the results being highly aligned with the selection (Gay, 1987, 102). In this study, which sought to evaluate the effectiveness of disaster preparedness program, the recruit firefighters were excluded from the population, as they would have no frame of reference to determine if the revised disaster preparedness program was a process improvement over past activities. Volunteer members and part-time employees of the organization were also excluded from the study, in that many of the activities deal with routine training, maintenance and logistics, to which they are not party. Including them in the evaluation would likely not have been fruitful, as their views also would have an incomplete frame of reference to make a determination of process improvement. Subsequent to these decisions, the population of the study was identified as the remaining uniformed and civilian full-time employees of the Virginia Beach Fire Department.

Research Variables

A cornerstone of evaluative research is to identify the means for conducting the evaluation prior to beginning substantive work. In this project, that suggested variables should be clearly identified prior to beginning the development of the questionnaire, and that some consideration be given to the means by which the findings of the research would be analyzed (see table 1).

Table 1: Research Variables

<u>Variable</u>	<u>Type of Measure</u>
Age	Nominal
Sex	Nominal
Education	Nominal
Position	Nominal
Disaster Experience: Hurricane Charlie	Nominal
Disaster Experience: Hurricane Isabel	Nominal
Disaster Experience: Hurricane Bonnie	Nominal
Disaster Experience: Hurricane Gloria	Nominal

This is of unquestionable importance in supporting the internal and external validity of the research. By identifying processes for evaluation prior to beginning the work, it is less likely that the data will be manipulated in any way, thereby mutating the results into unsubstantiated form (Gay, 1987, 77).

Research Design

Typically, scientists will carefully design their research to control for extraneous variables or to reduce the influence of their personal pre-conceptions. Such work requires careful, calculated consideration, and may have a strong bearing on the internal and external validity of their work. While an experimental design is desirable, as it may control for most threats to validity, it is not always

practical in real world applications (Andranovich and Riposa, 1993, 51). In the case of this research, there was no pre-testing of employee perceptions prior to the process being changed, nor was there a means to develop a control group as the program impacted all employees. Consequently, the most appropriate research design appeared to be a pre-experimental design known as a one-shot case study (Andranovich and Riposa, 1993, 58; Creswell, 2003, 168).

Figure 1: Research Design Model

X O₁
(Creswell, 2003, 168)

Figure 1 provides a graphic representation of a one-shot case study. The X indicates the research treatment, in this case representing the process change created by the implementation of the disaster preparedness program. The O represents an observation, which in this case is a single observation, representative of the completion of a questionnaire provided during a survey.

Hypotheses: Null and Alternative

The following are the null and alternative hypotheses used in this research.

H_N¹: There is no relationship between the age of an employee and their perception of the effectiveness of the disaster preparedness program.

H_A¹: There is a relationship between the age of an employee and their perception of the effectiveness of the disaster preparedness program.

H_N²: There is no relationship between the sex of an employee and their perception of the effectiveness of the disaster preparedness program.

H_A^2 : There is a relationship between the sex of an employee and their perception of the effectiveness of the disaster preparedness program.

H_N^3 : There is no relationship between the educational level of an employee and their perception of the effectiveness of the disaster preparedness program.

H_A^3 : There is a relationship between the educational level of an employee and their perception of the effectiveness of the disaster preparedness program.

H_N^4 : There is no relationship between the position of an employee and their perception of the effectiveness of the disaster preparedness program.

H_A^4 : There is a relationship between the position of an employee and their perception of the effectiveness of the disaster preparedness program.

H_N^5 : There is no relationship between the disaster-related experience of an employee and their perception of the effectiveness of the disaster preparedness program.

H_A^5 : There is a relationship between the disaster-related experience of an employee and their perception of the effectiveness of the disaster preparedness program.

Hypotheses Testing

Within the parameters of traditional science, researchers use testable hypotheses to prove or disprove theories. These hypotheses are based upon an

evaluation of available information, previous research, and the rationale thought of the researchers. Hypotheses testing are used to mathematically support or reject the hypotheses. Those hypotheses that are repeatedly supported by research become part of the acceptable body of knowledge on the subject, while hypotheses that are rejected are considered incorrect, or at least unproved. Scientists typically use a high statistical standard to test hypotheses. In this project, the conservative measures often used were applied, and the desired confidence level for the hypotheses testing was 95%, with a sampling error of +/- 5% (Creswell, 2003, 109). When the statistical testing was conducted, any result that produced a significance level greater than that associated with the standard noted above led to the rejection of the null hypothesis. Statistical results yielding a significance level lower than that associated with the standard noted above led to the rejection of the hypothesis and the acceptance of the null hypothesis, suggesting the hypothesis was not proven (Creswell, 2003, 110).

This research project used several statistical tests. The five testable hypotheses involved examining the correlational relationships between specific demographic factors and specific perceptions. The demographic factors were nominal variables, while the perceptions had been reported using an ordinal scale. Consequently, the appropriate bivariate test for examining correlations between the variables was the Kruskal Wallis H. Additional statistical testing was conducted to study the correlational relationships between specific perceptions. As this involved the examination of the relationship between two ordinal variables, the appropriate test was a Spearman's Rho for those where the

independent variables number three or more, or the Mann-Whitney U when there were two, dichotomous independent variables (Mendenhall et al, 1999, 685).

These statistical tests would provide mathematical proof of any relationships noted between the variables.

The mathematical calculations for the statistical testing was conducted using version 9.0 of the Statistical Package for the Social Sciences (SPSS), a commercially available computer program used by researchers for such projects.

Questionnaire Development

The development of the questionnaire to be used in the survey involved several distinct phases. The first phase was the basic design, which involved creating an instrument that would elicit information that would answer the research questions. The second phase involved a review of the draft questionnaire, to insure it was clear, understandable, and could be completed by an individual with no assistance. The last phase, that of testing, involved a small-scale evaluation of the questionnaire by having it used by volunteers.

Questionnaire Design

The questions for the questionnaire were designed to solicit opinions that would answer specific research questions. The first question on the questionnaire, seeking the employee's belief in an increase in personal preparedness was linked to the first research question. The second and third question, related to an employee's perception of the program's effect on work site and organizational preparedness, were linked to research questions two and three. The fourth and fifth research question were conceptually linked to

research questions one, two, three and five, as they relate to the organizational policies that frame the disaster preparedness program. The sixth and seventh questions were related to research questions four and five, and they are the core components for the training and activities of the disaster preparedness program.

It was decided to make the questionnaire as simple as possible, making it more “user friendly” for the respondents. Dilman (2003, 305) has reported that many factors can impact the probability that a respondent will complete and return a questionnaire, including the length and complexity of the form, the type of print and color of the paper, and the perception that the input will be utilized to improve a process. Keeping that in mind, the instructions of the questionnaire were kept simple and clear, the format was left uncluttered, and where possible, the respondent could answer by simply making a mark in a specific box. Lastly, aside from contact information that was included to not only provide a means for the respondent to seek clarity, but also to develop a relationship with the research, which should increase the response rate, the researcher specifically included a note concerning the perceived value of the opinions sought. Conceptually, this should have increased the likelihood of the questionnaire being completed and returned.

The first seven questions, which were related to individual perceptions, and the design of the questions used positive statements that could be addressed by the respondent indicating their views using a modified Likert scale, indicating their agreement or non-agreement with the statements on the questionnaire (see Appendix A, page 1). The next two questions sought broad-

based responses to open questions, seeking to gather information not specifically asked in the formal questions. Lastly, on the second side of the questionnaire, the respondent was asked to provide demographic data by checking simple boxes to indicate the appropriate response (see Appendix A, page 2).

Based largely upon the work of Dilman, the questionnaire was designed to elicit a high response rate. It was kept brief, concise, simple and easy to use, identified and addressed concerns for confidentiality, identified the researcher and the purpose of the study, noted the value placed upon the requested information, and could be completed and returned through the inter-office mail with little effort and no expense (Dilman, 2003, 305).

Dilman (2003, 12) wrote that there are many factors that may impact the response rate to a questionnaire, and the widely varied response rate was not uncommon between surveys. He suggested that there were means of making the questionnaire more user-friendly, and that it was possible to increase the potential response rate by advising people that research was going to be conducted, and that their opinions would be solicited and valued (Dilman, 2003, 14; Dilman, 2003, 151). Based on this, a message was sent to all employees of the VBFD, advising them of the purpose of the research, and notifying them that a randomly selected group of employees would be receiving the questionnaires (see Appendix C). When the questionnaires were distributed through the inter-office mail system, another message was sent to all employees advising them of this (see Appendix D). Later, when the deadline for submission of the

questionnaires neared, a follow-up message was distributed to all personnel as a reminder, in case they had received a questionnaire and not completed it yet (see Appendix E).

Questionnaire Review

The initial draft of the questionnaire was shared with the members of the *Leading Community Risk Reduction* course conducted at the National Fire Academy in June 2005. They were asked to review the draft questionnaire, sharing their opinions as Executive Fire Officer Program students to provide their feedback for improvements. The input that was received was considered and, where appropriate, used to modify the questionnaire. The second draft of the questionnaire was shared with two chief officers who were not randomly selected to participate in the survey, as will be described in greater detail in the section on Sample Size and Selection. Both are upper level chiefs in the VBFD, both have graduate degrees, and both are graduates of the Executive Fire Officer Program. Their input was used to make several minor changes and corrections, improving the utility of the questionnaire.

The revised questionnaire was tested by asking several people who had not been selected to participate in the survey to complete it, sharing their comments and questions once they were complete. Though not randomly selected, the people who agreed to test the instrument represented both uniform and civilian employees, and their feedback supported the contention the questionnaire was ready for application.

Sample Size and Selection

When conducting a survey of a population, it is vital that the research sample be carefully selected. It is of inestimable importance the selection be random if the findings of the research are to be generalized from the research sample to the population (Gay, 1987, 102; Gay, 1987, 104; Creswell, 2003, 172). It is quite common for social scientists and academics to rely on convenience samples, as they are more readily available, are generally easily accessible, and may be studied at relatively low costs. However, such convenience samples may create threats to the internal validity of a study, being they may not be truly representative of the population, which may threaten the external validity of the findings (Gay, 1987, 116). The purpose of using a sample from the population is to make inferences and predictions about the population as a whole, which can only be done if the sample truly random and is of sufficient size to provide statistical validity (Gay, 1987, 105).

There are a variety of means for determining the appropriate size of a sample. For the purpose of this research, Dilman's (2000, 206) formula was utilized to computing the appropriate sample size for the survey.

$$N_s = \frac{(N_p)(p)(1-p)}{(N_p-1)(B/C)^2 + (p)(1-p)}$$

Where: N_s = Sample size

N_p = Population size

P = Proportion of population expected to choose one of the

two response categories (a conservative estimate)

B= Sampling error (+/- 5%)

C= Z statistic for confidence level (95%)

For the population being studied in this research, the sample size was determined to be 211.

$$\begin{aligned}
 N_s &= \frac{(428)(.5)(.5)}{(427)(.05/1.96)^2 + (.5)(.5)} \\
 &= 211
 \end{aligned}$$

As a means of verifying the appropriateness of the sample size, an on-line sample size calculator was used to identify a sample size for a population of 428, with a 95% and a sampling error of 5% (Creative Research Systems, 2005, 4). The result of the on-line calculations was 206, which was sufficiently close to suggest the formula was accurate. For the purposes of this study, the assumption was the calculated sample size was more precise and, being larger, was a more conservative estimate. Consequently, a sample size of 211 was used as the basis for the survey.

The course materials for the Executive Fire Officer Program suggest a non-return rate of 20% should be expected for any mail survey, which presumably applies to questionnaires being distributed and collected through inter-departmental mail systems as well (United States Fire Administration, 2004, 38). It is very important the questionnaires elicited a sufficiently large response rate to increase the validity of the findings. If the response rate is too low, the internal and external validity of the data may be compromised (Creswell, 2003,

160). Therefore, the sample size of 211 was increased by 20%, to 253.2, which was rounded up to the nearest whole number, or 254.

To insure the respondents in the survey were randomly selected, a random numbers table was used to choose them (Mendenhall et al, 1999, 734). An alphabetical roster of all Vbfd employees was acquired from the departmental payroll clerk. The names of people excluded from the study, as previously described in the section on population and sample, were crossed off the list. The remaining names were numbered, and the random numbers table was used to select a random sample of employees. Random selection of the sample should have aided in lessening the threat to internal validity, and should have supported the external validity of the findings as they are generalized from the sample to the population.

Limitations

This research focused on a single program in a specific department. While other organizations implementing similar programs may have similar results, the results of this research cannot be generalized to other Vbfd programs, or to other organizations.

The use of a random sample eliminates many of the threats to internal and external validity, controlling for them by the use of experimental groupings. This research did utilize randomly selected employees to participate, but there was no means of establishing a control group within the quasi-experimental research design. Additionally, smaller than desired response rates might negative impact the internal validity of this study. Of the 254 questionnaires distributed, only 105

were returned. This equates to a response rate of 41.34%, which should be taken into consideration when evaluating the results of the research.

Confidentiality

In any organization, anonymity and confidentiality can be key issues in eliciting honest, comprehensive responses to a study of programmatic effectiveness (Gay, 1987, 77; Creswell, 2003, 68). In environments where there is the perceived potential for retaliation for negative responses, confidentiality may be the salve that permits employees to share their personal beliefs with comfort. With this in mind, the completed questionnaires were stored in a box without review as they arrived. Before final processing, they were mixed together to prevent identifying which ones had arrived early or late in the process. For purposes of tracking, the questionnaires were labeled with a numeric identifier only. The list of employees selected to participate in the survey was not shared with anyone in the organization. Lastly, the findings of the study are being reported in aggregate, with no means of identifying specific respondents in the study. These processing methods and practices should provide sufficient guarantee of confidentiality to assuage the concerns of any respondent, though it is recognized that such may not be the case as individual perceptions can vary so greatly.

Results

There were 254 questionnaires distributed to a randomly selected sample of Vbfd personnel, of which 105 were returned, providing a response rate of 41.34%.

Results of Survey Research: Aggregate Results

Table 2 provides an aggregate of the questionnaire results. These results provided information needed to answer the research questions, specifically research questions one through three, and question five.

Research Questions

1. How do employees perceive their personal disaster preparedness level based on the effects of the program?

The results indicate 52.4% of the respondents indicated they agreed the program had increased their individual disaster preparedness level, with 3.8% indicating strong agreement with that statement.

2. How do employees perceive their facility's disaster preparedness level based on the effects of the program?

The results indicate 40.9% of the respondents indicated they agreed the program had increased the disaster preparedness of their work site, with 1.9% of respondents strongly agreeing with that statement.

3. How do employees perceive the organization's disaster preparedness level based on the effects of the program?

The results indicate 52% of the respondents indicated they agreed the program had increased the disaster preparedness of the organization, with 3% of respondents strongly agreeing with that statement.

Table 2: Aggregate Questionnaire Results

Aggregate Questionnaire Results	Strongly Agree	Agree	Neither Agree or Disagree	Disagree	Strongly Disagree	No Response
Individual Preparedness	4 (3.8%)	51 (48.6%)	25 (23.8%)	19 (18.1%)	3 (2.9%)	3 (2.9%)
Site Preparedness	2 (1.9%)	41 (39.0%)	26 (24.8%)	24 (22.9%)	9 (8.6%)	3 (2.9%)
Department Preparedness	3 (2.9%)	49 (46.7%)	29 (27.6%)	12 (11.4%)	7 (6.7%)	5 (4.8%)
SOP OTO 7.10 Meets Needs	3 (2.9%)	49 (46.7%)	31 (29.5%)	17 (16.2%)	2 (1.9%)	3 (2.9%)
SOP OTO 7.11 Meets Needs	2 (1.9%)	49 (46.7%)	31 (29.5%)	12 (11.4%)	6 (5.7%)	5 (4.8%)
EMI Meets Individual Needs	2 (1.9%)	23 (21.9%)	38 (36.2%)	28 (26.7%)	9 (8.6%)	5 (4.8%)
EMI Meets Departmental Needs	2 (1.9%)	23 (21.9%)	36 (34.3%)	27 (25.7%)	12 (12.4%)	4 (3.8%)

4. How are employee perceptions affected by personal demographic factors?

a) *Tables 3 through 10 provide the results of statistical testing on the impact of various demographic factors on employee perceptions towards the disaster preparedness program. The statistical testing did not yield any significant relationships between demographic factors and the perceptions of employees towards the disaster preparedness program.*

b) *Table 11 displays the results of statistical testing on the relationships between differing employee perceptions regarding factors of the disaster preparedness program. The relationships indicated a statistical relationship between all of the factors examined.*

5. How do employees believe the disaster preparedness program could be improved?

a) *The results indicate 52% of the respondents believed that SOP O/TO 7.10 (Disaster Preparedness) served the needs of the organization, with 3% of respondents strongly agreeing with that statement.*

b) *The results indicate 51% of the respondents believed that SOP O/TO 7.11 (Special Event and Long-Term Incident Planning) served the needs of the organization, with 2% strongly agreeing with that statement.*

c) *The results indicate 25% of the respondents reported agreeing that EMI independent study courses met the training needs of individuals, with 2% indicating strong agreeing with that statement.*

d) *The results indicate 25% of the respondents reported agreeing that EMI independent study courses met the training needs of the organization, with 2% strongly agreeing.*

The collected comments provided in response to related question are reported in total in Appendix G.

Table 3: Relationship Between Respondent's Age and Perceptions Towards Disaster Preparedness Program

<u>Age and Perceptions Towards Program</u>	<u>Kruskal-Wallis H</u>	<u>Significance</u>	<u>Degrees of Freedom</u>
Individual Preparedness	9.778	0.440	4
Site Preparedness	4.930	0.295	4
Department Preparedness	4.780	0.311	4
SOP OTO 7.10 Meets Needs	5.026	0.285	4
SOP OTO 7.11 Meets Needs	4.566	0.335	4
EMI Meets Individual Needs	6.025	0.197	4
EMI Meets Departmental Needs	7.248	0.123	4

Table 4: Relationship Between Respondent's Sex and Perceptions Towards Disaster Preparedness Program

<u>Sex and Perceptions Towards Program</u>	<u>Kruskal-Wallis H</u>	<u>Significance</u>	<u>Degrees of Freedom</u>
Individual Preparedness	1.040	.595	2
Site Preparedness	0.993	.609	2
Department Preparedness	3.375	.153	2
SOP OTO 7.10 Meets Needs	2.022	.364	2
SOP OTO 7.11 Meets Needs	0.688	.709	2
EMI Meets Individual Needs	3.247	.297	2
EMI Meets Departmental Needs	2.795	.247	2

Table 5: Relationship Between Respondent's Education and Perceptions Towards Disaster Preparedness Program

<u>Education and Perceptions Towards Program</u>	<u>Kruskal-Wallis H</u>	<u>Significance</u>	<u>Degrees of Freedom</u>
Individual Preparedness	3.514	.621	5
Site Preparedness	7.417	.191	5
Department Preparedness	5.283	.3822	5
SOP OTO 7.10 Meets Needs	3.200	.669	5
SOP OTO 7.11 Meets Needs	3.843	.572	5
EMI Meets Individual Needs	2.744	.739	5
EMI Meets Departmental Needs	1.900	.863	5

Table 6: Relationship Between Respondent's Position and Perceptions Towards Disaster Preparedness Program

<u>Position and Perceptions Towards Program</u>	<u>Kruskal-Wallis H</u>	<u>Significance</u>	<u>Degrees of Freedom</u>
Individual Preparedness	8.575	.127	5
Site Preparedness	7.944	.159	5
Department Preparedness	7.479	.187	5
SOP OTO 7.10 Meets Needs	7.002	.220	5
SOP OTO 7.11 Meets Needs	6.906	.228	5
EMI Meets Individual Needs	4.260	.513	5
EMI Meets Departmental Needs	3.918	.561	5

Table 7: Relationship Between Experience With Hurricane Charlie and Perceptions Towards Disaster Preparedness Program

<u>Experience with Hurricane Charlie and Employee Perceptions</u>	<u>Mann Whitney U</u>	<u>Significance</u>
Individual Preparedness	1031.5	.383
Site Preparedness	1012.5	.323
Department Preparedness	1029.5	.378
SOP OTO 7.10 Meets Needs	1130.5	.901
SOP OTO 7.11 Meets Needs	1113.5	.798
EMI Meets Individual Needs	973.0	.203
EMI Meets Departmental Needs	1107.0	.771

Table 8: Relationship Between Experience With Hurricane Isabel and Perceptions Towards Disaster Preparedness Program

<u>Experience with Hurricane Isabel and Employee Perceptions</u>	<u>Mann Whitney U</u>	<u>Significance</u>
Individual Preparedness	908.5	.970
Site Preparedness	901.0	.921
Department Preparedness	872.5	.733
SOP OTO 7.10 Meets Needs	829.5	.480
SOP OTO 7.11 Meets Needs	866.5	.695
EMI Meets Individual Needs	761.5	.214
EMI Meets Departmental Needs	877.5	.772

Table 9: Relationship Between Experience With Hurricane Bonnie and Perceptions Towards Disaster Preparedness Program

<u>Experience with Hurricane Bonnie and Employee Perceptions</u>	<u>Mann Whitney U</u>	<u>Significance</u>
Individual Preparedness	1139.5	.158
Site Preparedness	1288.5	.716
Department Preparedness	1196.0	.311
SOP OTO 7.10 Meets Needs	1168.5	.227
SOP OTO 7.11 Meets Needs	1259.0	.564
EMI Meets Individual Needs	1318.0	.871
EMI Meets Departmental Needs	1246.0	.518

Table 10: Relationship Between Experience With Hurricane Gloria and Perceptions Towards Disaster Preparedness Program

<u>Experience with Hurricane Gloria and Employee Perceptions</u>	<u>Mann Whitney U</u>	<u>Significance</u>
Individual Preparedness	1216.5	.283
Site Preparedness	1352.5	.896
Department Preparedness	1194.5	.223
SOP OTO 7.10 Meets Needs	1118.5	.206
SOP OTO 7.11 Meets Needs	1329.5	.770
EMI Meets Individual Needs	1324.5	.751
EMI Meets Departmental Needs	1220.0	.311

Table 11: Internal Relationships Between Respondent's Perceptions

<u>Relationships Between Employees' Perceptions</u>	<u>Spearman's Rho</u>
Individual Preparedness and Site Preparedness	.651*
Individual Preparedness and Departmental Preparedness	.690*
Individual Preparedness and SOP OTO 7.10 Utility	.591*
Individual Preparedness and SOP OTO 7.11 Utility	.572*
Individual Preparedness and EMI Utility for Individual Needs	.520*
Individual Preparedness and EMI Utility for Departmental Needs	.564*
Site Preparedness and Departmental Preparedness	.686*
Site Preparedness and SOP OTO 7.10 Utility	.486*
Site Preparedness and SOP OTO 7.11 Utility	.441*
Site Preparedness and EMI Utility for Individual Needs	.404*
Site Preparedness and EMI Utility for Departmental Needs	.501*

Relationships Between Employees' Perceptions (continued)	<u>Spearman's Rho</u>
Departmental Preparedness and SOP OTO 7.10 Utility	.538*
Departmental Preparedness and SOP OTO 7.11 Utility	.497*
Departmental Preparedness and EMI Utility for Individual Needs	.529*
Departmental Preparedness and EMI Utility for Departmental Needs	.469*
SOP OTO 7.10 Utility and SOP OTO 7.11 Utility	.770*
SOP OTO 7.10 Utility and EMI Utility for Individual Needs	.512*
SOP OTO 7.10 Utility and EMI Utility for Departmental Needs	.484*
SOP OTO 7.11 Utility and EMI Utility for Individual Needs	.490*
SOP OTO 7.11 and EMI Utility for Departmental Needs	.529*
EMI Utility for Individual Needs and EMI Utility for Departmental Needs	.831*

*Significance at .01 level (2-tailed)

Discussion

The response rate for the survey was 41.34%, which was substantially lower than the anticipated non-response rate of 20% indicated by the National Fire Academy materials (United States Fire Administration, 2004, 38). This opens up questions to the internal validity of the survey, and must be considered in terms of interpreting the data (Gay, 1987, 102; Gay, 1987, 104). The low response rate is not indicative of a threat to internal validity, however, merely that the possibility of such a threat is heightened when lower than expected response rates occur. The results may have varied if more respondents had returned their questionnaires.

The goal of the VBFD disaster preparedness program was to make the VBFD better prepared to withstand the impact of a disaster, permitting it to continue emergency response operations during and after the impact of a disaster, whether natural or manmade (VBFD, 2003, 1). Consequently, the basis for the evaluation of the process was to be primarily based upon the perceptions of employees regarding an increase in preparedness levels.

Research question one dealt with employees' perceptions regarding the impact the disaster preparedness program had on their individual preparedness. The qualitative and quantitative data collect suggested most respondents agree their individual disaster preparedness had been improved through the program. The results of the survey indicated the majority of the people in the organization (52.4%) believed the disaster preparedness program had made them better prepared, as individuals, to weather the effects of a disaster. This finding

appears significant, in that much of the material on disaster preparation revolves around the capacity of individuals to support themselves for between three and five days, without external support (Federal Emergency Management Agency, 1992, 5; Virginia Department of Emergency Management, n.d., 3). As the resources of many organizations will be overwhelmed in the immediate aftermath of a disaster, employees will likely have to fend for themselves pending the re-establishment of supply mechanisms. The literature supports the vital importance of such basic precautions as the acquisition and stockpiling of water, food, medicine and creature comforts by individuals, stressing it as the foundation of any effective disaster preparedness program (Virginia Department of Emergency Services, n.d., 1; Virginia Department of Emergency Management, n.d., 3). Consequently, it appears the program has introduced or reinforced this perception, leading to an increased understanding and appreciation of the roles and responsibilities of each individual within the overall preparedness program goals of the organization, which was identified as a department issue on previous occasions (Pokorski, 2004, 7; Poulin, 2004b, 7).

Research question two examined employee perceptions of the impact of the disaster preparedness program on departmental work sites. The data collected suggests most respondents do not believe the disaster preparedness program has been effective in making individual work sites better prepared for continued operations after a disaster. The findings indicated only 40.9% of the respondents believed their work sites were better prepared, with only 1.9% strongly agreeing with that belief.

These numbers appear to be reinforced by many of the comments included with the questionnaires (see Appendix G). A large number of the comments were highly critical of the organization, with frequent statements to the effect that the VBFD has failed to adequately prepare the work sites for a disaster, specifically a hurricane. Many of the negative comments suggest the organization has been less than adequate in providing such items as larger generators, greater numbers of supplies, additional storage space for disaster-related goods, or alternative housing for volunteer personnel, employees of other city departments, and VBFD employees called back to duty (Pokorski, 2004, 7; Pokorski, 2004, 8; Poulin, 2004b, 7). Many of these issues relate to mitigation and preparation efforts that, while easily achievable in the construction of new facilities, are not as practicable in existing structures, especially the older ones, where remedies might be very costly (Haddow and Bullock, 2006, 57; Virginia Department of Emergency Management, n.d., 3).

Additionally, the perception appears widespread that the organization has failed to address many of these issues previously, though they have repeatedly been reported in the past. The comments suggest a strong perception the organization should be providing supplies, equipment caches, and additional facility capacity long before a disaster strikes, using funding above and beyond current operational budgets. Such efforts would not appear to be either managerially or legally feasible within the current framework of municipal government with a fiscally conservative budgeting process. Illustrative of this, many respondents appear to believe the VBFD should be acquiring specific

items for specific last-minute preparations based on common-sense approaches to risk, even though such purchasing activities would have a negative impact on the budgetary process, potentially decreasing the ability of the organization to meet daily service demands. This appears to be a strong belief, despite the knowledge the organization will likely make such purchases and preparations once a problem becomes imminent and a disaster has been declared, thereby making the organization eligible for potential reimbursement of the Federal government (Federal Emergency Management Agency, 1993, 3; Hallow and Bullock, 2006, 158; Virginia Beach Office of Emergency Management, n.d., 2).

Additionally, the findings suggest that many employees retain the impression the VBFD has performed insufficiently in preparing individual work sites for the impact of a disaster (Pokorski, 2004, 2; Pokorski, 2004, 3; Pokorski, 2004, 4; Poulin 2004, 10). Clearly, the responses to this question suggest the disaster preparedness program should be revised to address these needs, or to include an educational or communications components that educates employees about what progress has been made in this area, including what plans are being developed to address such matters in the future.

Research question three sought to ascertain employees' perceptions regarding the impact of the disaster preparedness program on the disaster preparedness of the department as a whole. The results indicate the majority of the respondents (52%) believe the organization as a whole is better prepared to withstand the impact of a disaster, which is rationally linked to the belief the organization would be capable of continuing emergency response operations

during and after a disaster, including unanticipated events, if they were better prepared to protect their own resources, facilities and personnel (Bahme, 1978, 21; Heide, 1989, 47; Sylves, 1996, 16). These numbers are indicative of a general belief the disaster preparedness program has been effective achieving the stated goal, including the ability to begin planning in a timely manner, which had previously been identified as a major area of concern (Poulin, 2004a, 2). In general these comments are reflected in the comments provided on the questionnaires (see Appendix G).

The research results indicate that a majority (52%) of the respondents believed the Disaster Preparedness SOP met the needs of the organization, with 3% strongly agreeing with that statement. This suggests a majority or respondents believe issues identified in previous after action reports were addressed in the revised disaster related policies (Poulin, 2004b, 4). The results also indicated a slightly smaller majority (51%) of the respondents believed the Special Event and Long-Term Incident Planning SOP met the needs of the organization, with 2% of the respondents strongly agreeing with that statement. The evaluation appears to suggest the policy elements of the disaster preparedness program have been effective, and the process change was a contributory factor to the improvement in process efficacy (Gay, 1987, 2).

The comments related to the policies received on the questionnaires suggest most respondents believe the policy is far better than those that had previously existed, but there were some doubts as to the ability of the VBFD to implement it effectively, or to train with it on a consistent basis to make all

personnel sufficiently familiar with the policies (see Appendix G), Similar concerns were raised previously by employees concerning disaster preparedness (Poulin, 2004a, 10). This appears to be linked with previously reported employee perceptions the organization has failed to move forward with recommendations developed in the after action reports of previous large-scale events, and that the Vbfd has failed to conduct sufficient, full-scale exercises of disaster-related policies to train effectively all members who might be called upon to fill such roles (Bahme, 1978, 11; Heide, 1989, 33; Pokorski, 2004, 1).

Several comments suggested a divergent view on the existing policies. Some felt they were sufficiently flexible to meet the needs of the organization, permitting for decentralized decision-making and allowing for unusual circumstances, which has been identified as a desirable trait when planning for a catastrophic event that may be very unpredictable (Bahme, 1978, 25; Haddow and Bullock, 2006, 91; Heide, 1989, 82). Others believed the documents were too restrictive, placing needless burdens upon operational crews, especially as they related to activity reporting during operational periods. Other comments suggest some respondents have opposing opinions on the identified structure of the program. Some comments indicate a belief the SOPs are too rigid, eliminating the ability for personnel to effectively adapt to changing situations, while others believe the policies are sufficiently phrased in broad terms to permit such adaptability. This is an issue that might be addressed in the future, through education or policy improvement, as the characteristics of a disaster-related

policy that permit flexibility and decentralized decision-making are often deemed vital (Bahme, 1978, 25; Heide, 1989, 82).

There were also several comments suggesting employees do not understand the inter-agency and inter-governmental nature of disaster response, specifically those issues dealing with role delineation, which was noted in previous VBFD reports, and the ever increasing role played in disaster response and recovery by volunteer and non-profit organizations (Bahme, 1978, 43; Haddow and Bullock, 2006, 86; Heide, 1989, 53; Pokorski, 2004, 4; Waugh and Sylves, 1996, 47). These findings support the comments of previous VBFD internal documents, suggesting that any disaster program will only be effective if the roles of the organization and VBFD employees are clearly identified and the policies are exercised on a widespread basis on a frequent basis (Poulin, 2004b, 8; Poulin, 2004b, 10).

Research question four was concerned with the possibility that employee perceptions might be more strongly impacted by demographic factors than by the disaster preparedness program itself. Statistical testing was conducted on various demographic characteristics of the respondents, including age, education, sex and position in the organization. The testing involved examinations of hypotheses related to potential correlations between the demographic factors, with each being treated as an independent variable, and the reported perceptions of employees, representing the dependent variable.

Because of the relatively low response rate, there is some question concerning the normal distribution of the data, despite a random sample being

used. Consequently, the demographic data was generally considered to be non-randomly distributed. It was also nominal, with limited categories, although all had three or more. Based upon these characteristics of the data, the most appropriate statistical test was the Kruskal Wallis H (Mendenhall et al, 1999, 685). For those demographic factors that were dichotomous, having only two categories, but with all other suppositions being the same, the most appropriate test was the Mann Whitney U.

None of the statistical tests predicated on demographics yielded any significant relationships, suggesting that the null hypotheses could not be rejected, and therefore there is no statistical reason to presume demographic factors influenced the reported perceptions of the employees (Creswell, 2003, 110). Therefore, there is a strong likelihood that the reported perceptions are related to the disaster preparedness program, as opposed to one of the identified factors considered to be a possible influence.

Statistical testing for the relationship between the differing perceptions of employees, where the independent variable was dichotomous, was examined using the Spearman's Rho. The tests indicated a significance of greater than .001, suggesting a strong relationship between the various employee perspectives (Creswell, 2003, 110). While this finding was not related to the impact of demographics on reported perceptions, it was indicative of the internal validity of the questionnaire in exploring factors that were related to one another.

Research question five sought employee opinions on means of improving the disaster preparedness program. The survey results indicated that 25% of the

respondents believed the EMI independent study courses met the training needs of the individual, with 2% of the respondents strongly agreeing with that statement. The survey results indicated that 25% of the respondents believed the EMI independent study courses met the training needs of the organization, with 2% of the respondents strongly agreeing. The data suggests the EMI independent study courses were widely considered insufficient to meet the needs of the individual and the organization. While it appears they were credible as a starting point, there was consensus in the belief the material was too basic, and would have been more effective if it had been tailored specifically to the VBFD and the City of Virginia Beach. Conceptually, while this is a valid point, if a program is too narrowly defined to the needs of the VBFD or the City of Virginia Beach, it might lose information related to the inter-governmental nature of emergency management in large-scale events.

Many of the comments concerning improvements were not specifically aimed at improvements to the program, and were instead recommendations for specific purchases such as water, supply caches, and chainsaws. While these are all matters related to disaster preparedness, they were not specifically related to the program. Consequently, they should be addressed through an educational or communications component clarifying the scope and content of the program, as opposed to being a factor in changing the program content.

Several of the respondents discussed the advisability of developing disaster preparedness training specifically related to the VBFD. While this may be desirable, it would also be a potentially time-consuming and costly process.

When this was discussed previously, it was decided to use the EMI programs as a less costly substitute. Clearly, many respondents considered the EMI programs to be insufficient to meet organizational needs. This would appear to be an issue requiring additional research prior to making any firm recommendations to address, balanced with the realization that any training will have to stress the need to develop intergovernmental relationships with other agencies of Federal, State and local government. It is possible that developing in-house training materials may so limit the scope of the event that, in the event of a large-scale, long-term incident, the vast introduction of Federal, State and private resources may overwhelm VBFD personnel never exposed to such incidents. Additional study is clearly needed on this issue.

Recommendations

Based on this research, the following five recommendations are made to the Fire Management Leadership Team of the VBFD.

1. The VBFD should continue to an all-hazards disaster preparedness program, as encompassed by VBFD SOP O/TO 7.10.
2. The VBFD should continue to review and amend the disaster preparedness program on a regular basis, with a full review after each activation of its processes.
3. The VBFD should develop department-specific training related to disaster preparedness, providing such training through in-services or other means that permit interpersonal interaction. This training should be used to either replace the EMI independent study courses, or to provide more

- organization-specific applications of the generic information provided in the existing EMI programs. Additional research is needed to identify the most appropriate means of providing such training.
4. The VBFD should develop and implement disaster exercises incorporating greater numbers of VBFD personnel, having them play a variety of roles, preparing them for leadership positions, and instilling a deeper understanding of the various roles other organizations play in a disaster.
 5. The VBFD should consider expanding emergency management training for officers, perhaps by requiring the EMI Advanced Professional Series of independent studies courses as pre-cursor. Prior to implementing such a recommendation, it is suggested that additional research is likely necessary to determine if all the courses in the training series would meet identified organizational needs, or if other classes should be substituted that better fill the identified training gaps.

References

- Andranovich, Gregory D., and Gerry Riposa. 1993. *Doing urban research*. Newbury Park, CA: Sage.
- Bahme, Charles W. 1978. *Fire Officer's Guide to Disaster Control*. Quincy, MA: National Fire Protection Association.
- City of Virginia Beach. n.d. *Hurricane Preparedness Information*. [Brochure] Virginia Beach, VA: Virginia Beach Office of Emergency Management.
- Creative Research Systems. 2005. The Survey System. Retrieved July 29, 2005, from <http://www.surveysystem.com/sscalc.htm>.
- Cresswell, John W. 2003. *Research design: Qualitative, quantitative, and mixed methods approaches*, 2nd edition. Thousand Oaks, CA: Sage.
- Denzin, Norman K., and Yvonna S. Lincoln (eds.) 1998. *Collecting and interpreting qualitative materials*. Thousand Oaks, CA: Sage.
- Dilman, Don. A. 2000. *Mail and internet surveys: The tailored design method*, 2nd edition. New York, NY: John Wiley & Sons.
- Federal Emergency Management Agency. 1992. *Emergency Food and Water Supplies: A Family Protection Brochure*. [Brochure] Washington, D.C.: Federal Emergency Management Agency.
- Federal Emergency Management Agency. 1993. *Safety Tips for Hurricanes*. [Brochure] Washington, D.C.: Federal Emergency Management Agency.
- Gay, L.R. 1987. *Educational research: Competencies for analysis and application*, 3rd edition. Columbus, OH: Merrill
- Hadow, George D., and Jane A. Bullock. 2006. *Introduction to Emergency Management*, 2nd Edition. Oxford, U.K.; Butterworth-Heinemann.
- Heide, Erik Auf der. 1989. *Disaster Response: Principles of Preparation and Coordination*. St. Louis, MO: Mosby.
- Mendenhall, William, Robert J. Beaver, and Barbara M. Beaver. 1999. *Introduction to Probability and Statistics*, 10th edition. Pacific Grove, CA: Brooks/Cole Publishing Company.
- Pokorski, Paul J. 2004. After Action Report Review and Recommendation Panel Report: Hurricane Isabel. Technical Report. Virginia Beach, VA: Virginia Beach Fire Department

- Poulin, Thomas E. 2004a. Virginia Beach Fire Department After Action Report: Severe Weather Event, August 12-16, 2004. Technical Report. Virginia Beach, VA: Virginia Beach Fire Department.
- Poulin, Thomas E. 2004b. Annual Review of the Virginia Beach Fire Department Emergency Operations Plan Annex. Technical Report. Virginia Beach, VA: Virginia Beach Fire Department.
- Sylves, Richard T. 1996. "Redesigning and Administering Federal Emergency Management," in (Richard T. Sylves and William L. Waugh, Jr., editors) *Disaster Management in the U.S. and Canada*. (pages 5-25) Springfield, IL: Charles C. Thomas.
- United States Census Bureau. 2000. *Census 2000*. Retrieved July 25, 2005 from http://factfinder.census.gov/servlet/GCTTable?_bm=y&-geo_id=04000US51&-_box_head_nbr=GCT-PH1&-ds_name=DEC_2000_SF1_U&-redoLog=false&-format=ST-2&-mt_name=DEC_2000_SF1_U_GCTPH1_ST7.
- United States Fire Administration. 2004. *Executive Development (R123) Self-study guide*. Emmitsburg, MD: United States Fire Administration
- Virginia Beach Fire Department. 2003. Disaster Preparedness and Response Standard Operating Procedure. VBFD SOP O/TO 7.10. Virginia Beach Fire Department; Virginia Beach, VA
- Virginia Department of Emergency Management. n.d. *Get Ready for Emergencies and Disasters: Developing Your Disaster Plan*. [Brochure] Richmond, VA: Virginia Department of Emergency Management.
- Virginia Department of Emergency Services. n.d. *What to do in an Emergency*. [Brochure] Richmond, VA: Virginia Department of Emergency Services.
- Waugh, William L. Jr., and Richard T. Sylves. 1996. "Intergovernmental Relations of Emergency Management," in (Richard T. Sylves and William L. Waugh, Jr., editors) *Disaster Management in the U.S. and Canada*. (pages 46-68) Springfield, IL: Charles C. Thomas.

Appendix A: Evaluation Authorization

Page 1 of 1

Tom Poulin - Re: Disaster Preparedness Program - Evaluation

From: Gregory Cade
To: Poulin, Tom
Date: 6/28/2005 5:26 PM
Subject: Re: Disaster Preparedness Program - Evaluation
CC: Cover, Steve; Sargent, Chase

yes

>>> Tom Poulin 06/28/05 04:48PM >>>

Chief,

As an EFO project, I want to evaluate the disaster preparedness program implemented in 12/03 (it needs to be done anyhow). I propose evaluating it and then providing the results to the FMLT.

May I have your approval for this project?

Thanks,
Tom

Appendix B: Blank Questionnaire

VBFD Disaster Preparedness Program Evaluation

In late 2003, the VBFD implemented a disaster preparedness program for employees, worksites and the organization as a whole. The purpose of this study is to evaluate the effectiveness of that program, with the aim of improving of our disaster preparedness. Your input is vital and valued. Please take the time to share your views and comments.

Only the results of the questionnaire will be submitted to the FMLT, and there will be no way to identify individual respondents. Please do not write your name on this questionnaire.

Please indicate your agreement or disagreement to each of the following statements:

Statement	Strongly Disagree	Disagree	Neither Agree or Disagree	Agree	Strongly Agree
The VBFD disaster preparedness program has made me better prepared for disasters.					
The VBFD disaster preparedness program has made my work site better prepared for disasters.					
The VBFD disaster preparedness program has made the VBFD better prepared for disasters.					
The <i>Disaster Preparedness and Response SOP</i> meets organizational needs.					
The <i>Special Event and Long-Term Incident Planning SOP</i> meets organizational needs.					
The EMI independent study courses meet the disaster preparedness training needs of employees.					
The EMI independent study courses meet the disaster preparedness training needs of the organization.					

How could the VBFD disaster preparedness program be improved?

Please turn over and complete the other side.

Do you have any other comments concerning the VBFD disaster preparedness program?

The following information will be used to analyze the results of the questionnaire.

Age (check one)

- 25 or under
- 26-35
- 36-45
- 45 or over

Sex (check one)

- Female
- Male

Education (check one)

- High School/GED
- Some college
- Associates
- Bachelors
- Masters
- Beyond Masters

Position (check one)

- Firefighter
- Master Firefighter
- Captain
- Chief Officer
- Civilian

Disaster Experience

Did you work for the VBFD (on-duty or on callback) during any of the following events (check all that apply):

- Hurricane Charlie (2004)
- Hurricane Isabel (2003)
- Hurricane Bonnie (1998)
- Hurricane Gloria (1985)

Please return the completed surveys by interoffice mail to BC T.E. Poulin (Batt. 4-B) by August 1, 2005.

Appendix C: Survey Advisory

Tom Poulin - VBFD Disaster Program - Evaluation

Page 1

From: Tom Poulin
To: firedept
Date: 6/28/05 5:38PM
Subject: VBFD Disaster Program - Evaluation

The VBFD implemented a disaster preparedness program in late 2003, aimed at preparing employees and the organization for a natural or manmade disaster. It involved the training of personnel, disaster planning for all VBFD worksites, and the development of VBFD policies.

The program has never been evaluated for efficiency or effectiveness, and it is time to determine if we are successfully moving towards our program goals.

To aid in the evaluation of the program, a questionnaire will be sent to randomly selected individuals within the organization, representing all divisions, stations, offices and positions. The final results of the study will be shared with the FMLT to determine if and how the process can be improved, making our personnel and organization better prepared for major events.

Only the aggregate results will be reported to the FMLT, so be assured your confidentiality will be maintained. Your in-depth input and professional recommendations will be vital and valued in this effort to improve our processes.

The questionnaires shall be distributed to randomly selected individual through inter-office mail over the next 1-2 weeks. Please take the time to complete and return them.

Please contact me if you have any questions.
Thanks,
Tom Poulin

Appendix D: Questionnaire Distribution Advisory

Page 1 of 1

Thomas E. Poulin

From: Tom Poulin [TPOULIN@vb.gov.com] **Sent:** Sat 8/20/2005 11:43 AM
To: FireDept
Cc:
Subject: Disaster Preparedness Program Evaluation - Questionnaire
Attachments:

A questionnaire has been distributed via inter-office mail to randomly selected members of the VBFD. We are trying to determine if our current disaster preparedness efforts are achieving their goals. If you receive one of the questionnaires, please take the time to complete and return it - your comments are valued.

Thanks in advance,
Tom Poulin

Tom Poulin, Battalion Chief
Virginia Beach Fire Department
Battalion 4 - B Shift
2408 Courthouse Drive, Building 21
Virginia Beach, VA 23456-9065
E-mail: tpoulin@vb.gov.com
Office: (757) 219-2835
FAX: (757) 426-5676

Appendix E: Survey Follow-Up

Page 1 of 1

Thomas E. Poulin

From: Tom Poulin [TPOULIN@vbgov.com] **Sent:** Thu 9/1/2005 11:20 AM
To: FireDept
Cc:
Subject: Disaster Preparedness Evaluation Survey
Attachments:

Several weeks ago, I distributed a survey to evaluate VBFD disaster preparedness efforts to randomly selected members of the organization. I have received a great many completed surveys as of this date.

To those who have completed and returned the surveys - thank you very much.

To those who haven't had an opportunity yet, please take the time to fill out and return the survey as soon as you are able. Your views and recommendations are important to the completion of an effective evaluation,

Thanks,
Tom Poulin

Thomas E. Poulin, M.S. (ABD), MIFireE, AEM(VA)
Battalion Chief
Virginia Beach Fire Department
Battalion 4 - B Shift
2408 Courthouse Drive, Building 21
Virginia Beach, VA 23456-9065
E-mail: tpoulin@vbgov.com
Office: (757) 219-2835
FAX: (757) 426-5676

Appendix F: Questionnaire Response FrequenciesTable F-1: Response Frequency by Employee Age

<u>Age</u>	<u>Frequency</u>
25 or under	1 (1.0%)
26-35	20 (19.0%)
36-45	40 (34.6%)
45 or over	38 (37.5%)
No response	1 (1.0%)

Table F-2: Response Frequency by Employee Sex

<u>Education</u>	<u>Frequency</u>
HS Diploma/GED	11 (10.5%)
Some college	35 (33.3%)
Associate's degree	30 (28.6%)
Bachelor's degree	21 (20.0%)
Master's degree or above	6 (5.7%)
No response	2 (1.9)

Table F-3: Response Frequency by Employee Sex

<u>Sex</u>	<u>Frequency</u>
Male	87 (82.9%)
Female	13 (12.4%)
No response	5 (4.8%)

Table F-4: Response Frequency by Employee Rank

<u>Rank</u>	<u>Frequency</u>
Firefighter	24 (22.9%)
Master Firefighter	33 (31.4%)
Captain	27 (25.7%)
Chief officer	10 (9.5%)
Civilian	10 (9.5%)
No response	1 (1.0%)

Table F-5: Response Frequency by Experience in Hurricane Charlie

Worked for VBFD During Hurricane <u>Charlie</u>	<u>Frequency</u>
Yes	74 (70.5%)
No	31 (29.5%)

Table F-6: Response Frequency by Experience in Hurricane Isabel

Worked for VBFD During Hurricane <u>Isabel</u>	<u>Frequency</u>
Yes	83 (79.0%)
No	22 (21.0%)

Table F-7: Response Frequency by Experience in Hurricane Bonnie

Worked for VBFD During Hurricane <u>Bonnie</u>	<u>Frequency</u>
Yes	61 (58.1%)
No	44 (41.9%)

Table F-8: Response Frequency by Experience in Hurricane Gloria

<u>Worked for VBFD During Hurricane Gloria</u>	<u>Frequency</u>
Yes	49 (46.7%)
No	56 (53.3%)

Appendix G: Questionnaire Comments

How could the VBFD disaster preparedness program be improved?

1. Better disaster preparedness training.
2. Nothing has been done at the station level (ex., generators to be used at (their) fullest capacity.
3. Listen to what the employee's have to say.
4. Do an in-service.
5. Provide the stations with what the SOPs say will be provided.
6. Publicize it.
7. More preparedness and discussions on preparedness need to occur.
8. Currently, personnel are responsible for reviewing the Disaster Preparation SOP and Long Term (Incident) Planning SOP, but we have not conducted tabletop exercises with the VBFD to improve on the incidents we have used the planning for, i.e., Isabel.
9. The VBFD disaster preparedness program could be improved by more proactive involvement by company officers. I.E., if the officer is not motivated, its hard to keep crews motivated. The question becomes how do (you) motivate the company officers to prepare?
10. More involvement with civilians on all of the disaster preparedness training is needed.
11. No improvement needed at this time with SOP. Meets our goals.
12. Work on improving Fail Soft. The noise works on crews (morale) mentally and physically.

EVALUATING DISASTER PREPAREDNESS PROGRAMS G-2

13. Extra chains for saws.
14. We should look at relocating crews and equipment outside the hurricane zone, if its a Category 2 or greater.
15. Practical drill in-service.
16. Chain saws and chains and safety equipment in locker at station.
17. Water on hand for employees.
18. Farm Fresh credit card on hand.
19. Citywide drill.
20. Get the supplies.
21. Implement a plan to house (Police) and Rescue and other (volunteers).
22. (Bedding) area/cooking and (kitchen) area/food storage/bathing and toilet facilities.
23. Pre-cut boards for station windows (not bay door windows).
24. Contract or keep in stock a cache of canned food and bottled water to be donated to charity if not used after the hurricane season.
25. Many deficiencies were noted in station preparedness; however, none of the deficiencies are/can be addressed (i.e., water, supplies, hygiene facilities, etc.)
26. Plan does not address gear adequately. Turn out gear should not be worn, but some type of rain gear should be provided.
27. What is the City plan and how do we fit in to the plan.
28. There should be some follow up on self-study classes.

29. We should address family safety and relocation issues with staff to (insure) that we are able to perform without worrying about family.
30. Decrease the size of the Special Event and Long-Term Incident SOP to basic necessities.
31. Follow current SOPs and provide for (stockpiling) of (MREs) meals-ready-to-eat, water, tetanus shots, and further evaluate for Class 4 hurricane (i.e., where do we send our trucks and people out of affected areas to come back after the event.)
32. Station personnel understand the intent of the SOP, and follow them. However, management will not follow the procedures. When a disaster occurs, station personnel will find that there will not be enough supplies for station personnel and the citizens. It is understood by most station personnel that under adverse conditions deliveries will be limited or unable to be made.
33. Station personnel have asked, and made proposals for many years that a procedure to provide for families of public servants needs be addressed. Lessons learned from other localities has shown that a worker that is concerned for their family members are not at their (peak) performance.
34. The SOP should address alternative means of communication, and prioritize tasks to be performed after an event. It is recognized that communications may be restricted and the community will still expect assistance, and companies may find themselves working independent on

short tasks. The SOP should identify the various (roles) in different tasks (i.e., the evacuation of a health care facility).

35. Codes and regulations require that most commercial properties have an emergency plan, and the plan is required to be approved by the fire service. The plan is required to address several issues that the fire service has traditionally been involved with. The intent of the regulation is to reduce the burden of emergency procedures on localities, and let the business community identify and plan for their specific needs. The FMO should take a large role in educating and enforcing emergency procedures in the business community.
36. After action plans should be reviewed and shared department wide. Each event helps to identify "lessons learned" for our department and the community. With the exchange of information, we will see our services to the community improve.
37. Requests to improve station issues appear to fall on deaf ears. Several requests have been made to improve issues or equipment at the station during (or) after an event and no improvements are ever made, or take years to complete.
38. Management should review the SOP and budget for those supplies are items that are required to be "doubled-up." The hurricane season begins at the end of our budget year, and the standard response is there (are) not supplies or money available. By determining the amount supplies needed

39. to meet the SOP, the monies could be set aside for purchase and delivery prior to the event. After the event, station personnel can continue to use their supplies until they reach below normal requirements.
40. We have met the needs of the organization only on paper. Implementing them physically and financially has yet to be seen.
41. Correct those areas that have been identified as problem areas (i.e., power needs {emergency generator}, hot water).
42. No comment.
43. Use full capacity of station generators.
44. Consider alternative fuels in new stations designed and older station system replacement.
45. Do more practical communications drills. Can we expect to talk to other stations on Channel 16.
46. More research into them.
47. Do not assign too many engine/ladder personnel to stations with inadequate space. Continue to callback personnel early to avoid placing employees in danger during commute to duty assignment quarts, when weather conditions have deteriorated.
48. Provide drinking (water) and reasonable funds for basic provisions (supplies and food) as well as additional equipment (i.e., chainsaws, fuel, oil, etc.).

49. I, myself, cannot give an honest answer concerning the disaster preparedness program or improvements to the program due to the fact that (Company) 5 does not have a copy of the program.
50. It also seems that even though the FMLT asks for suggestions, very little, if any, is done to change the program.
51. It seems to be functioning well at this time.
52. The plan is good. We must remember to follow them and use this plan when disaster is imminent.
53. While wood is considered, the (window) frames should be pre-drilled, wood purchased and stored on-site.
54. Vbfd needs to stockpile food and water for stations, for (personnel) and citizens. If not used at end of season, donate food and water.
55. Provide refresher training periodically (example, before hurricane season) to keep employees familiar with plans.
56. Hands on. practical evolutions are a must!! Must be a higher priority!!
57. Do what we say in SOPs.
58. Don't wait (until) last minute to get the ball rolling.
59. (Insure) all facilities have 100% generating capacity and are properly connected to provide this level of service, and adequate fuel reserves on site to provide 72 (hour) operations.
60. (Insure) that all station personnel are familiar with program, not just supervisors.
61. Do what it says it will do.

62. Increased planning to provide food and water to the station personnel during these events.
63. Bottle water supplies and MREs for 3 days automatically delivered at least 72 (hours) prior to the event.
64. Equipment: Have all facilities upgraded to include emergency generators capable of supplying power to hot water heaters and HVAC units.
65. Food and water should be supplied to all stations!!!
66. During Isabel, our station secured plywood to board up windows in one room. For a secure location, this something the (department) should do.
67. When you implement SOPs (i.e., for storing extra supplies in station, actually deliver them when they are ordered).
68. The chiefs were driving around all shifts and we were filling out all this paperwork, but no lessons were learned, and nothing has improved as far as preparedness.
69. Discrepancies noticed in previous storms still exist, (despite) being written up ad nauseum.
70. More training on the planning documents.
71. Need to have a policy the department can follow.
72. Remove the gray areas of the SOP.
73. Provide equipment to ensure up-to-date weather conditions.
74. Too many generalities in the SOP.

75. One of the largest impacts to the citizens will be tree removal from roadways. I could find no direction in the plan to address the VBFD responsibility to assist.
76. Discontinue the EMI study courses. With the time line put on their completion and the fact that it was mandatory to have them completed, it just put everyone under the gun to just get the answers anyway they could. I believe very little learning was involved by taking these courses.
77. Provide the things the stations need (ex. water, better generators, toilet facilities, bigger refrigerators and freezers.
78. If a disaster happens now the stations are on their own – very little support from the City.
79. Reduce the amount of paperwork required during and after the events. Don't make someone fill out a report saying they haven't done anything since the last report. People won't buy into a program (with) ridiculous requirements.
80. Conduct realistic, integrated (with other departments) training.
81. The EMI courses take care of checking a box but most agree are lackluster
82. Increase the communications gap!! Although e-mail is an excellent medium to send and receive (information), practice face-to-face communication and detailed assignments can perfect the system (This goes for this policy as well as this department!).

83. Better communications from above management – management is to be held accountable.
84. Paperwork and policy do not make better responders; Policy written by people who haven't ridden (on) fire truck in the past 10 years is even more ineffective.
85. Empower your company officer to make the policy, they run the calls.
86. Prior to actual emergency implement actual materials and tools to do what needs to be done.
87. Secure buildings.
88. Secure grounds
89. Modify response (directions of exit from building due to wind).
90. Funding is needed to provide those items needed for preparedness in advance. A cache should (be) developed (and) stored in special containers in the station.
91. The training was appropriate and good, but does not provide direction for how the VBFD needs to perform. We have not training our people on how to prepare. We gave them a policy and said go forth and produce reports.
92. Bring the worksite up to livability standards for the event (generators, (water) heaters, etc.)
93. I believe that future in-service training sessions could deal (with) this. The computer course we were exposed to was not the answer. While some of the information was beneficial, as a whole it was not relevant to our daily

- operation. Let's look at specific disasters (and) the ways to dealt them (and) how we can improvise ways to help the public (and) not be hindered by policies and procedures that no one feels are important.
94. I have not been involved in any training and I am not sure what I am expected to do as a medical specialist.
95. Include civilians.
96. I believe it should be made into a Frontline video.
97. Needs to be updated to mirror the City's emergency operation plan.
98. Update terminology.
99. Incorporate ICS.
100. Provide air mattresses for the station for overflow (firefighters) on duty.
101. Parking (at) most fire stations (is) a huge concern with all the extra people parking (at) the stations.
102. The special event plans too often do not include traffic maps of affected areas. There (have) been several times when the packets arrive late or even after the event.

Do you have any other comments concerning the VBFD disaster preparedness program?

1. No.
2. Make the station more livable during long-term stays.
3. Storage areas for disaster supplies
4. We have a plan, if we stick to it.
5. Civilian staff not always advised of what their responsibilities are, if any, in preparation of a disaster.
6. Meetings are held with uniform staff and information is not always shared with civilian staff.
7. Develop more training for specialty functions of the FDCC – i.e., Planning Officer, Logistics, etc.
8. I think the special event operations plan is a great guideline for such events. It would be great if the plans became available a week or so prior to the event so we could study/drill on the plans.
9. No.
10. None of the identified problems at the station have been addressed.
11. What about tire repair or puncture proof tires?
12. Fix the Fail Soft feature on radios. It drove us nuts.
13. We need raincoats (minimum) for these emergencies.
14. Generators need to run everything in the station.
15. EMI courses are elementary to current VBFD training.
16. No.

17. We need to follow through with them (i.e., upping supplies during hurricane season).
18. Remain pro-active, not reactive, in planning and implementation to keep us safe.
19. N/A
20. No.
21. DVD of entire program would do two things: (A) Same exact training and thought process to everyone – no interpretation!, and (B) (Training) always available for new employees or semi-annual review by all.
22. Recent organizational changes in the program to highlight areas of responsibilities were most effective. Great job (name deleted).
23. If we decide to upgrade EMS supply demands then an effort must be undertaken too make the required supplies available to the fire stations.
24. We should have a stockpile of equipment we may need during this time (i.e., chainsaws and {spare} saw chains). The PD had them and we didn't!!
25. Why was it dangerous for the FD to go on the streets but Landscape Services was out?
26. Buy cache of water and non-perishable food items prior to the season.
27. When you make an SOP, it does not go into thin air. IT is taken seriously until we bang our heads into brick walls trying to comply. We need support.

28. Water and raincoats were boxed at (Fire) Administration, not sent to troops in the trenches.
29. After the last two hurricanes we were asked to send up our concerns regarding any problems we had at the station. Most of the problems had to do with livability (electrical circuits, adequate bunks for non-fire department personnel, gas water heaters and cooking stoves). These were just a few and I'm sure other stations had other problems. Are these concerns going to be addressed in the near future?
30. During an event make the operational periods from 08-20 and 20/08, not 08//18.
31. We have good people who do good things. Let's provide some freedom for them to work on this important function.
32. Complete failure at all levels. Out of touch with reality. No common sense applied.
33. Not allowed to work callback due to ridiculous rules.
34. Improvements were made to (Company) 3 for disaster preparedness to protect the (District Chiefs' Office); however, (Company 11) is at the oceanfront and has no improvements. Makes sense.
35. Where are the supplies that the companies need for an event? The work was completed by the (engine company) captains; nothing has been done by (Administration).

36. I do not believe you can write a policy that will cover every type of situation. I feel that we should be given basic guidelines to follow (and) have our judgment trusted – (especially) when confronted with a type of situation we normally do not face such as a hurricane, etc.
37. Good – heading in right direction.
38. It's often difficult to obtain the required supplies from (Resource Management) when you place the supply order (and) they cut your order. I understand the tight budget.