DEVELOPING A COMMUNITY RISK REDUCTION GUIDELINE FOR THE
O’FALLON FIRE PROTECTION DISTRICT

LEADING COMMUNITY RISK REDUCTION

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ABSTRACT

A problem that has faced the O’Fallon Fire Protection District (O.F.P.D.) during its years of phenomenal growth is that it has never had a comprehensive multi-hazard risk reduction plan. While the need for such a plan has grown as rapidly as the population within the O.F.P.D., the Fire District has not had the resources to develop such a plan. The purpose of this research paper was to produce a boilerplate guideline that could be followed by the fire district’s various committees. With this guideline in hand, the committees can develop risk reduction programs for their areas of responsibility. These plans can then be forwarded to the Loss Control Committee for review and approval. The various plans can be combined to meet two of the United States Fire Administration’s objectives of reducing the loss of life from fire by 15% in 5 years and to have 2,500 fire departments develop or be the driving force in creating community risk reduction plans.

This research project employed action and historical research methodologies to develop a guideline to become a working document so that the O.F.P.D. Loss Control Committee can begin to build a comprehensive multi-hazard risk reduction plan. The complete guideline is found in Appendix B. The literature review provided information used to answer the following research questions. What are the risks faced by our internal and external customers? What are the key components of an effective community risk reduction plan? What elements should be included in a community risk reduction plan? How can the success of this approach be measured? The literature review indicated the necessity of a comprehensive multi-hazard risk reduction plan and the importance of our internal and external customers to be prepared in times of crisis.
This researcher recommended that the Loss Control, Apparatus & Equipment, Training, and Building Committees follow the guideline listed in Appendix B to develop and implement quality risk reduction plans for their areas of responsibility within the organization so that an overall risk reduction plan for the whole fire district can be developed.
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INTRODUCTION

The O’Fallon Fire Protection District (O.F.P.D.) is located in St. Charles County, Missouri. St. Charles County government officials state that it is one of the fastest growing counties in the United States. The O.F.P.D. population grew from just less than 10,000 people in 1980 to approximately 50,000 in 2002. The Fire District responded to 324 requests for assistance in 1980 and to nearly 3,000 in 2002. The problem is that the O’Fallon Fire Protection District has never created a community risk reduction plan. Without an organized plan, efforts to prevent and reduce loss of life and property damage caused by uncontrolled fire or other disasters are often immeasurable, ineffective, or duplicated.

The purpose of this research project is to design a step-by-step guideline to be followed by members of the O’Fallon Fire Protection District to aid in building a comprehensive community risk reduction plan that is measurable, effective, and avoids duplication of effort.

Action and historical research methods were used to develop this guideline for designing a community risk reduction plan for the O.F. P. D. The research questions answered are as follows:

1. What are the risks faced by our internal and external customers?
2. What are the key components of an effective community risk reduction plan?
3. What elements should be included in a community risk reduction plan?
4. How can the success of this approach be measured?
BACKGROUND AND SIGNIFICANCE

The O.F.P.D. is a combination career and volunteer full service fire department that protects an area of roughly 64 square miles with five fire stations. Forty-eight career captains and firefighters working a 24-hour, three-platoon system augmented by 40 volunteer firefighters staff four of the stations. One station is strictly staffed with volunteer firefighters. The Command Staff consists of six chief officers: the Fire Chief, a Deputy Fire Chief in charge of Operations, an Assistant Fire Chief in charge of training, and three Shift Battalion Chiefs. The Fire Prevention office is staffed with an Assistant Fire Marshal and a Building Inspector that hold no fireground authority.

The O.F.P.D. is 160 miles from the New Madrid earthquake fault, is within 15 miles of the Boeing missile plant, and has two major railways and two major highway arteries passing through it. The O.F.P.D. has 30 preschool and kindergartens, 10 elementary and junior high schools, 3 high schools, 4 adult residential care facilities, and 2 nursing homes for the aged or infirmed. Three of these facilities are licensed by the State of Missouri for over 100 beds each. The Mother House, Convalescent Care, and Infirmary for the Catholic Sisters of the Most Precious Blood are located in the city of O’Fallon. The sisters established their community in 1875. Many of the original buildings are still occupied by the 134 active sisters of the order. Very little built-in fire protection is in any of these buildings. The average age of the sisters is 80 years old. The Infirmary provides nursing care for a minimum of 38 sisters. The Convalescent Wing averages 35 permanent residents. At this time, O.F.P.D. does not have a current fire/disaster pre-plan on any of these high life hazards.
The O.F.P.D. staff provided an average of 637.8 hours of hard work each year on safety education and prevention programs. We have a very active smoke detector campaign and a premiere Juvenile Firesetter Program. The Juvenile Firesetter Program is being adopted by several fire organizations throughout the state and has the endorsement of the Missouri Fire Marshal Office, Division of Fire Safety. Our firefighters have been trained to properly install infant car seats by the “SAFE KIDS” Coalition. In 2002 O.F.P.D. firefighters installed over 200 infant car seats in parents, grandparents, and other child-care providers’ vehicles. Many of our other safety programs are active and motivated but lack direction or an effective yardstick to measure their success.

The safety of our firefighters also needs to be considered as a top priority. We have recently instituted department medical physicals and a physical fitness program that places a heavy emphasis on improving our firefighters’ cardio vascular fitness and endurance. Unfortunately, there is no department or division head responsible for the continual supervision of this program. We have an Equipment Committee for investigating and recommending new apparatus and equipment and a Loss Control Committee that is to investigate and reduce injuries and improve safety. Both of these committees accomplish a great deal of work each year but suffer from a lack of direction and commitment from the current administration.

The O.F.P.D. has experienced significant fire loss, damage from severe weather, and explosive growth along with the potential risks of a major earthquake fault and close proximity to a major defense manufacturer and a strategic air force base. These risks provide the background for the necessity of having a written community risk reduction program. The officers and elected officials of the fire district realize that without an
organized plan, efforts to prevent and reduce loss of life and property damage caused by uncontrolled fire or other disasters are often immeasurable, ineffective, or duplicated. Very little time has been spent identifying and developing pre-fire/disaster plans for our major target hazards.

This research project looked at the events and statistics of our area since 1980. A working guideline was developed as a boilerplate for all risk reduction planning. Using this guideline should insure that quality plans that are measurable and effective are developed and not duplicated. The National Fire Academy course Leading Community Risk Reduction will be the foundation of this research project.

“The executive fire officer must have a positive vision for the community risk reduction program, and become a catalyst within the community to make the vision a reality. The executive fire officer is personally committed to the philosophy of prevention, preparedness, and mitigation and is an active member of his or her community becoming the Champion of Community Risk Reduction” (Federal Emergency Management Agency [FEMA]/United States Fire Administration [USFA]/National Fire Academy [NFA], 2002).

**LITERATURE REVIEW**

The purpose of this literature review is to develop a guideline that will be comprehensive in its scope and instrumental to the officers and staff of the O.F.P.D. to design a community risk reduction plan. The creation of a comprehensive guideline will insure a systematic and balanced approach to the development of such a plan. This literature review will identify the key components of a loss reduction plan, establish how
the risks faced by the community are determined, define what elements should be included in the community risk reduction plan, and decide how the success of the plan will be measured.

The text from the National Fire Academy (NFA) course Leading Community Risk Reduction, information found in the Federal Emergency Management Agency (FEMA) United States Fire Administration (USFA) publication *Risk Management in the Fire Service*, 15 magazine articles, and the statistical/historical information kept by the O.F.P.D. provided the foundation for this research paper.

Fire departments play a critical role in defending their communities against fires and other situations that threaten lives and property. The fire department exists to reduce the community’s loss when fires occur. They are also expected to perform emergency medical services (EMS), emergency management services during disasters, and hazardous materials response at uncontrolled hazardous materials releases. Performing emergency response procedures, however, are just a small part of a fire department’s mission. Fire departments support risk reduction activities by being involved in key risk management practices. Risk reduction practices such as fire prevention, code enforcement, and public education are efforts that make citizens more aware of dangers, prevent emergencies, and help the public respond effectively to an emergency or crisis (FEMA, 1996, p. 8).

In the introduction of the course material *Leading Community Risk Reduction*, the goal of the course was stated as supporting the USFA’s five-year operational objectives focusing on reducing a community’s vulnerability to fires and manmade or natural disasters. The USFA’s first operational objective was to reduce the loss of life from fire
by 15%. The second objective was that 2,500 communities would have a comprehensive, multi-hazard risk reduction plan led by or including the local fire service (FEMA/USFA/NFA-LCRR-SM, 2002, p. 1-17). To meet these goals the fire service must use the proper proportions of emergency service, safety education, and improved fire safety engineering. The truth is that the fire service must begin to use both emergency services and prevention with equal commitment. “One team. One goal. One common purpose” (FEMA/USFA/NFA-LCRR-SM, 2002, p. 2-24).

With the responsibility of developing a community risk reduction plan resting squarely on the shoulders of the fire service, a systematic approach for creating risk plans will ensure that an effective comprehensive risk reduction program can be designed. Knowing why, when, where and how fires are starting and why, when, where, and how firefighters are being injured and killed is essential information for the development of the plan. According to findings released by the USFA, the leading causes of fire in the United States are and have been cooking fires, heating fires, and arson. Each year one-quarter of all fire injuries are from cooking fires, and, although greatly reduced, smoking is still the leading cause of fire deaths. The causes of firefighter injuries and deaths have remained the same over the years. The two leading causes of death to firefighters are heart attack and apparatus/vehicle accidents responding to and returning from emergencies (TriData Corporation, 2002).

A risk management system is a dynamic process. To be effective, it should begin with the establishment of goals, then objectives to meet the goals. As always these goals and objectives should be clearly stated, understood, attainable, and measurable (FEMA, 1996, p.31). Successful risk reduction plans are the result of effective planning. A five-step

Step 1 is Planning Strategies – Getting Ready. Often times planning efforts fail because the stakeholders are not identified, adequate resources are not available, or the planners do not have the authority to move forward. Insuring that all of these bases are covered before starting to develop a plan will improve the chances for success.

The first base to cover is defining authority. It must be decided who has the authority to make changes and what decisions or changes have to have the approval of other department heads or policy makers. Establishing the leadership team must be next on the agenda. The leadership team is usually a small group of key people that help guide the process. Many planners prefer that the members of the leadership team be members of their organization. However, having people from outside the organization or the labor union may help to lend credence to the group’s findings.

The establishment of a planning group is the next phase. All the stakeholders must be identified. Stakeholders are the people who are affected by changes that will be developed. A good rule of thumb is if they have a stake in the outcome, get them into the process early. This also means that some of the stakeholders may not be supportive of your planning group’s effort. It is important to get those with a negative opinion involved in the process. Having a good facilitator is essential if the group is to accomplish their mission. The facilitator is responsible for obtaining consensus and moving the group forward to meet their deadlines. The facilitator’s ability to gain consensus when dealing with opposing view points is important to good planning.
Reaching consensus is normally a better way to resolve conflicts than by voting. Voting often results in identifying disagreements. The voting process may actually aid in building walls and widening the gap of disagreement within the group.

The last two items that need to be identified is the scope of the plan and a schedule to accomplish the different tasks. Often the ambition of the group is to take on all the risks the department faces. Unfortunately, this may not be feasible or practical. The availability of resources or lack of support from other agencies may force the organization to narrow its risk reduction plan. In these instances, setting priorities and limiting the organization’s focus to the normal fire department’s role may be the most effective. A planning schedule that details milestones and accomplishments along with dates of completion is important to the overall completion of the project (FEMA/USFA/NFA-LCRR-SM, 2002, p. 2-29).

The second step in the risk reduction process is Risk Assessment. Knowing the risk is essential in the risk reduction planning process. Effective decision-making depends on the quantity, quality, accessibility, and usability of information provided to decision makers. A comprehensive hazard list has been developed by FEMA and is listed in Appendix A of this research paper. Questions the planners need to ask are: Could this event affect our jurisdiction? Is this hazard a significant threat to our internal or external community? What is the possibility that this event will trigger another serious event? Once the hazards have been determined, the planners assess the possibility that the hazard will occur. A low hazard is unlikely to happen. A moderate hazard is somewhat likely to occur or affect the community. A high hazard is likely to occur or recur and to have a devastating effect on the community. With the community’s hazards identified and their
likelihood of occurrence established, the final step of planning is to provide a best estimate of the number of people who will be affected (FEMA/USFA/NFA-LCCR-SM, 2002, p. 5-50).

The next phase of Risk Assessment is to understand the community’s vulnerability concerning the possible events. A community’s vulnerability to a risk determines the seriousness of an event by looking at five factors: danger/destruction, economic, environmental, social, and political. Values of 1, 2, or 3 are assigned to each of these factors with a 1 being the lowest and a 3 being the highest.

In the danger/destruction factor, when there are few if any fatalities or injuries and they are handled by the normal emergency medical facilities and structural damage is limited to one city block or less, the impact is given 1 point. Some fatalities or injuries handled by normal emergency medical facilities and damage is more extensive but infrastructure is intact, the condition receives a 2. If there are numerous fatalities, mass casualties overwhelm the medical system, and the infrastructure is compromised for more than 24 hours, the event receives a 3.

The second factor is economics. Economics looks at what an incident will cost the community. These costs include cost of controlling the incident, loss of the property, and the total of cost plus the loss. If the loss is limited and temporary, it receives 1 point. If the loss exceeds the community’s fiscal limitations or the effect is permanent, the event receives 2 points. If the loss exceeds the community’s fiscal limits and the effect is permanent, it is given 3 points.

The third factor is environmental impacts. The water and food supplies can be compromised. The wilderness may be affected and there are limitations on the use of
equipment due to environmental values. Rare and endangered plants and wildlife and scenic and historic values must be respected. The value ratings for the environmental impact are as follows. If the impact is short term and reversible with no impact on public health, the event is 1 point. If the impact is long term or effects public health, the event receives 2 points. If the impact is long term and effects public health or is irreversible, the event receives 3 points.

The fourth factor is social aspects. The social aspects take into consideration emergency personnel safety and the safety and well-being of families. Historical values deserve special consideration. Evacuation/shelter for victims and recreation values, while possibly frivolous, add to the social fabric of a community. These are the value ratings for social aspects. Minor social upheaval limited to a few families receives 1 point. If shelters are established and some historical/cultural values are affected, the event receives 2 points. If emergency personnel must consider their own families, there are mass evacuations, and shelter requirement exceeds community capability, this event receives 3 points.

The fifth factor is political considerations - planning level. This factor establishes the level of planning that will be required. Can the planning be taken care of at the local level? Is some regional or statewide planning necessary? Is national planning involved? Will FEMA be involved in the recovery? If planning, response, and recovery are at the local level only, the event is valued at 1 point. When the planning, response, and recovery are at the regional or state level, the event receives 2 points. If the planning, response, and recovery are at the federal level, the event receives 3 points.
Each hazard is scored for vulnerability. A score of 5 - 8 is considered to be low vulnerability, 9 - 11 is considered moderate, and 12 – 15 is to be considered high vulnerability. Whenever a 3 is scored in vulnerability, the hazard value should be considered to be moderate or high regardless of the outcome of the totals.

After looking at the list of hazards, a priority list is established. Using the values of the probability of occurrence and multiplying those values by the value assigned to vulnerability forms the priority list. The sum of the two factors provides the planners with useful information that will allow them to develop their priority hazard list (FEMA/USFA/NFA-LCRR-SM, 2002, p. 5-62). A listing of these forms can be found in Appendix A.

While the process of establishing a community’s risk is fraught with uncertainty, expert staff working with present information and historical records can identify the best allocations for a community’s resources (FEMA/USFA/NFA-LCRR-SM, 2002, p. 5-70). There is no one right way to go about conducting a risk assessment. The approach chosen will depend on the hazard and the existing information.

The third step is the intervention strategy or the solution step of the process. Determining the causal factors is the first step in developing an intervention strategy. Causal factors are the combination of the elements that contribute to the risk of life, property, environment, or community vitality. Evaluate the causal factors to be sure they directly affect risk. Problems at a lower level may not have an impact on risk or may inadvertently lead to overlooking other more productive solutions (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-24).
The identification of good causal factors leads to good identification of different solutions. Analytical research and brainstorming are often the most effective way of developing a list of solutions. Analytical research is using historical information and analysis to determine solutions. Brainstorming uses a knowledgeable group of people to brainstorm a list of solutions. While brainstorming, strive to identify and list all solutions no matter if the solution seems feasible or not at first. Once the list is developed, it may be helpful if the group arranges them in categories with similar characteristics. For example, code enforcement, fire safety education, personnel, or equipment and apparatus may be the categories used. One solution may have an effect on several problems within the different groupings (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-24).

The solutions to these causal factors were discussed in a 1947 Presidential Conference on Fire Prevention. This conference identified several areas of concern regarding the nation’s fire problem. This conference noted that prevention solutions were most often found in education, engineering, and enforcement. President Harry S. Truman coined the concept of the “Three E’s”. The three “E’s” continue to drive the prevention effort yet today.

The first “E”, education, saw public fire safety education in schools at all levels including college and state and regional fire training colleges. The purpose of fire safety education is to raise the public’s awareness, provide information and knowledge, and, ultimately, produce desired low-risk behavior. Programs like the National Fire Protection Association’s (NFPA) programs Operation E.D.I.T.H. (Exit Drills In The Home), “Learn Not To Burn” and “Risk Watch” are examples of programs designed to raise awareness and provide fire safety education to the community.
The second “E”, engineering, focused on the idea of research and development, engineer and architect training, and plan review. Fire engineering has been incorporated into programs in our nation’s engineering and architectural schools. Plan review, fire flow and hydraulic calculations, smoke management control, and mechanical design are taught. This has led to devices such as automatic shut-offs and products intended to child and fireproof. Improvements in sprinkler systems and smoke detection systems are the results of new technologies developed through engineering.

The third “E”, enforcement, has resulted in fire code and ordinances applied by trained inspectors to enforce compliance by force of compulsion. These enforcement measures are possible through the adoption of strict codes and ordinances. With the adoption of the codes and ordinances comes the authority to issue civil and criminal penalties, administrative warrants, and safety permits (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-25).

The next step in the intervention strategies is developing enabling objectives. The enabling objectives take the solutions and form the plan. These enabling objectives will be identified and organized into strategies focused on planning goals. These objectives are best written when they contain three elements: quantity, quality, and a timeline. An example would be: By January 1, 2004, the Loss Control Committee will identify the five most serious risks facing our community and will have developed a comprehensive plan to significantly reduce the community’s exposure (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-27).

The last intervention strategy is a cost/benefit analysis. How productive is the plan? Are the goals and objectives being accomplished? What is the cost of the program? Is
the cost of the program equal to the change in the risk? A simple process is to graph a chart-pack and brainstorm with the planning participants to establish the potential for success.

The fourth step in a community risk reduction plan is action planning. Action planning in community risk consists of specific steps to be taken in order to accomplish goals and objectives. This action plan is the roadmap to follow that will steer you back in the right direction if things start to wander off course. Put in the simplest terms, the action plan consists of five elements: Who, What, When, Where, and How. If these elements are focused on while developing the goals and objective, the action plan will lead to reasonable solutions in a manageable time frame.

The “Who” are the stakeholders both internal and external who have an interest in the solution. Not every stakeholder will be positive about the changes or the elements of the program. Several of the stakeholders may not be willing to change. They may express concerns over cost or may not see the need to change. Involve those who are opposed to the changes early and make them part of the solution. Choosing the right people to accomplish the task is an art. The stakeholders selected must not only be willing to participate, they must be capable of participating.

The “What” are the specific tasks to be accomplished in order to meet the objective. There may be many tasks needing to be performed before an objective is completed. Each task must be assigned a number. The task must be defined and a person must be assigned to accomplish the task.

The “When” is the timeline of the action plan? All completion dates and benchmarks must be achievable and realistic.
The “Where” of the plan are the specific areas that are targeted. This could be a segment of people, a specific area of the community, or a particularly hazardous building or operation. Sufficient time must be spent on defining “where” if there is to be a viable action plan.

The “How” of the plan requires good salesmanship on the part of the “Risk Reduction Champion”. There are few free rides and budgets are tight. Showing the need for a program may be easy. Selling how that program will be funded may be very difficult.

The evaluation process is the last step of the action plan. The evaluation of a program identifies where your program is headed. Is it effective and does it point to where resources need to be allocated? Will the data collected from the evaluation process help to obtain funding and community support? The evaluation process documents for others the kind of work the organization is accomplishing. It identifies problems in the program and in the work performed so that corrections can be made.

The evaluation process is the portion of the plan that asks questions. The evaluator will ask: Am I doing it? If not, why not, and what changes need to be made? In this process records are kept to track what we are doing to accomplish the program’s objectives. This process involves counting and tabulating data and analyzing data to determine compliance to the program design.

In an outcome evaluation, the evaluator asks, “Is my program making a difference? Is my program changing the behavior of the target population?” Program evaluation is a management tool. Think in terms of monitoring and tracking. See if what you are doing is working (FEMA/USFA/NFA-LCRR-SM, 2002).
In summary, the information in this literature review indicates the necessity of having a comprehensive multi-hazard community risk reduction plan and the importance of a step-by-step guideline that provides goals, objectives, and milestones to develop a quality risk reduction plan.

**PROCEDURES**

This research project employed action and historical research methodology to (a) design guidelines for developing a measurable and comprehensive risk management plan and (b) limit the effect of risk faced by both the internal customer, our firefighters, and the external customer, our citizens. The procedures used to complete this research project were a literature review and the development of a department Guideline for Community Risk Reduction Program.

**Guideline Form**

The author developed the guideline (Appendix B) for the O’Fallon Fire Protection District’s Loss Control Committee for two reasons. The first reason was to reduce the internal and external customers’ exposure to certain risks. The second reason was to provide the Loss Control Committee with a tool to help them develop a priority list of potential risks faced in the community. The Loss Control Committee will be given the guideline for review for possible submittal as an official fire district document to be used for the purpose of identifying risk and developing a risk reduction plan.

**Limitations**

The author designed this guideline solely for raising the awareness and instilling in the members of the Fire District the importance of a comprehensive risk reduction plan with
the intention of finding a “Risk Reduction Champion” to further the cause of risk reduction planning.

The literature review for this paper used some dated materials. Tornadoes, earthquakes, conflagrations, and firefighter safety and survival are not new problems; therefore, the information in the dated material was still found to be accurate.

**Definition of Terms**

Risk: Exposure to possible loss or injury.

Causal Factors: Expressing or indicating cause that contributes to a result.

Brainstorming: A group problem solving technique that involves the spontaneous contribution of ideas from all.

Champion: A militant advocate or defender; one that is acknowledged to be better than others.

Internal Customer: Our employees.

External Customer: Citizens or visitors that ask for our help.

**RESULTS**

A sample Guideline for Community Risk Reduction Program produced for the O’Fallon Fire Protection District can be found in Appendix B.

**Answers to Research Questions**

**Research Question 1.** What are the risks faced by our internal and external customers?

The risks faced by our internal customers, the firefighters, are lengthy and the list provided is not inclusive of all the risks faced by firefighters, but many of the major risks have not changed significantly in the last 25 years. Heart attacks and injuries sustained in
motor vehicle accidents (responding to and returning from alarms) are still the leading causes of firefighters’ deaths in the United States (TriData Corporation, 2002). Other risks associated with firefighting are exposures to known carcinogens in toxic smokes and gases. Exposure to blood borne pathogens and other emergency medical health risks are concerns of the modern fire service. Strains, sprains, and other muscle injuries, both at the fire station and on the scenes of emergencies, are risks addressed in the National Fire Protection Association Standard 1500 *Firefighter Occupational Safety and Health*.

The risks experienced by the O’Fallon Fire Protection District’s external customers are also quite numerous. The list is not exhaustive but is intended to be a means to start a comprehensive risk reduction program for our customers. The O’Fallon Fire Protection District responds to an average of 100 structure fires a year. The leading cause for those structure fires is cooking left unattended. The second major cause of fires is improper use of fuels. An example would be using gasoline as a cleaner or paint remover. The O.F.P.D. will respond to nearly 3,000 requests for assistance. Over 70% of those responses will be to assist with a medical emergency.


**Research Question 3.** What elements should be included in a community risk reduction plan? The elements that should be included in the community risk reduction plan are developing, planning, and leadership strategies. This is accomplished by establishing a leadership team, defining the group’s authority, appointing a facilitator,
identifying the scope of the program, and establishing milestones and completion dates. Assessing the community’s risk is another essential element of risk reduction planning. Will this event trigger another event equally as bad or worse? Determining if a hazard is a low, a moderate, or a high hazard and assigning a value to each level is another crucial element of community risk reduction planning. Next, the community’s vulnerability and the level of impact concerning the danger/destruction and the effects on its economy, environment, and political ramifications are determined. Then, a priority list of hazards to be addressed is developed (FEMA/USFA/NFA-LCRR-SM, 2002, p. 5-70).

Other critical elements are determining causal factors, developing an effective list of solutions, and using education, engineering, and enforcement as risk prevention tools. Use the solutions to write clear goals and enabling objectives that will prove the benefits of the program and that the benefits outweigh the cost (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-23). Next, develop a step-by-step plan that is a road map to accomplish the goals and objectives. The last critical element is evaluation of the program. Is the program doing what it is supposed to do? If not? Why not? (FEMA/USFA/NFA-LCRR-SM, 2002).

Research Question 4. How can the success of this approach be measured? Establishing goals and enabling objectives and then measuring those goals and objectives against the year-end statistical data will define the success of this approach. This will be done by continually tracking the health of our firefighters through medical physicals and fitness testing. Reducing the incidents of loss-time accidents and workman compensation claims will also be used as a barometer to gauge the effectiveness of our program for our internal customer. The reduction of the leading causes of fires within our community, an
increase in the hours spent teaching public fire safety education, emergency
preparedness, and the development of a disaster plan that identifies the fire district’s
target hazards will be used as a yardstick to measure the success of our community risk
reduction plan.

**Guideline Rationale**

The purpose of this document is to be a reference source for the officers and staff of
the O’Fallon Fire Protection District, in particular, the District’s Loss Control Committee.
It should be used as a guide to investigate areas of the department and the community
where the safety of our membership and citizens can be improved. It should be used as a
map to help design effective comprehensive risk reduction plans. The intention of this
guideline is to insure that the programs are complete, reasonable, and have affordable
solutions. This guideline is broken into five separate sections. Each section is designed
to be a step-by-step planning tool to help develop a comprehensive risk reduction plan for
any safety or hazard planning a fire department may face. By understanding these five
steps and using the essential pieces listed, the planning members should understand the
reason risk reduction planning is important and feel confident that they can develop a
comprehensive plan. The guideline introduction explains why developing risk reduction
plans are important and what the purposes of developing such plans are. The guideline
provides a step-by-step detailed plan to correct or mitigate a specific risk and to develop a
plan to control that risk at an acceptable level.

The first section defines who has the authority to make changes in the organization,
identifies who will lead these changes and who will most likely be affected by the plan.
This section also identifies the scope of the plan and establishes both milestones and
completion dates as the plan moves forward. Many risk reduction efforts fail at this point because the essential foundation has not been laid.

The second section of the guideline identifies the problems that the planning group will be working on. This section will give the planners tools to understand the seriousness of different problems and the ability to rate or rank these problems by their severity. This section of the plan will also look at the time it will take the community to recover from an incident and if agencies from outside the community will need to be requested in order to help handle this risk.

The third section of the guideline focuses on creating a solution. The planners will be able to write clear enabling objectives with defined goals to develop risk solutions. Studying past incidents of occurrences and brainstorming with groups of people knowledgeable in a specific risk gives the planners the information to develop prevention solutions strategies. This section of the guideline will require the risk planners to look at the programs and see if the cost of fixing the problem is equal to the reduction in the risk.

The fourth section is the implementation of the plan. This is the action plan or the road map to how a risk will be reduced. The risk planners determine the who, what, when, where, and how of the risk reduction plan. Defining these roles will allow the planners the opportunity to audit the plan and be sure that it is still on target.

The fifth section is the evaluation step. The risk planners simply test to see if the plan is doing what it was intended to do. Is the plan meeting the enabling objectives and the goals created in the third section of the guideline?
DISCUSSION

The results of the research specifically identified the problems facing the O’Fallon Fire Protection District by not having a formal Community Risk Reduction Program and provided the necessary information to formulate a comprehensive risk reduction plan. Other emergency service providers do some of the things that we do, but no other emergency service provider protects the citizen and community from the ravages of uncontrolled fire. In the manual *Risk Management Practices in the Fire Service*, the author writes, “Fire departments play a critical role in defending their communities against fires and other situations that threaten lives and property. The fire department exists to reduce the community’s loss when fire occur” (FEMA, 1996, p. 8).

The importance of the local fire department being involved in community risk reduction is made evident in the introduction material of the student manual *Leading Community Risk Reduction*. The author states that the fire service must use both emergency services and prevention with equal commitment. “One team, one goal, one common purpose” (FEMA/USFA/NFA-LCRR-SM, 2002, p. 2-24). The introduction goes on to say that community risk reduction planning rests squarely on the shoulders of the fire service. The O’Fallon Fire Protection District provides excellent emergency services, but without a formal risk reduction plan the Fire District is remiss in its duties to protect its citizens. Realizing the importance of such a plan, the O’Fallon Fire Protection District supports the efforts of the USFA operational goals of reducing the loss of life from fire by 15% and becoming one of the 2,500 departments to develop a comprehensive, multi-hazard risk reduction plan (FEMA/USFA/NFA-LCRR-SM, 2002, p. 1-17).
While doing the research for this project, it was discovered that the leading cause of fires in residential dwellings for a recent 10-year period in the United States has been kitchen fires (TriData Corporation, 2001). In checking the O.F.P.D historical documents, kitchen fires have been the leading cause of fires in our customers’ one- and two-family dwellings for at least ten years.

Further research found that the leading cause of firefighter deaths and disability is heart attacks and other similar cardio and vascular medical conditions. In recent years, two firefighters in the metropolitan St. Louis, Missouri, area have died from heart attacks while on duty. My department will suffer the loss of our first career firefighter to early retirement due to heart related problems. These are just two examples of the risks faced by both our internal and external customers. A comprehensive community risk reduction program would prioritize the risks faced by our community and the guideline created by this research will be instrumental in developing that program.

In writing about the elements of a community risk reduction plan, the author of *Risk Management in the Fire Service* described a dynamic process that to be effective must establish goals and objectives that are clearly stated, understood, attainable, and measurable (FEMA, 1996, p.31). The five step process for risk reduction planning found in the student manual *Leading Community Risk Reduction* implemented the use of goals, objectives, planning, prioritizing, assigning responsibilities, completion dates, and evaluation strategies to develop a plan to mitigate or eliminate risks faced by the community.

The five-step process includes planning strategies, risk assessment, intervention strategies, action planning, and evaluation strategies. This five-step process will help
members of the Loss Control Committee establish a priority list of risks that need to be addressed within our community (FEMA/USFA/NFA-LCRR-SM, 2002, p. 2-28).

An area that the O.F.P. D. needs to improve is identifying the risks the community faces. Currently, the fire district has no target hazards identified, risk assessments made on any of its commercial buildings, or disaster preparedness plans in the event of a natural or manmade disaster. By following the guidelines established by this research, the planners will be capable of providing risk assessment by gathering information of the proper quantity, quality, and usability to make effective decisions (FEMA/USFA/NFA-LCRR-SM, 2002, p. 5-50).

The solution to a risk or a danger faced by a community determines the effect the program will have mitigating the problem. The intervention portion of the plan looks at the causal factors of a risk and determines what the effect will be on life, property, environment, or the community’s vitality. The planners will use brainstorming and analytical research to develop solutions to problems. These solutions will fall in one of three prevention solution areas: education, engineering, and enforcement of fire codes and ordinances (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-25). This guideline also requires that enabling objectives be written that focus on the planning goals. These objectives must contain three elements: quantity, quality, and a timeline for the project (FEMA/USFA/NFA-LCRR-SM, 2002, p. 8-25).

A critical step in any process, whether it is strategic long-range planning or risk reduction planning, is the action-planning portion of the equation. This is the portion of the plan that acts as the roadmap that steers the planners back on course when they lose
their way. This section of the plan assigns the responsibilities of who, what, where, when, and how things are going to be accomplished.

The last step of any good plan is the step that leads you back to the beginning. That step evaluates the program and proves whether or not the plan is successful. The evaluation process looks at the goals and objectives and will ask: Am I doing it? Is my program making a difference? If not, why not, and what changes need to be made?

Simply stated, the results of this research will help improve the overall health, safety, and preparedness of our internal and external customers by providing the officers, staff, department volunteers, and general membership with necessary tools to develop programs that will eliminate or mitigate the risks that we all face.

**RECOMMENDATIONS**

Research indicated that it is the fire service’s responsibility to become the risk reduction champions in their communities. “The truth is that the fire service must begin to use both emergency services and prevention with equal commitment” (FEMA/USFA/NFA-LCRR-SM, 2002, p. 2-24). This organization may not have the capability to completely eliminate all the risks faced by the citizens of the O’Fallon Fire Protection District, but it must address those risks that it can effect by eliminating the hazard or by mitigating the effects of an incident once it happens. Every organization is facing tighter budget restrictions and with that in mind, the members of the fire service must remember that their number one priority is to protect their customers from the ravages of uncontrolled fire.

The research also indicated that certain risks continue year after year and remain the leading causes of death and destruction. The leading cause of fires in one- and two-
family dwellings continues to be kitchen fires (TriData Corporation, 2001, p. 77). For the last 25 years, the leading cause of firefighter deaths and early retirements for firefighters is heart attacks and cardio/vascular disease (TriData Corporation, 2002, p. 13). Well-prepared and executed risk reduction programs will help to drive down the number of both fires and deaths. It is a fact that those citizens that are educated, trained and prepared to face emergencies greatly reduce the devastating effect of certain manmade and natural disasters.

A risk reduction plan with clearly defined goals and objectives, milestones to measure progress, and evaluation criteria to test effectiveness does not exist within the department at this time. This research clearly demonstrated the absolute necessity of a quality community risk reduction plan that is comprehensive in its scope. Community risk reduction is all encompassing, protecting both our firefighters and our citizens. A solid plan is built on identifying the stakeholders, establishing their authority and leadership, while assessing and prioritizing the risks. Finding the proper solutions to the risks is determined by using the three “E’s”. The three “E’s” of education, engineering, and enforcement are the tools that a successful plan uses to help reduce or eliminate a potential risk to a community. The role of community risk reduction champion truly lies within the fire service.

It is recommended that the Loss Control Committee review the guideline attached in Appendix B and use it for discussion and help in designing a well-written Community Risk Reduction Plan. A quality plan is a living document that, if updated, will prevent, reduce, or eliminate the effects of the dangers presented by community risks. It is also recommended that the committee members read the article and books listed in the
reference list of this paper and attend the National Fire Academy’s Leading Community Risk Reduction Course so that they can better understand these ideas for improving the safety of the citizens of the O’Fallon Fire Protection District.
REFERENCES


Appendix A

Listing of Sample Worksheets

Comprehensive FEMA Hazard List – SM 5-57
Hazard Identification Worksheet – SM 5-29
Vulnerability Assessment – SM 5-66
Risk Rating Worksheet – SM 5-68

Note: All of these worksheets can be found in the Student Manual Leading Community Risk Reduction produced by Federal Emergency Management Agency, United States Fire Administration, and National Fire Academy.
Guideline for Community Risk Reduction Program

**Vision Statement:** The O’Fallon Fire Protection District will “Champion” the cause of community risk reduction to meet the United States Fire Administration’s goals of reduced loss of life by fire and to become one of the 2,500 communities with a working comprehensive community risk reduction plan. The O.F.P.D. will be considered by its peers to be the leading authority regarding community risk reduction through preparedness, mitigation response, and recovery from fires and natural or manmade disasters.

**Introduction of the Plan:** In an attempt to meet the United States Fire Administration’s goals of reducing the loss of life from uncontrolled fire and to be one of the 2,500 departments that have a multi-hazard risk reduction plan, the following guideline was developed. Senior leadership and labor have determined that a strategy needs to be developed to combat the problem. The following guideline will help to create that solution.

As with most organizations, the O.F.P.D. is strapped for funds, time, and staffing. This will require that a priority list be developed so that no one committee is overwhelmed by its task. Once a risk or problem is identified, it will then become the responsibility of one of four committees to develop a solution or formulate a plan to reduce the risk. It will also be the responsibility of the assigned committee to elicit help or information from outside authorities in specialty areas, i.e., natural or manmade disasters. The four major committees are: (1) Fire Prevention, Fire Safety Education, and
Fire Control, (2) Firefighter Safety and Survival, (3) Firefighter Apparatus and Equipment, and (4) Manmade and Natural Disasters.

**The Guideline:** This guideline was designed to provide the members of the O’Fallon Fire Protection District with a boilerplate outline to design programs to manage risks that are faced by our internal and external customers. This guideline will be a step-by-step process to insure continuity each time a risk is evaluated and a plan is developed to eliminate or reduce the effects of certain risks.

The objective of the guideline is to help the members of the O’Fallon Fire Protection District develop a comprehensive multi-hazard community risk reduction program that focuses on two of the long-term goals established by the United States Fire Administration (USFA). The first USFA objective is to reduce the loss of life by fire by 15% within five years. The second is to have 2,500 communities develop a comprehensive multi-hazard community risk reduction program.

The purpose of this guideline is to insure that the planning process involves all four phases of emergency management: preparedness, mitigation, response, and recovery. This guideline will also establish who is responsible for developing community risk reduction programs for the O.F.P.D. and insure that the programs developed meet the USFA’s objectives.

The plan will define the key components, identify and prioritize the risks the community faces, and establish the elements of code enforcement, safety & prevention education, and emergency response that must be included in a successful risk reduction plan. The development of this plan will basically use the information found in the course text *Leading Community Risk Reduction* published by the National Fire Academy. The
planning process for risk reduction as taught by the National Fire Academy is a five-step process. Those steps are: Planning Strategy, Risk Assessment, Intervention Strategy, Action Plan, and Evaluation Strategy. This guideline will examine and explain each step of the process to insure continuity throughout the plan.

**The Planning Strategy:** This first step is critical and must be done thoroughly to insure the success of the program. The planning process consists of many important pieces. Identifying a leadership team and establishing its authority is the first step in the planning process. A leadership team will be appointed each time a risk is evaluated. The leadership team will consist of the Chair of the Loss Control Committee, a department head from each division, and a member of labor. An example of a leadership team would be: Fire Chief, Chief of Department Operations, Chief of the Training Division, Chief of the Fire Prevention Bureau, and the Executive Shop Steward for the IAFF. The leadership team will be held to five members. Every leadership team must have a minimum of one member of the Chief’s staff and one member representing labor. The leadership team will determine the extent of its authority by following current codes of conduct prescribed by job description.

Next, a planning group will be established to assist the leadership team in the development of the risk reduction plan. At this time, the planning group will remain in house and work strictly on fire department related issues. Members of the Fire Prevention Bureau, Loss Control, Fire Prevention, Equipment, Vehicle, and Buildings/Facilities committees will be assigned as members of the planning group.

The leadership and planning teams will insure that all the stakeholders are identified and are represented on the planning team. The stakeholders are the employees or citizens
who are impacted by the risk reduction program being developed. A good rule of thumb is to get those who will be affected into the planning process as soon as possible. This will help to win their support and relieve any tension caused by change.

With the teams established, the next step is to identify the scope of the plan. Due to both staff and budget concerns, the scope of these plans will initially focus on the fire district’s role in citizen and personnel safety. The scope of the planning groups will include, but will not be limited to, (a) public fire safety education, (b) plan review and inspections of all new constructions, (c) fire safety inspections of existing buildings, (d) pre-fire planning, (e) safety issues concerning personal protective equipment (PPE), (f) fire and rescue training, and (g) apparatus safety.

The last step of the planning strategy is setting a schedule. A sample task analysis sheet can be found in the FEMA/USAF/NFA’s Student Manual *Leading Community Risk Reduction*. Assigning tasks and establishing milestones for completion of tasks enhances a program’s chance for success.

**Risk Assessment:** Knowing the seriousness of a risk is essential in developing a reduction program. Effective decision-making requires a sufficient quantity of accurate and reliable information that is accessible and useful. Good sources of current and historical information regarding the risks faced are the year-end statistic reports and workman compensation reports compiled by the Custodian of Records for the O.F.P.D. The NFA’s reports on firefighter and civilian injuries and deaths and the National Fire Protection Association Standard 1500 *Firefighter Occupational Safety and Health* also provide useful information.

This information gives the risk planners the data needed to:
1. Determine the likelihood that a certain event will happen.

2. If it were to happen, would it set off another serious event?

3. Determine the best guess estimate of the number of people involved.

With this information, decide the hazard class.

1. **LOW HAZARD**: Unlikely to happen = 1 point

2. **MODERATE HAZARD**: Somewhat likely to happen = 2 points

3. **HIGH HAZARD**: Likely to occur or reoccur with devastating affects on the community = 3 points

The planners will have to determine the vulnerability of the customer if the risk occurs. Vulnerability to a risk determines the seriousness of an event by looking at five factors: danger/destruction, economic, environmental, social, and political. Values are then assigned to each of these factors.

1. **Danger/Destruction** -

   A. Few if any fatalities, injuries handled by normal emergency medical facilities, and structural damaged limited to one city block or less = 1 point.

   B. Some fatalities, injuries handled by normal emergency medical facilities, and damage more extensive but infrastructure is intact = 2 points.

   C. Numerous fatalities, mass casualties overwhelm systems, infrastructure will be compromised for more than 24 hours = 3 points.
2. Economics looks at what an incident will cost the community. These costs include the cost of controlling the incident, loss of the property, and the total of cost plus the loss.

   A. Loss will not exceed community fiscal limitations and effect is temporary = 1 point.
   
   B. Loss will either exceed community fiscal limitations or effect is permanent = 2 points.
   
   C. Loss will both exceed community fiscal limits and effect is permanent = 3 points.

3. The environmental impacts are water/food supplies can be compromised and the wilderness may be affected. What are the limitations on the use of equipment due to environmental values, with rare and endangered plants and wildlife, scenic and historic values being respected?

   A. Impact is short term and reversible with no impact on public health = 1 point.
   
   B. Impact is long term or effects public health = 2 points.
   
   C. Impact is long term and effects public health or is irreversible = 3 points.

4. The social aspects take into consideration emergency personnel safety and the safety and well-being of families. Historical values deserve special consideration. Evacuation/shelter for victims and recreation values, while possibly frivolous, add to the social fabric of a community.

   A. Minor social upheaval limited to a few families = 1 point.
B. Shelters established, some historical/cultural values effected = 2 points.

C. Emergency personnel must consider their own families, mass evacuations, shelter requirement exceeds community capability = 3 points.

5. Planning level establishes the depth of planning that will be required.
   A. Planning, response, and recovery at the local level = 1 point.
   B. Planning, response, and recovery are at the regional or state level = 2 points.
   C. Planning, response, and recovery are at the federal level = 3 points.

Next, score the vulnerability:
   A. Low vulnerability = 5 – 8 points
   B. Moderate vulnerability = 8 – 11 points
   C. High vulnerability =12 – 15 points

Note: Whenever a 3 is scored in vulnerability, the hazard value should be considered to be moderate or high regardless of the outcome of the totals. FEMA/USFA/NFA’s Student Manual Leading Community Risk Reduction contains the necessary forms to record the values.

Next, look at the list of hazards and establish a priority list. Multiplying the “Probability of Occurrence” by the “Vulnerability of the Community” derives this priority list. Risks are listed by their numeric value.

**Intervention Strategy or the Solution:** The intervention strategy is developing the solution to the risk. The solution is found by:
A. Determining the causal factors. Causal factors contribute to the risk, i.e., cause or create the problem. Simple brainstorming and research of historical data best determine the causal factors.

B. Considering the alternatives. How can we affect the causal factors? These causal factors can be changed through applying the three E’s of Education, Engineering, and Enforcement.

1. The first E, education, concentrates on public fire safety education in schools at all levels including college and state and regional fire training colleges. The purpose of fire safety education is to raise the public’s awareness, provide information and knowledge and, ultimately, produce desired low-risk behavior.

2. The second E, engineering, focused on the idea of research and development, engineer and architect training, and plan review.

3. The third E, enforcement, centers on fire codes and ordinances applied by trained inspectors to enforce compliance by force of compulsion. These enforcement measures are possible through the adoption of strict codes and ordinances.

*Note: A combination of two or more of these items may be needed to improve or eliminate a risk.

C. Developing enabling objectives. These objectives are best written when they contain three elements:

1. Quantity - what will be done?
2. Quality - how well it will be done?

3. Time - when it will be done. An example would be: By January 1, 2004, the Loss Control Committee will identify the five most serious risks facing our community and develop plans that will significantly impact them.

**Action Planning:** The Action Plan lists specific steps to be taken to accomplish goals and objectives. Put in the simplest terms the action plan consists of 5 elements: Who, What, When, Where, and How. If these elements are focused on while developing the goals and objectives, the action plan will lead to reasonable solutions in a manageable time frame.

A. Who are the stakeholders? Positive and negative
B. What tasks will be done?
C. When will the tasks be completed?
D. Where is the specific target described in the objective?
E. How much will it cost? How will it be paid for?

**Evaluation Step:** The evaluation process is the last step of the guideline. The evaluation step decides if the program is effective. This final step is important because the evaluation step determines:

A. Proper allocation of resources.
B. Documents for others the kind of work the organization is accomplishing.
C. Identifies problems in the program in the work performed so that correction can be made.
The evaluation process will ask: Is the program doing what it was intended to do? If not, why not, and what changes need to be made? Is the program making a difference? Is the program changing the behavior of the target population?

Once this guideline is completed and becomes a working risk reduction tool, it becomes a living document that must be constantly updated and maintained. It must also be constantly evaluated for effectiveness and modifications made as conditions change.