REDUCE RISK AND LIABILITY WITH A SMART APPROACH FOR EMERGENCY RESPONSES

ADVANCED LEADERSHIP ISSUES IN EMS

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An applied research project submitted to the National Fire Academy as part of the Executive Fire Officer Program

July, 1998

Abstract

The problem this research project addressed was that the author's department did not have an emergency driving policy or policy defining when red lights and sirens responses were necessary, thus exposing personnel and the public to potential risks. The purpose of this research was to propose and implement a policy addressing emergency and non-emergency response of department vehicles to provide a safer response for personnel and the public. A historical and action research methodology was utilized to develop the proposed policy and to answer the following research questions:

1) What are the risks associated with a response utilizing red lights and sirens?

2) Are red lights and sirens necessary for all emergency responses?

3) How can the risks be reduced for emergency mode responses?

4) How have other fire departments addressed this issue?

The review of current literature revealed the risks associated with emergency responses, methods to reduce the risks, and the impact this problem has had on emergency services. To supplement the literature review, a mail survey of fifty fire departments nationwide was utilized to obtain an overview of how the problem has affected their respective department and how it was addressed in addition to an analysis of statistics affecting the author's department.

The research revealed that the risks associated with a lights and sirens response are numerous rangeing from injuries or death to criminal and civil liabilities. The research showed that frequently little time is saved with such a response and that life threatening emergencies are not typically found upon arrival of department resources.

As a result of the research, it has been recommended that the proposed policy be implemented addressing emergency driving and response. Secondly, a recommendation has been made to implement an annual driver's training refresher program for all department personnel. And third, that the city should implement a priority or emergency medical dispatch system. These recommendations would reduce the risks associated with emergency responses and reduce the need for all responses to be made in an emergency mode, thus increasing the level of safety for both personnel and the public that we are sworn to protect.

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Introduction

Every time a piece of emergency equipment responds to an alarm using red lights and sirens, personnel and the public that we are sworn to protect are at an increased risk of injury or death. The problem this research project addressed is that the Portsmouth Virginia Department of Fire, Rescue, and Emergency Services does not have an emergency driving policy or policy defining when emergency mode (lights and sirens) responses are necessary. All responses are made in the emergency mode, except for public service calls, exposing the personnel, citizens, and the city government to unnecessary risk and liability.

The purpose of this research project was to propose and implement a policy addressing emergency and non-emergency response of department vehicles to alarms ensuring a safe response of personnel and the safety of the public.

Both an historical and action research methodology was used for this research project. An action methodology was used to develop the proposed emergency response policy. An historical methodology was used to analyze the scope of the problem and to answer the following research questions:

1) What is the risks associated with a response utilizing red lights and sirens?

2) Are red lights and sirens necessary for all emergency responses?

3) How can the risk be reduced for emergency mode

responses?

4) How have other fire departments addressed this issue?

Background and Significance

In 1997, the Portsmouth Department of Fire, Rescue, and Emergency Services responded to more than 14,000 combined fire and emergency medical alarms. That same year the department experienced twenty eight vehicle accidents. Thirty three percent of these accidents occurred while responding in the emergency mode (lights and sirens). The two years preceding 1997, the average for accidents occurring while responding in the emergency mode were thirty-seven and twenty-seven percent respectively, presenting a significant hazard to both the citizens and department personnel. The author believes that many of these accidents could have been prevented.

As noted in the introduction, the department does not have a emergency driving policy or a policy defining when emergency mode responses are necessary. All responses are made in the emergency mode with the exception of public service calls. This is a significant issue to the organization not only because of exposing personnel and the public to the increased hazards associated with emergency response, such as injuries from vehicle accidents, but also fiscally significant due to the city being self insured. A serious accident in which the department was found at fault

could significantly impact the city's finances. The city is one of the top three fiscally stressed municipalities in the Commonwealth of Virginia.

This topic was of concern to the previous fire chief and is a concern of the current fire chief. The rate of vehicle accidents and the speed of responding apparatus has been discussed several times over the last year during chief officer staff meetings. The previous chief had received numerous complaints from the public and city administration concerning apparatus speed. Although these concerns and the need for the organization to change its driving habits were communicated to the troops, little organizational change had occurred relating to driving practices. After being on the job for little over a month and reviewing department policies, the new fire chief in May of 1998 asked the department's safety committee to draft an emergency vehicle driving policy. Due to the work already in progress for this research paper, the author volunteered to assist the committee in writing the policy.

This applied research project relates to issues learned in the Advanced Leadership Issues In Emergency Medical Services course, module four, risk management. The fact that vehicle accidents are a major source of risk was reenforced during this module. The author planned on using two of the four methods of managing risk from module four for this project, avoidance and reduction. The other two methods of

managing risk are currently being utilized by the department, acceptance and insurance.

Literature Review

Numerous articles were found relating to all aspects of emergency response and the hazards associated with that response. In a series of articles found in Firehouse magazine, Wilbur addresses many of these issues. Looking at the problem from a national fire service perspective, Wilbur in a 1997 article stated that over the last decade there has been a dramatic increase in the number of fire fighter fatalities while responding to and returning from alarms. He stated that if this trend continues, more fire fighters will die responding to and returning from alarms than on the fire ground. Wilbur cited in this article the 1996 National Fire Protection Association (NFPA) statistics for fire fighter fatalities which showed that one third of all fire fighter fatalities occurred in this category.

In a 1994 article by Wilbur, he stated that historically over the last decade, twenty five percent of all fire fighter fatalities have occurred responding to and returning from alarms. Wilbur (1994) states that the risk of accident and injury greatly increases while using red lights and sirens during response. Statistics show that the chances of having an accident are three times greater and chance of associated

injuries are ten times greater responding with lights and sirens than responding in the non-emergency mode.

A 1993 article by Quinlavin cited other statistics pertaining specifically to ambulance related collisions. He cited National Highway Traffic Safety Administrations (NHTSA) statistics showing that emergency medical service (EMS) collisions resulting in fatalities are double that of the rate of police or fire related crashes. The statistics state that for every one hundred reportable ambulance accidents, there will be at least one person killed. Quinlavin (1993) continues stating that a majority of these accidents occur at intersections, citing the national statistic for intersection crashes, fifty percent of ambulance accidents occur at intersections versus thirty-seven percent for all other types of vehicles. Dyer and Sachs (1998) state that lights and siren responses produce a great risk to EMS providers and the public, resulting in approximately one thousand injuries annually, according to NHTSA statistics.

Other accidents also occur as a result of emergency vehicles utilizing lights and sirens during response. Lucia (1993) writes about a phenomenon called the "wake effect". On seeing a emergency vehicle or hearing the siren, civilian drivers have reacted by jamming on brakes and being rear ended by another vehicle. In a 1984 study conducted in Salt Lake City, for every actual emergency vehicle crash, five wake effect crashes had occurred. Lucia noted that no national

studies had been conducted studying the wake effect. Wolfburg (1996) also wrote of similar occurrences calling them "panic reactions". He described civilian drivers who on hearing or seeing a fast approaching emergency vehicle don't know whether to stop, pull over, swerve or just keep going causing a hazard to themselves, other vehicles, and the emergency vehicle.

In addition to the needless injuries and fatalities of responders and citizens in these accidents, much has been written about the civil and criminal liabilities that are incurred by the drivers, chiefs and municipalities as a result of these accidents. In a 1997 article by Blackistone, he cited an example of a Maryland fire fighter who was indicted after a collision at a intersection killed a young woman and child. The article quoted Maryland's State Attorney Jack Jackson as saying "public policy requires that fire fighter's and other emergency vehicle operators respond to emergency calls in a safe and prudent manner so as not to unreasonably jeopardize the lives of innocent people"(p.124). Blackistone went on to conclude that driving with reckless disregard for the safety of others is never acceptable, and that the courts uphold this principle.

Wolfburg in a 1996 article cited several specific examples of EMS services and their insurance carriers being held financially liable for emergency vehicle crashes. He cited that related insurance industry statistics show the ratio for EMS related accident claims were seven to one EMS

related medical malpractice claim. Wolfburg continued in the article stating that the way EMS providers drive has more of a impact on insurance rates as opposed to the level of patient care provided. Lucia (1993) stated there are no national statistics for ambulance accident insurance settlement claims, but a New York state insurance company statistics showed an average of $43,000.00 was paid per claim for intersection related emergency response crashes. Additionally, Wolfburg (1996) noted that the "good samaritan immunity and governmental immunity" defenses offer no protection civilly or criminally to the emergency vehicle driver if the plaintiff demonstrates gross negligence on the part of the emergency vehicle operator in legal actions.

Many other articles mirror the information cited and continue on to dispute the need for the use of lights and sirens for all responses. The 1993 article by Quinlavin cites nationally that only twenty percent of emergency ambulance requests result in locating a patient with an actual medical emergency. Of these patients, approximately five percent are of such a life threatening nature as to justify the use of lights and sirens during response. Quinlavin cites Dr. Jeff Clawson in his article stating that " by using a priority dispatch system, the dangerous use of lights and sirens can be reduced by thirty percent" relating to EMS calls.

Several studies have shown that little time is saved responding in the emergency mode versus non-emergency. A 1992

study in San Bernadino found virtually no difference in response times using lights and sirens compared to those who drove normally in traffic. (Lucia, 1993) In a 1993 editorial, Page noted a similar study showing the net difference in traveling with lights and sirens versus without to be less than thirty seconds per response. The Annals of Emergency Medicine published a study in 1995 that concluded the EMS transport time from scene to hospital using lights and sirens in a small city was forty three seconds faster than without. While this was statistically significant, it was not found to be clinically significant. There is nothing that the emergency department staff can do with the extra forty three seconds to improve patient outcomes, as compared to the documented risk of using lights and sirens (Wolfburg,1996).

The literature review revealed other articles specifically addressing the lack of necessity for the fire service to respond to all alarms using lights and sirens. Wilbur (1994) asked the question in his article, "can a fire chief justify putting seven pieces of equipment on the road responding lights and sirens with the possibility of having an accident for what may prove to be a false alarm?" More than one third of all false alarms to which fire departments respond are caused by malfunctioning automatic alarm systems. A study in Denver found that one hundred percent of automatic fire alarms without a follow up phone call confirming a fire were malfunctioning systems. In Oakland, statistics show that

seventy percent of high rise fire alarms are false. Oakland's Fire Chief Ewell stated that the cost of answering these alarms are significant, considering wear and tear on the vehicles, fuel cost, and wages of personnel (Hershfield, 1995). A 1993 article by Wieder states that fire departments need to re-think how they respond to automatic alarms, that ninety-nine percent of the time ends up with the fire department not having to take any action.

Another study showed that ninety-nine percent of all gas leak incidents are handled by the first company. This article recommended that the first due company responds lights and sirens with the balance of the companies responding in the non emergency mode, citing an example where a gas leak with explosion claimed the lives of several Buffalo, N.Y. fire fighters. If all the fire fighters had arrived sooner, more lives would have been lost in this incident (Wilbur,1994).

There are numerous ways to reduce emergency vehicle accidents. Wilbur (1997) suggested the following methods to reduce accidents; defensive driving courses, department response policies, and just plain common sense such as wearing seatbelts and reducing speed. Response policies should spell out how a vehicle responds and to what types of incidents an emergency response is made. Wilbur continued stating that emergency vehicle operators should have a thorough understanding of all the traffic laws and other laws pertaining to emergency vehicle operations.

In a separate article in 1995, Wilbur wrote that many departments have rules governing emergency vehicle response but do not enforce the rules. He states that departments should enforce the rules or modify them before the insurance industry or legal system does it for them. Wilbur's article mirrored the thoughts of Rossman (1994) who wrote that the best protection against legal liability relating to vehicle accidents is to have a bona fide driver's training program, emergency response policy and enforce it, to consider the impact weather extremes have on responses, and to ensure the serviceability and safety of a piece of apparatus.

When faced with numerous costly accidents involving fire apparatus, the St. Louis Fire Department (SLFD) enacted a policy of responding "on the quiet". The SLFD defined nineteen situations that the apparatus would respond without utilizing lights and sirens. Since enacting the policy, accidents have been reduced by over thirty-five percent (Schaper & Gerner,1997). Fire Chief Neil Svetanics was quoted as saying,

"The mission of the fire department is to protect lives and property. We can not do that by having accidents enroute to emergency calls. And having accidents responding to trivial and non-threatening situations does not make sense either. We are here to protect and serve the public and that is what we are going to do, only this fire department is going to do it safer" (Schaper,1995,p.90).

In summary, the literature review shows the hazards of responding lights and sirens and the need for the author's department to have a response policy. The author of this research paper agrees with much of the cited text that outlines the hazards and the suggested methods for reducing them. The author agrees whole heartedly with the philosophy of Chief Svetanics, the mission of the fire department is to protect and serve the public, the fire department can only do that with a safe response.

Procedures

Research for this project began at the National Fire Academy's (NFA) Learning Resource Center (LCR). This research revealed numerous articles and references on the topic matter. The research continued once the author returned home using the author's personal library, department resources, and through the use of a survey.

An historical research approach was used to analyze the scope of the problem, the associated hazards, approaches to reduce the hazards, and how it has affected the author's department in the past. Although many articles have been published on this topic, the author attempted to use the most relevant and recent publications for this project.

An action research methodology was used to develop the emergency response policy for the author's department. This

addressed the original problem of the lack of policy addressing emergency driving and response.

The survey was used in an attempt to supplement the literature review process answering the research questions and to aid in the development of the proposed response policy. A sample of the survey is located in Appendix B.

The survey was mailed to fifty fire departments in thirty-seven different states in an attempt to gain a nationwide perspective. The author sent the survey's addressed generically to the "Fire Chief" using mailing addresses from the 1998 Journal of Emergency Medical Services magazine's 200 most populous city EMS survey. The selections were made randomly using departments from the ranking of 43 to 200 in an attempt to represent similar demographics of the author's municipality. A post paid, self addressed envelope was included with each survey. Forty-one of the fifty (82%) surveys were completed and returned to the author. Seven respondents enclosed samples of department policies pertaining to emergency response. One survey out of the original fifty was returned due to a incorrect mailing address. The total responses for each survey question is located in Appendix C.

The limitations of the survey included the fact that the overall sample size of the survey was small. The author used personal funds for postage, limiting the total number of survey's mailed. The other limitation of the survey was that not all of the questions were answered by each participant due

to a lack of data being tracked or lack of relevance to that department.

In addition to the survey, the author conducted research using department records to determine the total number of vehicle accidents over the past three years and the total number of full responses made by the department over a six month period for statistics used in this project. The limitations of this research included the fact that vehicle accident records were only available for the last three years. Additionally, the author had to manually retrieve computer fire incident reports for each full response during each day for the six month period to collect data on the full responses, which was quite time consuming. The author assumed that the six month overview would give a accurate picture of department averages. A full response for the author's department includes three engines, one or two ladders depending on the occupancy type, and a battalion chief answering automatic fire alarms, reports of structure fires, and reports of electrical shorts, odors of smoke, appliance fires, etc. in structures.

Results

The research provided information used to develop the emergency response policy, located in Appendix A, and to answer the following research questions.

1) What are the risks associated with a response utilizing red lights and sirens?

The risks associated with a response using red lights and sirens are numerous. One of the most significant risks is the potential for accidents resulting in injuries or deaths of responders and civilians. According to the 1996 National Fire Protection Association (NFPA) fire fighter fatality statistics, one third of the fatalities during 1996 occurred while responding to or returning from alarms. Historically, NFPA statistics show that this category has accounted for twenty-five percent of fire fighter fatalities over the last ten years. Other statistics also show the seriousness of emergency response accidents. National Highway traffic Safety Administration (NHTSA) statistics show that for every one hundred ambulance related crashes that occur, at least one person is killed. Annually, approximately one thousand providers and civilians are injured in ambulance related crashes, according to the NHTSA.

The research associated with the mail survey showed that thirty-four (82%) of the forty-one fire departments answering the survey had experienced at least one emergency vehicle accident while responding with lights and sirens during the

last two years. Sixty-two percent of these departments reported injuries to either civilians or department personnel from these accidents.

Emergency vehicles can also cause other accidents as a result of using lights and sirens. A phenomenon called either the wake effect or panic reaction occurs when a civilian driver reacts unpredictably upon hearing a siren or seeing a fast approaching emergency vehicle. These drivers often react by immediately stopping in the lane of traffic, drastically pulling over, swerving, or just continuing to drive on creating a hazard to themselves, other drivers and the emergency vehicle.

In addition to the physical risk of injury to civilians and department personnel, there is the risk of criminal prosecution and civil liability associated with accidents if the driver or department was found to have acted with gross negligence. Not only can the driver be held responsible, the company officer, fire chief and municipality can be held responsible. The text reviewed held numerous examples ranging from misdemeanor charges to felonious death indictments in addition to civil settlements.

Insurance industry statistics show that a EMS related vehicle accident claims are at a rate of seven to one medical malpractice claim. One New York insurance company statistics show the average settlement for a EMS related intersection collision was $43,000.00. The survey by the author revealed

that of the thirty-four fire departments that had emergency vehicle accidents while responding with lights and siren, fifty-three percent had settled a insurance or liability claim as a result of the accident.

The impact of these accident related settlements can not only be financially significant to the organization, but also effect the organization negatively in the form of lost trust and poor publicity in the community.

2) Are red lights and sirens necessary for all emergency responses?

The literature review disputes the need for lights and sirens for many of the alarms that fire and EMS services respond to. Several studies noted in the literature found less than a minutes difference in response times using lights and sirens versus without. One EMS study published found that patients transported in a small city using lights and sirens arrived 43 seconds faster than those patients transported without lights and sirens. The article concluded that little could be done by the emergency department's staff to improve patient outcomes with the 43 seconds versus the documented risk of using lights and sirens. Other statistics found stated that only twenty percent of emergency ambulance requests result in locating a patient with an actual emergency, with five percent of these patients being of such a life threatening nature as to require lights and sirens during

transport to the hospital.

Several studies have shown that a significant percentage of fire responses are handled by the first arriving company, thus suggesting that not all of the fire apparatus dispatched to a reported emergency need to respond using lights and sirens. One such study showed that ninety-nine percent of all gas leaks were handled by the first arriving company.

Automatic fire alarms accounted for another category of responses where the first arriving company handles the incident. A Denver study concluded that one-hundred percent of automatic alarms without a follow up phone call reporting a fire was a system malfunction or false alarm. Several chief's in articles reviewed stated it is difficult to justify multiple apparatus responding to alarms in the emergency mode for what more often than not turns out to be a false alarm.

Research of statistics for the author's department revealed similar results as was noted in the literature review. The statistics for the six month period revealed that sixty-five percent of all automatic fire alarms that were responded to were classified as system malfunctions. Thirty percent of these fire alarms were classified as smoke from food on the stove with no fire to report. The remaining four percent of alarms ranged from broken water pipes to actual fires. Ninety-four percent of the total automatic fire alarms answered were handled by the first arriving engine company, with ninety-nine percent being handled by the first arriving

engine and ladder company combination.

Statistics for 911 phone calls resulting in a full response being dispatched during that same time period of six months revealed that fifty-nine percent of these incidents were handled by the first arriving company. Eighty-two percent of these full responses were handled by the first arriving engine and ladder combination. Combining full responses made for both automatic alarms and 911 phone calls showed that seventy-four percent of all full responses were handled by the first company, and eighty-eight percent handled by the first engine and ladder combination.

The mail survey of the fifty fire departments across the nation revealed similar results. Thirty-two (78%) of the forty one respondents answered the question to estimate the approximate percentage of full responses made by their department that were handled by the first arriving company. Twenty-four (75%) of the thirty-two departments that answered the question reported that seventy percent or greater of all full responses were handled by the first company.

3) How can the risk be reduced for emergency mode responses?

Numerous practices exist to reduce the risk associated with emergency vehicle responses. The first and perhaps the most important practice is a strong drivers training program. Programs such as defensive driving or emergency vehicle

operator's course should be standard for all personnel driving emergency vehicles. These courses should emphasize not only driving skills but also cover the laws pertaining to emergency driving, the responsibilities and liabilities of the emergency vehicle operator. In addition to the classroom training, the class should contain practical driving experience. An emergency call should not be the first time a driver gets behind the wheel of an emergency vehicle. Refresher training should also be provided over the course of the driver's career.

Second to a strong driver's education program, having and enforcing a emergency response policy is the next best method for reducing the risk associated with emergency vehicle driving. These policies need to address both when a emergency response should be made and how it is made. All driver's should be thoroughly familiar with the policy and supervisors need to enforce it. A policy is ineffective if it is not known or enforced.

In addition to response policies, priority dispatching protocols or systems can reduce the need for all responses, particularly medical, to be made in the emergency mode. Trained dispatchers can assess patients medical conditions, often give life saving advice, and dispatch units according to severity of the call based on the information received.

The research also provided other common sense issues to be addressed that can reduce the risk of and severity of

emergency vehicle accidents. First, reduce the speed of the apparatus. Many accidents are attributed to the excessive speed of the emergency vehicle. Second, have all personnel seated and wearing seatbelts. And third, consider the impact of adverse weather extremes on emergency response. Adjust apparatus speed and/or response routes during severe weather.

The last practice to reduce the risk during emergency response involves both the vehicle driver and department administrators. Ensure the serviceability of the apparatus for emergency response. Emergency response driving puts a lot of stress and strain on a vehicle. The driver and administrators must ensure that the apparatus meets acceptable mechanical standards including the minimums for state vehicle inspection before placing a vehicle on the road, particularly in the emergency mode.

4) How have others fire departments addressed this issue?

Many departments have addresses this issue, typically as a result of a severe accident or a trend of increasing accidents. The most published fire department addressing the issue was the St. Louis Fire Department (SLFD). After a trend of increasing apparatus accidents and numerous accidents occurring in one day, Chief Svetanics of the SLFD issued a policy addressing responding "on the quiet". This policy outlines nineteen types of incidents in which apparatus respond on the quiet, without lights and sirens. These

incidents include fire alarms, carbon monoxide alarms, investigation calls, dumpster fires and the like. The first full year the policy was in effect showed a thirty-five percent decrease in response related accidents. In the survey as part of this applied research project, the respondent representing the SLFD estimated that since the policy was enacted in 1995, there has been a decrease by ninety-nine percent of response related apparatus accidents.

The survey used as part of this applied project revealed that twenty (49%) of the forty-one fire departments surveyed have a response policy that includes some form of on the quiet response for certain incidents. Four (20%) out of those twenty departments with a policy had a decrease in the number of vehicle accidents after the policy was enacted. The range in reductions for these accidents were from twenty to ninety-nine percent. Two (10%) of the twenty departments with a policy did not monitor accident related statistics after the policy was enacted. Several respondents noted on the surveys that driver training programs had more of a impact on reducing accidents than just a policy alone.

Discussion

The study of the findings of others concerning the risk associated with using red lights and sirens shows the need to address this problem. The author's department needs to be proactive dealing with this issue, considering the fact that the chances of having an accident are three times greater and chance of injuries are ten times greater when responding with lights and sirens (Wilbur,1994). The department should not wait for a serious accident to occur to institute a emergency response and driving policy. Wilbur (1995) concluded the same, department policies should be modified or enforced before the legal or insurance industry does it for us. The research confirms that such a policy does reduce the number of and severity of emergency vehicle accidents.

The findings of others in the literature review process shows that only a small percentage of all fire and EMS responses result in finding an actual life threatening emergency. Quinlavin (1993) wrote that only a small percentage of EMS calls resulted in finding a life threatening emergency. Hershfield (1995), Wilbur (1994), and Weider (1993) all wrote that most fire alarms are false or system malfunctions and many other types of fire incidents are often handled by the first arriving company. Research conducted by the author concerning response statistic in his municipality revealed similar findings. Ninety-nine percent of automatic fire alarms answered by the author's department during a six

month period were handled by the first arriving engine and ladder combination. This places the other two to three pieces of apparatus responding with lights and sirens and the public at undue risk during ninety-nine percent of these responses. Of these incidents, all of the alarms that were a result of a actual fire, a 911 call was also received reporting the incident within the same time frame as the alarm being received. This fact also mirrors findings of Hershfield (1995) noted in the literature review.

Full responses made to 911 reports of structure fires or possible fires in structures had similar findings. Eighty-two percent of full responses made for 911 reported incidents were handled by the first engine and ladder combination. Again, these numbers represent a significant amount of fire apparatus needlessly responding with red lights and sirens. The author agrees with Wilbur (1994) and Hershfield (1995), it is difficult to justify a large amount of fire apparatus responding to alarms that are typically false or handled by the first company.

The author believes that there is support from the fire chief for this positive change relating to emergency response and driving. The fire chief recognized within the first month of employment with the city that there was no emergency response driving policy. He has expressed concern over the risk and liabilities associated with this fact. The author has briefed both the chief and department's safety officer on

the scope and intent of this project.

However the author believes that the rank and file of the organization may not embrace such a change in culture. As some of the text reviewed noted, many people in emergency services organizations feel that we are here to respond as quickly as possible to all incidents. The author believes that many people have the same mind set in his organization. During informal discussions, several people have noted their concern relating to a quiet response as being perceived as a decrease in the level of service provided. The author can only speculate that some citizens may believe the same. The author believes that this attitude of both the personnel and the public can be overcome with a educational effort focusing on the hazards and risks associated with lights and siren response, along with the statistical analysis of responses requiring or not requiring multiple resources to handle a incident.

The literature review and research by the author supports the need for an emergency response and driving policy in conjunction with a driver's education program to reduce the total number of emergency vehicle accidents and their severity should they occur. This is a significant organizational change from how the department has historically operated, however the author believes the change is both positive and needed. The author agrees with the quote from Chief Svetanics of the St. Louis Fire Department,

"The mission of the fire department is to protect lives and property. We can not do that by having accidents en route to emergency calls. And having accidents responding to trivial and non-threatening situations does not make sense either. We are here to protect and serve the public and that is what we are going to do, only this fire department is going to do it safer" (Schaper,1995,p.90).

Recommendations

The research clearly spells out the need for a written policy concerning emergency response and driving. The first recommendation is for the department to implement the proposed policy located in Appendix A, addressing the original research problem. The author used information and materials from the research process to draft this policy. The policy has been forwarded to the fire chief and safety committee for review and comment. In addition to implementation of this proposed policy, it is recommend that the safety committee periodically review accident statistics and response information to assess any positive or negative impact that the policy has on the department.

The second recommendation is for the Training Division to implement an annual driver's training refresher program. This program should be based on a emergency vehicle operator's course curriculum and also review any significant accidents or

problems occurring within the department or region.

The third recommendation is for the implementation of a emergency medical dispatch or priority dispatch system. The author encourages the fire chief and the citizen's EMS advisory panel to recommend that the Police Department's Communications Division provide this level of service. This service could reduce the need for all EMS responses to be made using lights and siren in addition to providing pre-arrival information that could save a life.

The research has shown that by implementing a driver's education program along with having and enforcing a emergency response and driving policy, the number of and severity of emergency vehicle accidents can be significantly reduced. This not only reduces the risk and liability incurred by the department and city from red lights and sirens response, but protects department personnel and the public that we are sworn to protect from needless injuries or death.

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Appendix A

Proposed Emergency Response and Driving Policy

I. Purpose

To establish a procedure for emergency and non-emergency response of department vehicles to ensure the safe response of personnel and for the safety of the community.

II. Responsibility

A. Company Officer: shall be responsible for the consistent application of this policy.

B. Emergency Vehicle Driver: shall be responsible for complying with all provisions of this policy and Virginia State Laws.

III. Emergency Response

A. All units will respond in the emergency mode (utilizing red lights & sirens) to the following situations:

1. All EMS calls-with the exception of calls involving violence, suicide attempts, etc. that call for the units to stage until the police state it is safe to respond in. Responses that require the units to stage will be made in the non-emergency mode until the scene is considered safe by the police, then the response can be upgraded to the emergency mode if needed.

2. All structure fires

3. All fires reported in structures, such as smell of smoke inside, stove fires, heating appliance fires, and the like.

4. Fires threatening structures

5. All vehicle fires

6. Vehicle accidents with injuries

7. Entrapments/confined space emergencies

8. Hazardous materials incidents-excluding reports of small spills associated with vehicle accidents or mechanical failures involving vehicles.

9. Confirmed natural gas leaks.

10. Live electrical wires down

B. Once the first unit(s) arrive at reported emergencies that required a full response and report nothing showing for one or two story structures only, all other units will downgrade to a non-emergency response but continue to the scene until arriving or canceled by command.

C. Automatic commercial and residential fire alarms-the first due engine and ladder will respond in the emergency mode. All other responding units will respond in the non-emergency mode. If information is received confirming a fire or stating it was a accidental or false call, the responding units can upgrade or downgrade the response as appropriate for the situation.

IV. Non-Emergency Response

A. All units will respond in the non-emergency mode (non-lights & sirens) to the following situations:

1. Dumpster, outside rubbish, or brush fires

2. Carbon monoxide alarms-with no reported victims having

signs or symptoms of CO poisoning.

3. Smell of gas outside

4. Relocation to other fire stations

5. Investigation of drums or barrels that are not leaking

6. Small spills associated with vehicle accidents or mechanical failures.

7. Single company responses investigating fire alarms that are reported as false, accidental, or where the alarm company requests to cancel F.D. response.

8. Assist police calls, for ladders, lock outs, etc.

B. At any time information is received indicating a incident is threatening property or is a life hazard, responses will be upgraded to the emergency mode.

V. Emergency Vehicle Response Procedures

A. Response

1. The emergency vehicle driver and company officer shall determine the shortest and safest route to the emergency scene.

2. The company officer shall ensure that personnel riding in or on any department vehicles are seated and have seat belts on and fastened before the vehicle is placed in motion. The company officer shall also ensure that the personnel remain seated and have seat belts on and fastened any time the vehicle is in motion.

3. Warning lights, sirens, and headlights shall be on before entering traffic lanes when leaving the station on

emergency mode responses.

4. The driver shall be responsible for obeying all traffic laws pertaining to the operation of emergency vehicles. This includes, but is not limited to, the following:

a. Emergency vehicle drivers must use both warning lights and sirens at all times when making emergency mode responses. At no time shall the emergency vehicle driver use either the warning lights or siren alone on any emergency mode response.

b. The emergency vehicle driver may disregard the speed limit on emergency mode responses, however, the vehicle must be operated with due regard for safety at all times. This exemption shall not protect the driver from any consequences for the reckless disregard for the safety of others.

5. On any emergency mode response, the emergency vehicle driver of a responding unit shall not exceed the posted speed limit by more than ten (10) miles per hour.

6. While responding in the emergency mode, the driver shall come to a complete stop at all red light intersections and all other intersections where the driver does not have the right of way. Examples include, but not limited to, stops signs and unprotected railroad crossings.

After the emergency vehicle driver and/or company officer have made visual assessment of all the intersection lanes of

traffic regarding safe movement, the driver may proceed through the intersection using caution.

7. When traveling against the flow of traffic, or in center turn lanes, maximum speed shall not exceed 20 MPH.

8. While responding in the emergency mode, a responding vehicle shall not pass another responding vehicle.

9. When following another vehicle responding in the emergency mode, the trailing vehicle(s) shall follow at a minimum distance of no less than 200 feet from the rear of the responding vehicle directly in front.

10. When two responding vehicles approach an intersection together, the vehicle having the right of way, or entering from the right, shall pass first.

11. When responding in the non-emergency mode, the vehicle headlights shall be turned on before entering traffic, and the vehicle shall respond obeying all traffic laws, with the flow of normal traffic.

B. Inclement Weather

1. During ice, snow, fog, rain, or any other hazardous weather condition, department vehicles shall be operated appropriately for the existing weather conditions. Inclement weather or actions of others during such conditions does not relieve the driver of the their responsibility to drive safely.

2. The driver of the responding vehicle shall not exceed the posted speed limit when responding to an alarm during

inclement weather. Depending on weather conditions, the driver may need to respond at a lower speed than the posted speed limit.

C. Backing of Apparatus

1. Before moving the vehicle, the emergency vehicle driver shall determine if backing is the safest way to move or remove the vehicle from its present location.

2. Prior to backing, the driver shall post a spotter at the rear of the apparatus. The spotter will help determine when the way is clear and will help direct the movement of the vehicle.

NOTE: Civilian personnel shall not be used as spotters except in emergency situations.

Only one spotter will be used to assist the driver in backing the apparatus. The company officer or driver may assign as many personnel as needed to help control traffic.

3. The emergency vehicle driver shall not begin backing any apparatus unit he/she is sure the spotter is in place and can be seen clearly.

4. If the spotter is required to stand in or near the flow of traffic, the spotter shall wear a helmet and traffic vest or turn out coat.

5. Before backing, the driver shall give one short blast of the horn as an added warning of the upcoming movement of the apparatus. When backing, all emergency warning lights shall be operating for added visibility.

6. The driver shall be ultimately responsible for the safe movement of his/her vehicle. The driver shall take full advantage of the use of mirrors and personal expertise to safely back the apparatus.

7. On the rare occasion that a spotter is not available, the driver shall, immediately before moving the vehicle, physically walk completely around the vehicle and visually check the intended path to determine if the way is safe and clear. This shall be done as often as necessary to safely complete the maneuver.

D. Vehicle Placement

1. Emergency vehicle drivers and the company officer, shall be responsible for placing the vehicle in a location where it is least likely to be damaged by approaching vehicles and where it does not hinder emergency operations. All warning lights shall be used to increase visibility of the apparatus.

2. Ladder trucks shall not be placed under overhead obstructions.

3. Vehicles shall not be placed so close to a fire that the vehicles will sustain fire damage.

4. Vehicles shall not be placed under overhead electrical power lines at emergency scenes.

5. Interstate Highways and One-Way Streets

a. Vehicles responding to an incident shall park on the same side of the highway as the incident. First arriving

units shall be aligned with the incident, using the vehicle as a barrier between the incident and approaching traffic. Other arriving units shall align themselves behind the first arriving vehicle. If possible, leave one lane of traffic open, this will speed the arrival of other responding units.

b. If the incident is in the median, place the emergency vehicle in the lane closest to the median. Units arriving from the same direction of travel shall align themselves behind the first arriving unit.

c. Utilize police to control the flow of or to block traffic as needed.

6. Streets and Roadways

a. Vehicles responding an incident shall park on the same side of the roadway as the incident. If the incident has only one lane of traffic blocked, other responding units shall align themselves with the first arriving unit.

b. In multi-lane intersections, leave at least one lane of traffic unblocked, whenever possible, to speed the access of other responding units.

c. At fire scenes and other emergency incidents, utilize police to control the flow of or to block traffic as needed.

7. Incidents Involving Hazardous Materials

a. The above guidelines for parking shall be followed, however, other criteria shall be considered if the incident involves or is suspected to involve hazardous material.

b. Wind speed and direction.

c. Safe isolation and evacuation distances.

d. Upwind and uphill approaches.

e. Disciplinary Actions-see separate policy

Appendix B

April 1, 1998

Dear Fire Service Executive,

The following is a survey addressing apparatus response and the use of lights and sirens. The survey is part of an applied research project for the National Fire Academy's Executive Fire Officer Program. Please complete the survey and return in the envelope provided. Thank you for your cooperation in completing the survey.

(Please check the appropriate response)

1. The type of department that you represent:

___ Career ___ Combination ___ Volunteer

2. The approximate population that your department serves:

___<100,000 ___<150,000 ___<200,000 ___>200,000

3. Would you describe your jurisdiction as mostly? (Check all that apply) ___ Urban ___Suburban ___ Rural

4. Does your department have a policy for quiet (non-red lights & sirens) response to certain types of calls? (Examples-automatic fire alarms, dumpster fires, brush fires,etc.)

___ Yes ___ No

5. Enter the number of apparatus that typically respond on an initial alarm for a reported;

-residential structure fire: ___Engines ___Ladders ___Other

-automatic fire alarm: ___Engines ___Ladders ___Other

-high hazard occupancy: ___Engines ___Ladders ___Other

6. Can you estimate your departments percentage of full response alarms that are handled by the first in company?

_____

7. Has your department had any emergency vehicle accidents while responding with lights/sirens during the last two years?

___ Yes ___ No

If yes, did the accident(s) result in any injuries to civilians or personnel? ___ Yes ___ No

8. If yes to #7, has your department paid out or settled any insurance or liability claims as a result of the accident(s)?

___ Yes ___ No

9. If you answered yes to #4, has the total number of department vehicle accidents declined after the policy was published? ___Yes ___No If yes, by what percent? ___

If you answered yes to number 4, please enclose a copy of your policy if possible. Again, thank you for completing the and returning the survey.

John A. O'Neal

Appendix C

April 1, 1998

Dear Fire Service Executive,

The following is a survey addressing apparatus response and the use of lights and sirens. The survey is part of an applied research project for the National Fire Academy's Executive Fire Officer Program. Please complete the survey and return in the envelope provided. Thank you for your cooperation in completing the survey.

(Please check the appropriate response)

1. The type of department that you represent:

   38 Career 3 Combination 0 Volunteer

2. The approximate population that your department serves:

   0__<100,000 _8_<150,000 19_<200,000 14_>200,000

3. Would you describe your jurisdiction as mostly? (Check all that apply) (Majority were urban and suburban)

   ___ Urban ___ Suburban ___ Rural

4. Does your department have a policy for quiet (non-red lights & sirens) response to certain types of calls? (Examples-automatic fire alarms, dumpster fires, brush fires,etc.)

   20-Yes 21-No

5. Enter the number of apparatus that typically respond on an initial alarm for a reported; (Numbers varied)

   -residential structure fire: ___Engines ___Ladders ___Other

-automatic fire alarm: ___Engines ___Ladders ___Other

-high hazard occupancy: ___Engines ___Ladders ___Other

6. Can you estimate your departments percentage of full response alarms that are handled by the first in company?

5 <50% 3 <70% 24 70% or greater

7. Has your department had any emergency vehicle accidents while responding with lights/sirens during the last two years?

34 Yes 7 No

If yes, did the accident(s) result in any injuries to civilians or personnel?

21 Yes 13 No

8. If yes to #7, has your department paid out or settled any insurance or liability claims as a result of the accident(s)?

18 Yes 15 No

9. If you answered yes to #4, has the total number of department vehicle accidents declined after the policy was published? 4__Yes 14_No If yes, by what percent? 20-99%

If you answered yes to number 4, please enclose a copy of your policy if possible. Again, thank you for completing the and returning the survey.

John A. O'Neal