Developing a Risk Management Plan for the Wilmington Fire Department

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Certification Statement

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

Signed: _________________________________________________
Abstract

The author of this applied research project was tasked with developing a Safety, Health, and Wellness Program that met the requirements of NFPA 1500, *Standard on Occupational Safety and Health Program*, for the City of Wilmington Fire Department. NFPA 1500 requires fire departments to develop and adopt a comprehensive risk management plan. A comprehensive risk management plan would serve as the basis for developing the Safety, Health, and Wellness Program. The problem was that the Wilmington Fire Department did not have a comprehensive risk management plan. The purpose of this applied research was to develop a comprehensive written risk management plan for the City of Wilmington Fire Department. The Action research method was used to develop a comprehensive risk management plan. A literature review and survey of 186 fire departments was conducted to answer the following research questions: a) What is a comprehensive risk management plan? b) How can a comprehensive risk management plan benefit the Wilmington Fire Department? c) What plans have other departments developed? d) How will the completed plan be evaluated?

A copy of the completed risk management plan developed during the course of this applied research project has been included as an appendix. Following completion of this research, the completed plan was submitted to the fire chief with recommendations for review and implementation.
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Introduction

Risk management plans are perhaps one of the more important, yet least understood, components of an occupational safety and health program. It is important to realize that the risk management plan should address all activities, both emergency and non-emergency, within a fire department. In some cases, city or county governments develop risk management plans. These plans usually include input and participation from all departments and divisions from within the local government. Although integrated into local government plans, NFPA standard 1500 requires the development of a separate risk management plan for a fire department. (Barr & Eversole, 2003, p. 270)

The problem is the Wilmington Fire Department does not currently have a comprehensive risk management plan. The purpose of this applied research project is to develop a written, comprehensive risk management plan for the Wilmington Fire Department. Action research will be used to solve this existing need and create a foundation for the safety and health program.

During the course of this research, a literature review and survey of fire departments will be used to answer the following questions (a) What is a comprehensive risk management plan? (b) How can a comprehensive risk management plan benefit the Wilmington Fire Department? (c) What plans have other departments developed? (d) How will the completed plan be evaluated?

Background and Significance

Bordered on the east by the Atlantic Ocean and the west by the Cape Fear River, the City of Wilmington encompasses approximately 52 square miles of New Hanover County in southeastern North Carolina with a population of 106,000. ("Wilmington Public Information Report," summer 2011, p. 1) The Wilmington Fire Department is a career organization divided into three divisions consisting of, operations, support services, and fire and life safety with a total
staffing of 219 uniformed and civilian personnel. The WFD operates 11 engines, 2 tower ladders, and two rescues from 11 fire stations. In 2010 the department responded to over 10,000 calls for service. The WFD provides fire suppression, emergency medical service, technician level hazardous materials response, USAR and tactical rescue operations, marine firefighting, water rescue and recovery. In addition, Wilmington’s proximity to the Atlantic Ocean makes it prone to tropical weather systems, most notably hurricanes.

Providing such a diverse level of service creates additional risks from an operational and organizational perspective. It is the job of the fire department risk manager to protect the resources of the organization, similar to that of a business risk manager. While the fire department is tasked with protecting the public it must also put considerable effort into protecting themselves. Failure to do so can reduce or prevent their ability to carry out their mission of protecting the community. Additionally, fire departments are “custodians of public funds and assets. They must restrict any undesirable outcome that costs money, wastes public dollars, and reduces the department’s capability to spend those funds where they are most effective.” (United States Fire Administration [USFA], 1996, p. 11) The development of a comprehensive risk management plan is an effective way for private and public organizations to identify, evaluate, and control risk.

In September 2010, the author was appointed by the Fire Chief to the position of Health and Safety Officer (HSO) for the Wilmington Fire Department. With this appointment came the delegated responsibility to develop, implement, and manage the safety, health, and wellness program. A review and evaluation of the existing safety and health program identified the fact that the Wilmington Fire Department has no written, comprehensive safety and health program or written risk management plan. The lack of an existing program or plan may be exposing
WFD personnel and the City of Wilmington to potential safety, health, and financial risk. Immediate corrective action must be taken to reduce the potential for injuries and financial liabilities, provide a safe work environment, and ensure regulatory compliance.

The author has recognized NFPA 1500, *Standard for Fire Department Occupational Safety and Health Program*, as the benchmark document for development of the Wilmington Fire Department’s risk management and occupational safety and health program.

Chapter 4 section 4.2.1 of NFPA 1500 (2007) states that the fire department shall develop and adopt a comprehensive written risk management plan (p. 1) Section 4.2.2 further states that the risk management plan shall at least cover the risks associated with administration, facilities, training, vehicle operations, both emergency and non-emergency, protective clothing and equipment, operations at emergency and non-emergency incidents, and other related activities.(p.1)

Through development and implementation of a comprehensive risk management plan, an effective occupational safety and health program can be designed.

“Understanding risk management and implementation of a risk management plan are the basic building blocks of an occupational safety and health program” (Angle, 2005, p. 48)

This applied research project is linked to the USFA operational objective to reduce the loss of life from fire related hazards by 15%, by reducing by 25 %, the loss of life to firefighters, the National Fallen Firefighters *Life Safety Initiatives 1, 2, and 3* (National Fallen Firefighters Foundation [NFFF], 2010, p. 7) and the National Fire Academy’s *Executive Development* course through organizational culture and change.
Literature Review

For this applied research project the author conducted literature review to achieve an understanding of the risk management process and provide answers to the following three questions: (a) What is a comprehensive risk management plan? (b) How can a comprehensive risk management plan benefit the Wilmington Fire department? (c) How will the risk management plan be evaluated? A fourth question, d) what plans do other fire departments have? was answered through literature review and a survey of other fire departments.

What is Risk Management?

Risk is a part of everyone’s daily life. Risks present themselves in many ways from the hobbies and personal activities we engage in to our homes where fire and other risks associated with home ownership can arise. Risks are also very present in our occupations and work places. Paul Hopkin in the text *Fundamentals of Risk Management* said “the task of evaluating risks and deciding how to deal with them is a daily activity not only at work, but at home and during leisure activities.”(Hopkin, 2010, p. 1) James Bailey (2010) explained in an article written for the International City Managers Association that governmental organizations manage risk on a daily basis as well. “Unfortunately, many of them do so in a haphazard, unsystematic way. This unsystematic approach limits their ability to achieve important outcomes.” (p.1)

The concept of identifying and evaluating risks and deciding on how best to deal with them is “at the heart of risk management.” (Hopkin 2010, p. 2) Gordon Graham (2010), noted lecturer and expert in risk management, describes risk management simply as: “looking for potential problems and taking action upfront to prevent the problems from occurring, instead of hearing after the fact ‘I told you so’.” (p. 2)
The United States Fire Administration defines risk management as any activity that involves the evaluation of risks and the development of approaches that change the probability or the consequences of a harmful action. Risk Management is the entire process of identification and evaluation of risks as well as the identification, selection, and implementation of control measures that might alter risk. (United States Fire Administration [USFA], 1996, p. 7)

Risk Management in the Fire Service

Risk management has only a brief history in the emergency services. Unlike other professions or industries, responding to emergencies has inherent risks. Over the years, it has been expected that response personnel would accept risk as a part of their job, and not hesitate to risk, or even sacrifice, a life, in order to save someone else’s life or property. That expectation is changing. (Kipp & Loflin, 1996, p. 10)

The fire service has slowly recognized the importance of ensuring the safety, health, and wellness of its firefighters and is beginning to understand the necessity and rationale for developing, implementing, and maintaining a proactive, comprehensive occupational safety and health program. The fire service is learning the lesson that private businesses and industry have known for years, that safety is good business. (Health and Safety Officer, 2004, p. 2-3)

A comprehensive risk management plan coupled with a health and safety program is an essential step toward reducing the number of line of duty deaths, injuries, and financial losses associated with providing fire and emergency medical services. However, “risk management is not a magic bullet that will cause all risks and dangers to disappear.” (Kipp & Loflin, 1996, p. 63)
Steven Wilder (1997) stated that to begin applying the concept of risk management to a fire department we must first establish a basic definition of the terms *risk* and *management*. Wilder (1997) defines *risk* as the possibility of injury or loss in the presence of a dangerous element or operational factor, be it known or unknown, and *management* as the responsible supervision of an activity, the judicious use of means and resources to achieve a desired end. By combining these two individual definitions risk management can be defined as the responsible supervision of an activity, operation, or process so as to minimize the potential for loss, as well as to maximize safety for the involved individuals and teams. (p.4)

Kipp and Loflin (1996) liken risk management in the fire service to a toolbox, one that contains various tools such as Standard Operating Procedures and Guidelines, an Incident Command System that includes a personnel accountability system, and a safety and health program. Just as a carpenter carries his tools in a toolbox, and selects the best tool for the job when needed, the same is true for the risk manager. The risk management toolbox provides a variety of resources that can be used to impact positively the health and safety of personnel. (p.8)

Although the fire service had for many years leading up to 1992 employed some forms of risk management, such as the use of self contained breathing apparatus, PASS alarms, and personal protective equipment, the concept wasn’t officially introduced to the fire service until the release of the 1992 edition of NFPA 1500.

The 1992 edition of NFPA 1500, Standard on Fire Department Occupational Safety and Health Program, formally introduced the concept of risk management to the fire service. The intent of incorporating risk management into this standard was to provide guidance in the
development of a comprehensive organizational risk management plan. The organizational risk management process develops a foundation for effectively managing all identifiable risks a fire department encounters on a daily basis, including operational risks and hazards. (Health and Safety Officer, 2004, p. 2-4). NFPA 1500 (2007) chapter 4, clearly states that “the fire department shall develop and adopt a comprehensive written risk management plan.” Section 4.2 goes on to say that “the plan shall at least cover the risks associated with the following: administration, facilities, training, vehicle operations, both emergency and non-emergency, protective clothing and equipment, operations at emergency and non-emergency incidents, and other related activities.”(p.1)

Organizational vs. Operational Risk Management

Managing risk in any organization can be divided into two separate and distinct areas consisting of organizational or administrative risk management and operational risk management. Organizational risk management involves the organization as a whole, or all the risks to which a particular business or fire department may be exposed. The USFA notes a parallel between private enterprise and an emergency response agency. Risk managers in the private sector are responsible for protecting the assets of the enterprise to ensure it can stay in business. Similarly, a risk manager in a fire department is responsible for protecting public assets, including its personnel, facilities, and equipment, to make sure the organization can perform its mission. (USFA, 1996, p. 10) Organizational risks are considered routine or non-emergency risks. Kipp and Loflin (1996) state that businesses and individuals alike must manage non-emergency risks. There is nothing that distinguishes an organization that responds to emergencies from one that doesn’t when no emergency exists. Firefighters may suffer slip, trip, and fall type injuries around the station just as officer workers may. They may also incur
strains and sprains in a similar fashion. Therefore, regardless of the type of organization many similarities exist and techniques for managing these risks are consistent as well. (p.67)

Operational risk management or incident risk management focuses on the risks associated with a specific event such as a structure fire or specialized rescue. This type of risk management is more demanding in the sense that the potential risks, known and unknown, can lead to significant loss of life for firefighters and civilians as well, if they are not identified and controlled or avoided. Another critical factor with operational risk is that of time. Kipp and Loflin (1996) further explain the time element between administrative or organizational risk management and operational risk management as the time required to make a decision. When looking at organizational or non-emergency risks there usually is not an immediate time constraint in which to decide what to do about them. At an emergency incident we do not have the luxury of time. Numerous risks exist for personnel that have responded, for their apparatus and equipment, and for civilians who may be involved in the incident. To be effective, risks must be identified and prioritized, and decisions must be made as to how to deal with them based on the resources available. These decisions must be made quickly, if not instantly, due to the high potential for loss. These decisions determine whether lives are saved or lost, without a second chance to be right (p.67)

Developing a Comprehensive Plan

The Fire Chief has the ultimate responsibility for the development of the risk management plan. Typically, the Fire Chief gives the Health and Safety Officer the authority to develop and manage the plan as well as managing the occupational health and safety program. NFPA 1521(2008) Standard for Fire Department Safety Officer, details the functions of the health and safety officer with respect to the risk management plan. Some of those functions
found in chapter 5 include the following: developing and implementing health and safety programs that control risks identified in the risk management plan, communicating the aspects of the plan to all members, and monitoring the effectiveness of the plan by evaluating and revising it annually.

The development of a risk management plan is a proactive process consisting of identification and evaluation of risks and implementation of control measures to lessen or avoid the harmful consequences of those risks. In order for the plan to be comprehensive it must look at all emergency and non-emergency operations and functions of the organization and identify those risks associated with each of those activities.

The risk management plan is the product of the risk management process. Steven Wilder (1997) describes this process as “a systematic five-step process that provides a framework for identifying and correcting loss exposures.”(p.21) The five steps consist of: risk identification, risk evaluation, establishing priorities for action, risk control methods, and risk evaluation (Wilder, 1997, p. 21) According to Kipp and Loflin (1997), these five steps represent the “classic risk management model that has been successfully used by general industry for years.” This process, including each of the five steps, is also consistent with NFPA 1500 (2007) which lists these five components as the minimum requirements of a fire department risk management plan.

Risk Identification

Risk identification is the first step in developing a risk management plan. This step involves compiling a list of all operations and functions of the fire department and identifying the potential risks or losses associated with each of those activities. For each identified operation and function Barr and Eversole (2003) suggest we ask the question “what could go wrong.” It is very important during this step to have a clear understanding of the type of losses that a fire
department can incur. According to Kipp and Loflin (1996), losses usually fall into four categories: personnel losses, property losses, legal liabilities, and time. Personnel losses include death, injury, disability, illness, and the costs associated with replacing affecting workers. Property losses would include damage to or loss of property such as a fire engine or station. Legal liability is a very broad category that includes many possibilities such as sexual harassment and discrimination law suits, injuries to victims of a collision involving a fire apparatus, and even negligent firefighting tactics. The fourth category would be time, such as the loss incurred by a landlord who lost the rental revenue from tenants whose apartment was damaged by fire. (p.64)

This step is vitally important to building an effective plan, because risk management is a process. Each step builds on the previous one, and risks that haven’t been identified cannot be managed. Stowell (2001) points out that there are many sources to assist in the identification process; the first and possibly most effective, would be to review internal data on injuries, accidents, and other losses experienced by the organization. The Health and Safety Officer should review injury reports and statistical data from the USFA and National Fire Academy as well as seek input from other department members, trade journals, professional associations, insurance carriers, local industries, and other agencies such as the Environmental Protection Agency (p.20)

When the risks to an organization have been identified, they need to be evaluated.

*Risk Evaluation*

When risks have been identified they are evaluated from both frequency and severity perspectives. Barr and Eversole (2003) explain that frequency is how often a risk is likely to occur. The use of historical data and professional judgment can assist in estimating the
frequency of a particular risk. Severity is the extent of loss if the risk occurs. Factors that indicate severity would include the potential for injury or death, time away from work, the cost of legal liabilities, replacement of damaged equipment, disruption of service, etc. (p.271) Kipp and Loflin (1996) indicate that “frequency and severity determinations must be considered together if reasonable conclusions are to be made. By doing so, the significance of each of the risks can be more accurately assessed, and this will be of importance as we attempt to establish priorities.” (p.88) This is accomplished by ranking each risk using the terms low, medium, or high for both severity and frequency. For example, a department has experienced several back injuries over the last few years, this might indicate a “high” frequency. The severity, taking into consideration the costs associated with these injuries, might be considered “medium.” The result would be the identified risk of back injuries being evaluated in the risk management plan as a high frequency, medium severity risk.

Establishing Priorities

Prioritizing risk is the third step in the process. Once risks have been identified and evaluated, they must be prioritized. It may not be practical to address all risks within a risk management plan. By prioritizing risks, the effective use of time and resources can be optimized by focusing on those risks that require immediate action. By looking at the results of combining frequency and severity, priorities can be established for determining action. Risks that have low or high frequencies with serious consequences would be a high priority and require immediate action. Low frequency, low severity incidents would rate as a lower priority and could be placed at the bottom of the “action required” list. (*Health and Safety Officer*, 2004, p. 2-6)


**Determine Risk Control Measures**

Once the risks have been prioritized, the next step is to select the proper risk control techniques. A review of relevant documents was consistent in identifying three types of risk control techniques: risk avoidance, risk reduction, and risk transfer. Risk avoidance is considered the best method of controlling risk. This involves completely avoiding the hazardous situation or task. However, in the fire service, given the nature of emergency response, this would be very often impractical. An example of risk avoidance in the fire service would be the implementation of a policy that prohibits smoking by fire department candidates when they are hired to reduce the potential for lung cancer among members. (Stowell, 2001, p. 22) Risk reduction is the limiting or minimizing of risks when they cannot be avoided. Risk reduction involves three types of risk control measures: administrative, engineering, and personal protection. Administrative controls would include standard operating guidelines and procedures, training requirements, fire code enforcement, and pre-fire planning. Engineering controls are intended to remove specific hazards from the workplace. Apparatus specifications, automatic sprinkler systems, class A foam for firefighting, and the use of lights during nighttime operations would all be examples of engineering controls. Personal protection controls are the least desirable of the three control measures; they do not remove hazards, just provide an element of safety. Bunker gear, self-contained breathing apparatus, PASS alarms, and life safety rope are examples of personal protective controls on which firefighters rely heavily during emergency incident response. (USFA, 1996, p. 45) Risk transfer is the third technique used to manage risk. According to Stowell, risk transfer is accomplished by one of two ways: physically transferring the risk to someone or through the purchase of insurance. For a fire or EMS service, physically transferring risk could prove very difficult; however, an example would be contracting with a
private company to clean up and dispose of hazardous waste following a hazardous materials incident. Purchasing workers compensation or property insurance is the second way risk can be transferred. It is important to realize that purchasing insurance transfers the financial risk only. It does nothing to affect the likelihood of occurrence. (Stowell, 2001, p. 22)

**Monitoring the Program**

The final step in the process is risk management monitoring. The control measures that have been implemented need to be monitored and evaluated periodically for effectiveness. In addition, if new risks are identified or previously identified risks are no longer present, then the plan should be revised to reflect those changes. The risk management plan becomes a living document that changes as a result of a dynamic risk monitoring process. Barr and Eversole point out that program evaluation is a vital component of a risk management program. Without it, we would never really know if the program was meeting its goals and objectives or what parts of the program are or are not working. They go on to identify the following important elements for program evaluation: determining effectiveness indicators, establishing the frequency of monitoring, assigning responsibility for program evaluation, setting the methodology of evaluation, and requiring an evaluation report. (Barr & Eversole, 2003, p. 272)

NFPA 1521 recommends that the Health and Safety Officer monitor the effectiveness of the plan at least annually. (National Fire Protection Association [NFPA], Chapter 5)

**Summary of Literature Review**

The literature review conducted for this applied research project provided significant relevant information regarding the development of a fire department risk management plan. Many resources exist that define risk management, how it should be conducted, and its importance relating to the sustainability of an organization. During the course of the literature...
review several sources were reviewed that focused on risk management from business or private sector standpoint. These sources provided a different perspective that enabled the author to look at the fire department as a business and to consider managing risk not just from a safety standpoint but from a sustainability effort as well. If an organization does not protect its resources from losses and or risks, then it can no longer provide its service and will not stay in business. Sources that focused on comprehensive risk management from an emergency services standpoint were used extensively. The information obtained from these sources was consistent in the approach to emergency services risk management. Most sources that pertained to the emergency services recommended using the classic risk management model. This consistency directly affected the applied research project as this model was chosen by the author to develop the risk management plan for the Wilmington Fire Department.

**Procedures**

This applied research project began with a literature review focusing on public and private sector sources that explained the risk management process, discussed the benefits of managing risk, and offered guidance in developing a comprehensive risk management plan. Sources for the literature review were obtained through the fire department’s training library, the New Hanover County Public Library, the National Fire Academy’s Online Learning Resources Center, and the internet.

In addition, a ten-question internet-based survey (Appendix A) was developed and distributed to supplement the literature review in answering the four research questions. The survey was developed using SurveyMonkey.com and was sent to emergency service organizations in North Carolina and throughout the United States via the North Carolina Fire Chiefs’ email group and the United States Fire Administration’s Training, Resources, and Data
Exchange Network (TRADENET). Questions contained in the survey included asked whether departments currently had written risk management plans. For those with written plans, the survey asked what areas did those plans address, if they had a Safety Officer or someone tasked with developing risk management programs in their department, if their departments were experiencing an increase or decrease in property losses, injuries, or accidents, and how often their plans or programs were evaluated. The survey also sought to determine what methods were used to manage risk by departments without risk management plans. The risk management survey was posted for 44 days and was completed by 186 respondents (Appendix B). An analysis was conducted on the data collected to determine how the different organizations managed risk and the apparent effectiveness of those with and without written plans. This was completed by applying filters developed within the survey instrument.

The next step involved reviewing copies of current risk management plans used by fire departments in other cities. Several plans were located by conducting an internet search of “fire department risk management plans.” A hardcopy of the Virginia Beach Fire Departments Risk Management Plan was obtained from the Health and Safety Officer of the Virginia Beach Fire Department. Each of the plans reviewed were consistent with the format exampled in Annex D of the NFPA 1500 standard. At this point, the author determined that this format would also be used for developing the risk management plan for the Wilmington Fire Department.

Development of the written risk management plan began by reviewing injury statistics detailed in the OSHA 300 log for the Wilmington Fire Department for the years 2006-2010 and national firefighter injury statistics for the years 2006-2008. Afterward, the fire department’s Occupational Safety and Health Committee conducted a risk identification exercise to look at all the functions and operations of the Wilmington Fire Department to identify, prioritize, and
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generate control measures to effectively manage identified risks. Using the format of the five-step risk management model, the author developed a risk management plan based on the information gathered from the department’s occupational safety and health committee, local and national injury statistics, and information and data obtained from the literature review and survey. A copy of the completed risk management plan has been included in this applied research project. See Appendix C.

Limitations

186 fire departments responded to the survey. The total population to which the survey was sent is unknown; therefore, determining a rate of return is not possible. It is assumed that survey respondents were honest in their answers and had sufficient knowledge to answer the questions correctly. Very little demographic data was gathered from respondents. Information about the respondent such as department name, state, and position in the organization, would have supplemented the other demographic data collected in the survey to provide the author information about the diversity of the responses. This applied research project, including the risk management plan developed for this project, is the first ever produced by the author. Given this fact, several other limitations of this project may not be known at this time but may become known as the risk management plan is developed, implemented, and evaluated.

Results

The results of this research provided the author with sufficient data and information to answer all four research questions. In addition, the literature review, survey of other fire service organizations, and review of existing risk management plans enabled the author to develop successfully a risk management plan for the Wilmington Fire Department. (See Appendix A)
Survey Data Analysis

Analysis of the survey results began by reviewing the answers provided for each question. Of the 186 responses, only about one third (64 or 34.4%) indicated that their department had a written risk management plan. The majority of departments with written risk management plans were paid departments, with 44 out of 64 (68.8%) responses. Combination departments made up 19 (29.7%) of the responses and one out of 64 (1.6%) came from a volunteer department. Question 2 of the survey asked those with written plans what areas were included in their plans. The choices were those outlined in NFPA 1500 chapter 4. Only 61 of 64 respondents that indicated they had a written plan answered the question. No single area was consistent among all 61 responses, however, the majority of areas indicated were the following: Vehicle Operations (emergency and non-emergency) with 55 or 90.2%, Operations at Emergency Incidents with 54 or 88.5% and Training with 48 or 78.7%.

Survey Question 3 asked respondents that indicated their department did not have a written risk management plan, what methods they used to manage risk. It should be noted here that the numbers and percentages in question 3 may be skewed somewhat due to the fact that 142 people answered this question when only 124 indicated in question 1 that their department did not have a written risk management plan. Of the 142 respondents 138 or 97.2% indicated that their department used SOG’s and SOP’s to manage risk. The majority of other methods indicated were as follows: apparatus and equipment inspections with 125 responses or 88%, PPE inspections with 117 responses or 82.4%, the use of incident safety officers with 107 responses or 75.4% and workers compensation insurance with 112 responses or 78.9%.

Question 4 asked respondents if their department had a safety officer or someone tasked with developing risk management programs and policies, 118 (64.1%) indicated “Yes.”
Question 5 asked if individual departments evaluated or audited their risk management or safety program annually. Of the 184 respondents that answered the question, only 66 (35.9%) indicated “Yes.” When this same question was analyzed among only those departments with written risk management plans, 38 out of 64 respondents (59.4%) answered “Yes.” Survey questions 6, 7, and 8 sought to determine if accident, injury, or property loss rates among the surveyed departments were increasing, decreasing, or if they did not know. The results of survey question 6 indicated that 27 (15.2%) of 178 departments had increasing accident rates, 97 (54.5%) had decreasing accident rates and 54 (30.3%) did not know. Comparing these overall results to only the responses given by those departments with written plans, 44 of 64 (72%) of departments with written plans indicated decreasing accident rates and only 4 (6.6%) had increasing rates. Survey question 7 referred to injury rates. This rate was explained as number of accidents divided by the number of personnel. Forty-six or 25% of 184 respondents indicated that their accident rate was increasing while 85 (46.2%) respondents indicated their rates were decreasing. When the overall responses are again compared to those given by departments with written risk management plans, the results are similar, although slightly higher. Of the departments with written plans 29.7%, indicated increasing injury rates and 51.6% had decreasing rates. Survey question 8 was similar to questions 6 and 7 as it sought to determine if departments had increasing or decreasing property losses. Analysis of the overall results indicated that out of 184 responses 29 (15.8%) were experiencing an increase in property losses, with 134 (72.8%) experiencing a decrease in property losses. Once again these overall results were compared to results given by those respondents that indicated their department had a written risk management plan. The results were again similar, although slightly higher with 12 of 64 (18.8%) indicating an increase in property losses, as well as slightly higher decrease in property losses with 50 out 64 (78.1%)
responses. Survey question 9 asked respondents to indicate the type of department with which they were affiliated. Paid departments represented the highest number of responses with 94 of 185 (50.8%) respondents. Combination departments accounted for 70 (37.8%) of the responses with 21 (11.4%) coming from volunteer departments. The final survey question asked respondents to indicate the number of personnel in their department. The majority of responses 70 out of 185, (37.8%) came from organizations with 1-50 personnel. Departments with 51-100 members represented the second highest number of respondents with 49 or 26.5 % of responses. When compared to departments with written risk management plans nearly 72 % of responses came from department with 200 members or less.

Research question one: *What is a comprehensive risk management plan?*

In order for an organization’s risk management plan to be comprehensive it must take into account all operations and functions in which the organization engages, regardless of whether it is a public or private organization. From this all possible risks or losses associated with those functions and operations are identified, prioritized by frequency and severity, and effective control measures are developed. In a fire department, a comprehensive risk management plan must address the following areas at a minimum according to NFPA 1500: administration, facilities, training, vehicle operations, both emergency and non-emergency, protective clothing and equipment, operations at emergency and non-emergency incidents, and other related activities. The plan shall also include at least the following components: risk identification, risk evaluation, risk prioritization, risk control measures, and risk management monitoring. (National Fire Protection Association [NFPA 1500], Chapter 4)

Research question two: *How can a risk management plan benefit the Wilmington Fire Department?*
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The benefits of developing a risk management plan are many. The preventative nature of a risk management plan is determined by how many of the benefits are realized. By developing systematically a risk management plan using the classic risk management model, most risks to which a department and its personnel are, or may be exposed, can be identified ahead of time. By doing this, effective control measures can be put in place to minimize or eliminate identified risks. If a risk management plan can prevent or avoid many of the risks that threaten the lives of our firefighters and the sustainability of the organization, the fire department can deliver services safely and efficiently. Development of a written comprehensive risk management plan will benefit the Wilmington Fire Department in many ways including the following: prevention of injuries and deaths to firefighters, reduction of insurance premiums for insurance policies such as workers compensation, property coverage and general liability, OSHA and NFPA compliance, and minimizing or eliminating law suits for discrimination and negligence. The realization of these benefits will be dependent on how well the plan was developed, implemented, evaluated, and monitored.

Research question three: What plans have other departments developed?

Research conducted for this project identified several existing risk management plans including those developed for use in private industry, universities, and emergency service organizations. While several different plans were reviewed, the focus was centered on those developed for use by emergency service organizations. The author chose two plans in particular, along with the example given in Appendix D of NFPA 1500, to guide development of the risk management plan for the Wilmington Fire Department. Those plans were obtained from the Virginia Beach, VA, Fire Department and the Campbell County, Virginia, Public Safety EMS
Division. Both of these plans are consistent with the classic risk management model identified in the literature review as well as the recommendations set forth by NFPA 1500.

Analysis of the survey results indicated that only about 34% of fire departments surveyed had written risk management plans; however, as shown in Table 1, every department surveyed without a written risk management plan had in fact implemented control measures to manage at least some risks.

The survey results indicate that although a fire department may not have a written plan, some type of planning to manage identified risks had occurred by all departments surveyed.

Research question four: *How will the completed plan be evaluated?*
A comprehensive risk management plan is a dynamic, living document. Monitoring and evaluation are critical components of a successful risk management plan in addition to being required by NFPA 1500. Periodic review and updates help to ensure the plan’s effectiveness.

The risk management plan developed as a result of this research project will be evaluated and revised as needed, on an annual basis during the first quarter of the fiscal year by the Wilmington Fire Department’s Safety Officer and Occupational Safety and Health Committee. Recommendations and revisions will be based on the following criteria: a) accident and injury data for the preceding year b) significant incidents that have occurred during the preceding year c) effectiveness of control measures d) changes to department operations or functions d) identification of new risks or elimination of previously identified risks.

Every three years the risk management plan will be evaluated by an independent source. The results will be sent to the fire chief, health and safety officer, and the department’s Occupational Safety and Health Committee.

**Discussion**

Analysis of the survey results reflects the findings of others in the literature review in that “risk management in the fire service is a relatively new concept- one that most departments have discussed but which few have successfully implemented.” (Wilder, 1997, p. 3) The survey results also concur with the findings of others that although most departments do not have formal written risk management plans, most if not all departments informally conduct risk management through safety committees, personal protective equipment, standard operating guidelines or policies, training, the use of safety officers and regulatory compliance. According to the USFA, the risk management process incorporates and expands those practices and provides a systematic approach to safety and loss control. The risk management process is intended to provide a
DEVELOPING A RISK MANAGEMENT PLAN

A comprehensive and detailed system for examining practical and cost effective ways of addressing potential losses. (USFA, 1996, p. 58)

Development of a comprehensive risk management plan is a proactive step that can be described as a “decision making process designed to help fire departments determine where loss exposures exist, where unsafe acts or conditions can contribute to a loss, and how to financially deal with those losses that cannot be avoided.” (Wilder, 1997, p. 3) If we can predict where losses will occur, then we can implement measures to prevent them. Gordon Graham stated in the article *Understanding the Discipline of Risk Management*, that “risks that can be identified can be managed, we can study the past, identify risks that have caused problems before, and take actions today to reduce the possibility of suffering a nasty consequence.” (Graham, 2010, p. 3)

Development of a comprehensive risk management plan is an important part of a safety and health program. Many reasons exist that necessitate the need for all departments to develop a risk management plan. Wilder has identified several including the following: the number of job-related injuries to firefighters, the increase in fire department operations, the frequency, and severity of lawsuits against fire departments and personnel, constant increase in insurance premiums, and poor preventative maintenance programs that result in equipment failures and downtime of apparatus. (Wilder, 1997, p. 4) In addition to the reasons mentioned by Wilder, the most important reason is the moral obligation a fire department has to provide a safe working environment for its firefighters. The job of a firefighter is an extremely hazardous occupation; taking care of injured firefighters is costly, not only financially, but in the impacts to their families, the community, and the department. Many fire and emergency services personnel will be better motivated knowing that their administration is looking out for their welfare. (Smeby, 2006, p. 118)
Roche and Young explain that no fire service organization has to invent a health and safety program from scratch. Not only do many departments have excellent programs they are happy to share, but also the National Fire Protection Association (NFPA) standards provide the blueprints for creating an organizational culture of health and safety. NFPA 1500 Standard on Occupational Safety and Health Program is an excellent place to start. Chapter 4 of NFPA 1500 sets forth the components of such a program. Most importantly, a fire department must have a written risk management plan. (Roche & Young, 2011, p. 77)

The results of this study have determined that prior to the completion of this applied research project, the Wilmington Fire Department had taken a similar approach to risk management as many other fire departments. With no written comprehensive risk management plan in place, the department’s efforts to manage risk were reactionary and incomplete at best.

Organizational Implications

In September of 2010, the author was appointed to the position of Health and Safety Officer for the Wilmington Fire Department and directed to develop and manage the Safety, Health, and Wellness program. The author recognized the importance of using NFPA 1500 as a guide for development of this program and from that the need to develop a comprehensive risk management plan. Completion of this applied research project has resulted in the development of a written comprehensive risk management plan that when implemented, will greatly improve the Wilmington Fire Department’s ability to manage effectively risks both organizationally and operationally.

This plan will serve as foundational document from which the existing safety and health program can be further developed, evaluated, and improved. Implementation of this plan will
further serve to create a cultural change within the fire service as outlined in the sixteen
*Firefighter Life Safety Initiatives.*

**Recommendations**

The completion of this research project has resulted in the development of a written
comprehensive risk management plan for the Wilmington Fire Department. It is recommended
that the completed plan be submitted to the Fire Chief for review and implementation.
Implementation of this plan should include communicating the details, intent, and expectations
of this plan to all members of the organization. Copies of the risk management plan should be
readily accessible by all members for periodic review and study through the fire department’s
intranet site and policy manual. Copies should also be shared with the City of Wilmington’s
third party administrator and insurance carriers who are in the business of risk management and
who may offer valuable input for successful implementation of the plan and as well as certain
control measures. In addition, the success of this plan will require that all personnel understand
their individual responsibility to create a safer work environment and reduce the potential for
losses in all operations and functions of the organization. This would be best accomplished
through education and training of all members about the risk management process.

Following the implementation of the risk management plan, the “on-going” control
measures developed to manage specific risks, should be monitored by the Health and Safety
Officer and members of the Safety and Health Committee for effectiveness. Work must also be
undertaken to address the specific control measures identified as “action required.” Many of
these control measures will require funding, training, changes to current response protocols and
incident operations, development of new standard operating guidelines and policies, and
DEVELOPING A RISK MANAGEMENT PLAN

planning. It is recommended that these items be incorporated into the department’s budget and strategic business plan as soon as possible.

An essential component of the risk management plan is monitoring and evaluation. It is recommended that the plan be evaluated annually by the Occupational Safety and Health Committee and every three years by an outside agency. Annex B of NFPA 1500 is recommended to assist in the evaluation process of the risk management plan as well as the safety and health program. Annex B provides a checklist in which fire departments can assess compliance with the requirements of NFPA 1500.

The surveys conducted of other fire service agencies indicated that only about a third of departments have written comprehensive risk management plans. Without a comprehensive risk management plan in place, many risks and potential losses to which a department may be exposed can go unnoticed. Safety and health programs developed for fire departments should focus on preventing losses before they occur. Development of a comprehensive risk management plan enables an organization to look at all risks associated with the various functions and operations of a specific organization and to establish measures to avoid, eliminate, or reduce the potential impacts associated with those risks. A comprehensive risk management plan should be developed by all emergency service organizations. This plan should serve as the foundation for the safety, health, and wellness program.
DEVELOPING A RISK MANAGEMENT PLAN

References


By the numbers. (summer 2011). City of Wilmington Newsletter.


Appendix A

Risk Management Plan Survey

1. Does your department currently have a written risk management plan?
   Yes___  No___

2. If you answered yes to question 1, please indicate which of the following areas are included in your plan.
   __Administration
   __Facilities
   __Training
   __Vehicle operations emergency and non emergency
   __PPE
   __Operations at emergency incidents
   __Operations at non-emergency incidents
   __Other related activities

3. If you answered no to question 1, how does your department manage risk? Please check all that apply
   __SOG’s / SOP’s
   __Facility Inspections
   __Apparatus/Equipment inspections
   __PPE inspections
   __Review of accident and injury reports
   __Safety Committee
   __OSHA compliance
   __Safety Training
   __Municipal Risk Management Plan
   __Use of Incident Safety Officers
   __Workers Compensation Insurance
   __Other

4. Does your department have a safety officer or someone tasked with developing risk management programs and policies?

5. Is your risk management plan or safety program evaluated or audited annually?

6. Is your department’s accident rate (# of accidents / # of personnel) __increasing __decreasing __Don’t know?
7. Is your department’s injury rate (# of injuries / # of personnel) __increasing __decreasing __Don’t know?

8. Is your department experiencing an increase in property losses? __Yes __ No __ Don’t know?

9. Type of department __ Paid __ Volunteer __ Combination

10. How many personnel are in your department?
    __1-50
    __51-100
    __101-200
    __200+

Appendix B

Risk Management Survey Results

Question 1

Does your department currently have a written risk management plan?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>34.4%</td>
<td>64</td>
</tr>
<tr>
<td>No</td>
<td>66.7%</td>
<td>124</td>
</tr>
</tbody>
</table>

answered question 186
skipped question 0

Risk Management Survey

Question 2

If you answered yes to question 1, please indicate which of the following areas are included in your plan: Check all that apply

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Administration</td>
<td>59.0%</td>
<td>36</td>
</tr>
<tr>
<td>Facilities</td>
<td>73.8%</td>
<td>45</td>
</tr>
<tr>
<td>Training</td>
<td>78.7%</td>
<td>48</td>
</tr>
<tr>
<td>Vehicle Operations (emergency and non-emergency)</td>
<td>90.2%</td>
<td>55</td>
</tr>
<tr>
<td>PPE</td>
<td>75.4%</td>
<td>46</td>
</tr>
<tr>
<td>Operations at emergency incidents</td>
<td>88.5%</td>
<td>54</td>
</tr>
<tr>
<td>Operations at non-emergency incidents</td>
<td>68.9%</td>
<td>42</td>
</tr>
<tr>
<td>Other related activities</td>
<td>19.7%</td>
<td>12</td>
</tr>
</tbody>
</table>

answered question 61
skipped question 125
## Risk Management Survey

### Question 3

If you answered no to question 1, what methods does your department use to manage risk? Check all that apply

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>SOG's/SOP's</td>
<td>97.2%</td>
<td>138</td>
</tr>
<tr>
<td>Facility inspections</td>
<td>66.2%</td>
<td>94</td>
</tr>
<tr>
<td>Apparatus/equipment inspections</td>
<td>88.0%</td>
<td>125</td>
</tr>
<tr>
<td>PPE inspections</td>
<td>82.4%</td>
<td>117</td>
</tr>
<tr>
<td>Review of accident and injury reports</td>
<td>67.6%</td>
<td>96</td>
</tr>
<tr>
<td>Safety committee</td>
<td>57.0%</td>
<td>81</td>
</tr>
<tr>
<td>OSHA compliance</td>
<td>51.4%</td>
<td>73</td>
</tr>
<tr>
<td>Safety training</td>
<td>72.5%</td>
<td>103</td>
</tr>
<tr>
<td>Municipal risk management plan</td>
<td>23.9%</td>
<td>34</td>
</tr>
<tr>
<td>Use of incident safety officers</td>
<td>75.4%</td>
<td>107</td>
</tr>
<tr>
<td>Workers compensation insurance</td>
<td>78.9%</td>
<td>112</td>
</tr>
<tr>
<td>Other</td>
<td>7.0%</td>
<td>10</td>
</tr>
</tbody>
</table>

answered question 142

skipped question 44

---

## Risk Management Survey

### Question 4

Does your department have a safety officer or someone tasked with developing risk management programs and policies?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>64.1%</td>
<td>118</td>
</tr>
<tr>
<td>No</td>
<td>36.4%</td>
<td>67</td>
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</table>

answered question 184

skipped question 2

---

## Risk Management Survey

### Question 5

Is your risk management plan or safety program evaluated or audited annually?

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>35.9%</td>
<td>66</td>
</tr>
<tr>
<td>No</td>
<td>43.5%</td>
<td>80</td>
</tr>
</tbody>
</table>
### Risk Management Survey

#### Question 6

**Is your department's accident rate: (# of accidents / # of personnel)**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>increasing</td>
<td>15.2%</td>
<td>27</td>
</tr>
<tr>
<td>decreasing</td>
<td>54.5%</td>
<td>97</td>
</tr>
<tr>
<td>don't know</td>
<td>30.3%</td>
<td>54</td>
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</table>

**Answered question:** 178  
**Skipped question:** 8

#### Question 7

**Is your department's injury rate (# of injuries / # of personnel)**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>increasing</td>
<td>25.0%</td>
<td>46</td>
</tr>
<tr>
<td>decreasing</td>
<td>46.2%</td>
<td>85</td>
</tr>
<tr>
<td>don't know</td>
<td>28.8%</td>
<td>53</td>
</tr>
</tbody>
</table>

**Answered question:** 184  
**Skipped question:** 2

#### Question 8

**Is your department experiencing an increase in property losses?**

<table>
<thead>
<tr>
<th>Answer Options</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Yes</td>
<td>15.8%</td>
<td>29</td>
</tr>
<tr>
<td>No</td>
<td>72.8%</td>
<td>134</td>
</tr>
<tr>
<td>Don't know</td>
<td>11.4%</td>
<td>21</td>
</tr>
</tbody>
</table>

**Answered question:** 184  
**Skipped question:** 2
### Risk Management Survey
#### Question 9

<table>
<thead>
<tr>
<th>Type of department</th>
<th>Response Percent</th>
<th>Response Count</th>
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</thead>
<tbody>
<tr>
<td>paid</td>
<td>50.8%</td>
<td>94</td>
</tr>
<tr>
<td>volunteer</td>
<td>11.4%</td>
<td>21</td>
</tr>
<tr>
<td>combination</td>
<td>37.8%</td>
<td>70</td>
</tr>
</tbody>
</table>

*answered question* 185

*skipped question* 1

---

### Risk Management Survey
#### Question 10

<table>
<thead>
<tr>
<th>How many personnel are in your department?</th>
<th>Response Percent</th>
<th>Response Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>1-50</td>
<td>37.8%</td>
<td>70</td>
</tr>
<tr>
<td>51-100</td>
<td>26.5%</td>
<td>49</td>
</tr>
<tr>
<td>101-200</td>
<td>15.7%</td>
<td>29</td>
</tr>
<tr>
<td>200+</td>
<td>20.5%</td>
<td>38</td>
</tr>
</tbody>
</table>

*answered question* 185

*skipped question* 1
1.0 PURPOSE

1.1 The Wilmington Fire Department has developed and implemented this Risk Management Plan to meet the following objectives:

A) To limit the exposure of the fire department to situations and/or occurrences that could bring harmful or undesirable consequences to the department or its members.

B) To provide the safest possible work environment for the members of the fire department, while recognizing the risks inherent to the fire department’s mission.

C) To provide guidance in the development and evaluation of the fire department’s Occupational Safety and Health Program.

D) Effective service delivery to internal as well as external customers.

2.0 SCOPE

2.1 This Risk Management Plan has been created to comply with the requirements of NFPA 1500, Standard of Fire Department Occupational Safety and Health Program. The Wilmington Fire Department recognizes NFPA 1500 as the industry standard. Therefore, to ensure compliance with this recognized standard, the following elements shall be a part of the Risk Management Plan:

A) The Department Health and Safety Officer shall meet the requirements of NFPA 1521, Standard for Fire Department Safety Officer.

B) Annual review of department operations and the impact of significant or catastrophic incidents.

C) Review and update the department’s Occupational Safety and Health Program.


E) Conduct an audit of the Occupational Safety and Health Program every three years by an external evaluator.
3.0 RESPONSIBILITIES

3.1 This plan establishes a standard of safety for the daily operations of the Wilmington Fire Department. The standard of safety establishes the parameters in which we conduct activities during emergency and non-emergency operations.

3.2 A variety of control measures are used to ensure the safety and health of our personnel. These control measures include, but are not limited to, training, education, protective clothing and equipment, the use of an incident management system, personnel accountability, and standard operating procedures.

3.3 The Fire Chief is responsible for implementation of the Department’s Risk Management Plan. The Health and Safety Officer is responsible for the development, management, and evaluation of the plan annually. The Health and Safety Officer is also responsible for modifying the plan as needed in order to address changing exposures, occurrences, and activities.

3.4 Every member of the Wilmington Fire Department has the responsibility of ensuring his/her health and safety by cooperating, participating, and complying with the provisions of the Risk Management Plan and the Occupational Safety and Health Program.

4.0 RISK MANAGEMENT MODEL

4.1 The Risk Management Plan shall include the following components:
A) *Risk Identification*: Actual or potential hazards
B) *Risk Evaluation*: The potential of occurrence of a given hazard and the severity of its consequences
C) *Risk Prioritization*: Action priorities based upon the frequency and severity of the hazard
D) *Risk Control Measures*: Solutions for elimination or reduction of real or potential hazards by implementing an effective control measure
E) *Risk Management Monitoring*: Evaluation of the effectiveness of risk control measures

5.0 METHODOLOGY

5.1 This Risk Management Plan uses a variety of strategies and control measures to address different objectives. The specific objectives are identified from the following sources of information:
A) Annual reports and data on the frequency and severity of accidents, injuries and occupational illnesses involving Wilmington Fire Department personnel.
B) Information provided from the City of Wilmington’s insurance carriers.
C) National trends and reports that relate to the Wilmington Fire Department operations and personnel.
D) Knowledge of the inherent risks encountered by fire departments and specific situations identified within the Wilmington Fire Department.
E) Post incident analysis of significant emergency incident responses.
F) Additional risks or potential losses identified by the Occupational Safety and Health Committee or department members.

6.0 PLAN ORGANIZATION

6.1 This comprehensive Risk Management Plan shall cover, at a minimum, risks associated with the following:
A) Administration
B) Facilities
C) Protective clothing and equipment
D) Non-emergency risks include such functions as training, physical fitness, non-emergency vehicle operation, station activities including vehicle maintenance, office work, and station maintenance.
E) Emergency risks include those presented at both fire and non-fire incidents such as EMS, hazardous materials, special operations, and emergency response of fire department vehicles.
F) Other related activities

7.0 RISK MANAGEMENT PLAN MONITORING/EVALUATION

7.1 The Wilmington Fire Department’s Risk Management Plan will be monitored and evaluated for effectiveness each year during the first quarter of the fiscal year by the department’s Health and Safety Officer and Occupational Safety and Health Committee.

7.2 Recommendations and revisions will be based on the following criteria:
A) Annual accident and injury data for the preceding year
B) Significant incidents that have occurred during the preceding year
C) Effectiveness of control measures
D) Changes to department operations or functions
E) Information and suggestions from department staff and personnel

7.3 Every three (3) years, the Risk Management Plan will be evaluated by an independent source. The results will be sent to the Fire Chief, Health and Safety Officer, and the department’s Occupational Safety and Health Committee.
<table>
<thead>
<tr>
<th>Risk/Loss Identification</th>
<th>Frequency/Severity</th>
<th>Priority</th>
<th>Control Measures</th>
<th>A=Action Required</th>
<th>O=Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Strains and Sprains</td>
<td>Low/High</td>
<td>High</td>
<td>1. A Provide refresher training for all employees on proper lifting techniques</td>
<td>2. O Ergonomic task analysis</td>
<td>3. A Physical conditioning</td>
</tr>
<tr>
<td>Environmental Stress/Exposure</td>
<td>Low/High</td>
<td>High</td>
<td>1. A/O Activate Rehab Sector according to SOG during incidents and training</td>
<td>2. O Conduct outdoor training evolutions during mornings and evenings during summer months</td>
<td>3. O Acclimatization</td>
</tr>
<tr>
<td>Incident Scene Safety</td>
<td>Medium/High</td>
<td>High</td>
<td>1. O Use of IMS and passport accountability system at all incidents</td>
<td>2. O Enforce the use of all appropriate PPE including SCBA at incidents in IDLH atmospheres</td>
<td>3. A/O Provide May Day training for all Operations personnel</td>
</tr>
<tr>
<td>Facility Safety</td>
<td>Low/High</td>
<td>High</td>
<td>1. A Implementation of revised facility safety inspection program</td>
<td>2. O Continue Voluntary Compliance Program with NCDOL</td>
<td>3. O Conduct annual fire code inspections for all facilities</td>
</tr>
<tr>
<td>Personal Protective Equipment</td>
<td>High/High</td>
<td>Medium</td>
<td>1. O Annual quantitative mask fit testing for all personnel</td>
<td>2. O Annual SCBA testing for all in service SCBA</td>
<td>3. A Implement PPE inspection and testing program for turnout gear</td>
</tr>
<tr>
<td>Regulatory Compliance</td>
<td>Low/High</td>
<td>High</td>
<td>1. A Continue Voluntary Compliance Program through NCDOL</td>
<td>2. A Review Respiratory Protection Program including “2 In 2 Out” procedures to ensure compliance with 29 CFR 1910.134</td>
<td>3. A Annual refresher training for all supervisors on FLSA, Title VII harassment and discrimination, etc.</td>
</tr>
</tbody>
</table>
## Wilmington Fire Department Risk Management Plan Control Measures

<table>
<thead>
<tr>
<th>Risk/Loss Identification</th>
<th>Frequency/Severity</th>
<th>Priority</th>
<th>Control Measures</th>
<th>A=Action Required</th>
<th>O=Ongoing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Training Safety</td>
<td>High/High</td>
<td>High</td>
<td>1. O Use of qualified NFPA 1403 instructors for all Live Fire training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. O Fire and Rescue training by qualified instructors</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. O Appointment of a Safety Officer for all drills and manipulative training</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. O All equipment maintained, tested, and in proper working order</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. O Enforcement of PPE requirements</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Vehicle Operations</td>
<td>High/High</td>
<td>High</td>
<td>1. A Enforcement of NC State Motor Vehicle laws and department policies relating to emergency response</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. A Enforcement of mandatory use of seat belts and high visibility traffic vests</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. A Implementation of vehicle operations safety SOG</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>4. O Require EVD course for all drivers of fire apparatus</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>5. O Annual review of driving records for drivers of city vehicles</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6. A Require all vehicles to stop at all red lights and stop signs at all times</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>7. O Down grade response to non-emergency for all units except first due on automatic alarms</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Health Exposures</td>
<td>Low/High</td>
<td>High</td>
<td>1. A/O Provide vaccinations and immunizations for all employees</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>2. O Body substance isolation, universal precautions, gloves, eye protection, gowns, biohazard bags</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>3. A Immediate reporting and action for communicable disease exposures as directed in the Infection Control Plan</td>
<td></td>
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<td>4. O Proper decontamination and washing of uniforms and PPE</td>
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<tr>
<td>Financial Liability</td>
<td>Low/High</td>
<td>High</td>
<td>1. O Maintain all necessary insurance coverage (workers compensation, property, and general liability)</td>
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<td>2. A Maintain open communications with third party administrators, City Attorneys, and Human Resources Director</td>
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<td>3. A Knowledge and observance of all applicable laws, codes, and standards</td>
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<td>4. O Maintain checks, balances, and controls of budgetary spending</td>
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<tr>
<td>Health and Wellness</td>
<td>Low/High</td>
<td>High</td>
<td>1. O Annual physical fitness assessments for all personnel</td>
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<td>2. O Annual NFPA 1582 medical evaluations for all uniformed personnel</td>
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<td>3. A/O Encourage participation by everyone in the City of Wilmington's Wellness Program</td>
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<td>4. A Provide prescriptive exercise and diet education and training to all personnel</td>
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