

Are We Meeting the Emergency Response Needs of "Special Events" in Our Community?

Karola J. Hanks

Durango Fire Protection District, Durango, Colorado

Appendices Not Included. Please visit the Learning Resource Center on the Web at <http://www.lrc.dhs.gov/> to learn how to obtain this report in its entirety through Interlibrary Loan.

Certification Statement

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

Signed:

A handwritten signature in black ink, appearing to read "Paul J. Smith", written over a horizontal line.

Abstract

La Plata County and the City of Durango permit special events ranging in scale from fundraisers for non-profits to international athletic competitions. The problem is that in Durango and La Plata County special events designed to attract tourist and locals generate staffing challenges for emergency responders and it is unclear whether the events need the additional coverage or the level of coverage being provided. The purpose of this research is to determine which special events require coverage and the staffing needs to meet the requirement of those events by answering the following questions:

1. What “special events” are currently staffed and how?
2. What are the expectations of the City of Durango and La Plata County regarding “special event” emergency responder coverage?
3. What are the characteristics of “special events” that generate additional incidents?
4. What level of emergency responder staffing is needed to provide adequate coverage for “special events” which generate additional incidents?

Research included reviewing literature related to the topic, conducting interviews, directing questions to the “special event” oversight personnel in the city, county, fire district and lastly surveying the Fire Marshal’s Association of Colorado members. The results showed that the agencies shared no clear definition of special events, that the expectations of each group were varied and that data is not being collected that allow the District, City of Durango or La Plata County to effectively and accurately evaluate needs and staffing levels. The survey indicated that the same might be true in other Districts in Colorado. The recommendations are that the three entities agree to develop a standard definition of special events, establish a pre-event team

to develop regulations and policies, develop a hazard and risk analysis process, evaluate special events at their conclusion and to develop a data management process for special events.

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Introduction

Durango Fire Protection District (identified as DFPD throughout the remainder of the advanced research paper) was established in 2014 and provides fire and emergency services to 325 square miles of La Plata County including Durango, the county seat. Durango Fire Protection District serves a population of approximately 45,000 not including visitors. The community is active in both indoor and outdoor activities throughout the year. The City of Durango permits 180 to 200 special events each year and La Plata County permits fewer than a dozen each year. The special events draw both local and visitor participation. It is estimated that Durango has a lodging capacity of 6000 and an estimated 1 million visitor days.

The problem is that special events in Durango and La Plata County generate staffing challenges for emergency responders and it is unclear whether the events require the additional coverage and/or the level of coverage currently being provided. Durango Fire Protection District provides advanced life support and transport for the community. Incidents within the District are increasing by 7.5% annually on average with a current call volume of 4,584. As the call volume has increased, the individuals responsible for ensuring that shifts are staffed adequately are challenged with providing staff for the special events. The purpose is to determine which of the special events require on-site standby coverage and what are the necessary staffing levels of the standby coverage. For the purpose of this paper, on-site BLS standby is defined as an emergency medical technician-basic assigned to the event and on-site ALS standby is defined as an emergency medical technician-paramedic with a medic unit assigned to the event. Dedicated standby at either level is standby that cannot leave the event and respond to an incident away from the event.

The research method used in this paper is predominantly descriptive. The first research question was what special events are currently staffed and how? This question included some aspects of historical research as past events and practices were researched. The second research question was what are the expectations of the City of Durango and La Plata County regarding special event medical coverage? This research was done through descriptive research by interviewing the event coordinator for the City of Durango, the Planning Director for La Plata County and the Emergency Medical Services Chief of Durango Fire Protection District. The third research question was, what are the characteristics of special events that generate additional incidents and the fourth research question was, what level of emergency responder staffing is needed to provide adequate coverage for special events that generate additional incidents? The last two questions involved the development of a survey that was distributed through the Fire Marshal's Association of Colorado. The survey was descriptive research.

Background and Significance

Durango Fire Protection District (DFPD) is a combination fire district with 190 members. 53% of the organization is comprised of volunteer members. There are sixteen stations distributed throughout the District with four stations staffed by career firefighter/emergency medical technician (EMT) personnel. Each shift (staffing the four stations) has fifteen members. Three of the career stations are within the city of Durango and the fourth is at the north end of the District. The current call volume is, on average, 12.8 incidents per day with 68% of the calls medical in nature. The community has no private ambulance service, therefore all transport is done by DFPD.

In 2001, two fire districts (Animas Fire Protection District, Hermosa Cliffs Fire Protection District) and the City of Durango Fire Department chose to join together as Durango

Fire & Rescue Authority. The two fire districts were predominantly volunteer and the City Fire Department was strictly career. At the same time, the local hospital, which had previously provided ambulance service to the community, turned the ambulance transport over to the new Authority. Each of the three organizations came with its own method of operation and philosophies. Each organization retained its existing board and financing structure and a new board was formed for the authority. Although the combining of the three organizations was beneficial for response times and manpower, the constraints inhibited long-term planning and funding development. The ultimate goal was to form a single district, but that took longer than anyone thought it would.

During the next 10 years, the community grew in population and along with the population growth came an increase in the call volume. On January 1, 2014 the Authority was dissolved and Durango Fire Protection District formed. All boards other than the new DFPD board were dissolved and a single funding formula developed. It was now possible for the organization to look to the future.

Not all issues were resolved when DFPD was formed. One of the challenges is that current staffing of the organization consumes 72% of the operational budget (69% of the total budget), therefore how does the organization fund on-site standby staffing of special events? Where does the staffing come from? Which events require the on-site standby? If the number of special events hosted within the DFPD jurisdiction was limited this might not be considered a challenge. However in a community known as a tourist destination with over 200 special events annually and approximately 1 million visitor days, the organization is at a point where it must plan for the future or be caught behind.

Currently the organization provides on-site staffing of special events with volunteers when available and with career otherwise. Sometimes the standby crew is a mix of both. Volunteerism, in La Plata County, is no different than in the rest of the nation. The number of volunteers in the United States was at an all-time high in 1987 at a rate of 8.05 per 1,000 people which in 2013 had dropped to 6.46 per 1,000. (Haynes & Stein, 2014, p. 3) Recruitment and retention is a major topic for every volunteer or combination fire agency. Volunteers are challenged with a significant time commitment for training and incidents.

Due to time commitments, both personal and work related volunteers are not always available to provide on-site standby. Reserves or off-duty staff may not be available either. When this shortage of personnel occurs staffing is acquired from the on-duty shift, thereby reducing the staffing of regular incidents. This is most critical when medical staffing is required to be dedicated by the special event organizer's insurance or by competition regulations that will not permit the event to take place without the dedicated emergency personnel. This places the DFPD in a position to cancel the event if no coverage is available. Both the City of Durango and La Plata County assume that the special event on-site standby will automatically be taken care of by DFPD as it has been in the past. Some events are staffed strictly because it has been done in the past, some have never had on-site standby, and some receive on-site standby because firefighters/EMTs would like to attend the event. All of these could be the same type of event. This has indicated that on-site standby is not based on either the likelihood of injury or level of risk of the event.

The first year of the executive Fire Officer Program focuses on leadership and team development. Since choosing to lead can mean taking a risk to implement change, the focus of this applied research paper is assist the City of Durango, La Plata County, and DFPD to work

together to develop guidelines and processes to provide efficient and effective emergency coverage at special events. The U.S. Fire Administration has 5 strategic goals:

1. To reduce risk at the local level through prevention and mitigation
2. To improve local planning and preparedness
3. To improve the fire and emergency services' capability for response to and recovery from all hazards
4. To improve the fire and emergency services' professional status
5. To lead the Nation's fire and emergency services by establishing and sustaining USFA as a dynamic organization. (Federal Emergency Management Agency [FEMA], n.d., "United States Fire Administrations strategic plan" p. 14)

The applied research was designed to evaluate the level of risk and the likelihood of injury occurrence at special events and then to provide appropriate levels of staffing to special events. Appropriate staffing will improve the professional image of DFPD and United States Fire Administration by providing a quality and equitable service to the community. Improving how the organization assesses and mitigates risk in the community and providing effective staffing at special events in the DFPD jurisdiction will improve our local emergency services capabilities. In addition, the United States Fire Administration will have taken a lead in that change through the Executive Fire Officer Program.

Literature Review

The role of the fire service has changed significantly over the last 50 years. In many locations across the United States of America, fire departments/districts/authorities now consider themselves to be all-hazard whereas in the past the fire service role was to respond to fires. These organizations are now responding to fires, motor vehicle accidents, technical rescue,

search and rescue, hazardous materials and emergency medical service incidents. The provisions to provide emergency medical services (EMS) vary across the country. From 2011 to 2013 the annual averages were that 38% of fire departments did not provide EMS service, 45% provided EMS Service and 17% provided EMS and advanced life support. (Haynes & Stein, 2014, p. iii) In many locations medical incidents significantly exceed all other incidents.

On-site standby is a type of service provided by the fire service. It may be fire standby at the 4th of July fireworks display or medical standby at the local high school football game. So what is a special event in your community that requires any type of standby? The Federal Emergency Management Agency in their manual (Federal Emergency Management Agency, 2010, p. 1-1) defines “a special event as “ a non-routine activity within a community that brings together a large number of people. Emphasis is not placed on the total number of people attending but rather the impact on the community’s ability to respond to a large-scale emergency or disaster or the exceptional demands that the activity places on response services.” It is interesting to note that the definition of a special event does not include the local concert hall hosting a concert that is sold out. The facility is designed for this use and it is anticipated that the facility will host such events regularly. On the other hand, a concert held on the local football field may be considered a special event. Even though this distinction seems fairly clear, the literature also suggests that the concert at the concert hall might be a special event if the concert brings additional hazards other than those for which the facility is designed, such as a pyrotechnics display or a performer so popular that large numbers of crowds will surround the facility to photograph or see the performer.

The Irish Rugby Football Union (IRFU) produced a handbook entitled “Event Management Handbook”. (Irish Rugby Football Union [IRFU], 2008) It was designed for

events with more than 3,000 spectators such as musical festivals, firework displays, carnivals and sporting events. In Ireland there is “common law” which requires that event organizers have a “duty of care”. The handbook divides the event planning into three stages: Phase 1 – build-up and load-in, Phase 2 – operations and Phase 3 – Load-out and breakdown. According to the IRFU (IRFU, 2008) within each phase of the event there are inherent risks. The appropriate process is to identify the attendant risks by analyzing the event for any hazards. Once the hazards have been identified, the level of risk can be assessed and evaluated to determine whether or in what ways the level of risk for each hazard may be reduced. They suggest that all involved parties rate the level of risk for each hazard based on the severity and likelihood of injury. During this process, methods may be found that allow for a reduction in the risk level such as modifying the event layout, signage, event control facilities, barriers, lighting and crowd management. Other mitigation measures may be found depending on the site and the type of event.

Crowd management is identified as a critical component by not only FEMA and the Irish Rugby Association but by virtually all agencies and individuals studying events as well as special event management. Crowd management is different from crowd control. Managing crowds is proactive or preventative, whereas control is a response to a problem. Managing crowd behavior can be accomplished in many ways, depending on the type and layout of the event. This paper does not delve into crowd management practices but recognizes that the effectiveness of crowd management will have a direct impact on the need for emergency services as well as the level of emergency services.

Fire standby for special events is common for fireworks displays, pyrotechnics, bonfires or protests. Fireworks displays, pyrotechnics and bonfires are considered a controlled usage of

fire or chemicals that may cause a fire. This is predominantly controlled through adopted codes and standards that dictate what actions must occur in order to host the event(s). Protests are not covered by codes and regulations enforced by the fire service. Protests are predominantly controlled through local government permits and law enforcement.

Medical standby for special events is much more difficult to determine. The level and degree of medical care for an event is dependent on many variables. These variables include projected attendance numbers, profile of attendees, type of event, duration of the event, number of activities within the event, the involvement of alcohol/drugs, and weather. If the hazard risk can be reduced to low for a small event then it may be feasible to require only a first aid tent for the event. A large event with hazards that have risks rated as medium or high may require a dedicated ambulance with advanced life support.

The City of San Diego developed an emergency medical services resource matrix. The matrix breaks events into four categories, 1 – concert/music festival/block party/street fair/outside venue, 2 – athletic/sporting event, 3 – parade, 4 – conference/convention. The anticipated crowd size is then divided for each category into 4 levels of anticipated crowd size. The degrees of medical aid provided is then divided into 911 access/CPR, basic first aid station(s), first aid station with nurse, first aid station with physician, BLS ambulance, ALS ambulance and mobile teams. (Stauber, 2006, p. 33)

The challenge is to support the needs of the special event without compromising the emergency response to the populace including urgent care facilities, hospitals, fire service and ambulance service. (Berlonghi, 1990) All literature reviewed stated that planning is where the determination of needs for the event begins. The question is raised in much of the literature as to whether the fire service has the planning processes in place to determine the hazards, risk levels

and needs of the events. (Kincaid, 1996) The applied research paper written by Ken Kincaid indicated that the Reedy Creek Department of Emergency Services planning and evaluation of the needs of special events was not consistent. The recommendations were to develop an information data tracking system for special events and to develop tools that provide a method of analyzing the needs of the event. Jeff Stauber (Stauber, 2006) of the Green Bay Fire Department found that the citizens of his community expected emergency services at special events and, like Kincaid; he determined that a method of tracking special event data and implementation of standard policies were needed. Lori Fehr (Fehr, 2007) found in her applied research project that life safety and crowd management should be addressed through ordinance and policy. The three applied research projects above are just a small sampling of research that has been done by organizations and individuals to address essentially the same problem or challenge that is being experienced by Durango Fire Protection District.

The overview of literature shows that planning prior to the event with all entities that may be affected or impacted by the event is critical to ensuring that the hazards and risk levels are assessed and mitigation measures and proper coverage are provided to address the safety of the special event but also the community as a whole. The literature also states that all entities must operate under the same understanding of what special events are. A definition provided by FEMA is used throughout the literature, however it allows for significant degrees of interpretation. It is apparent in the literature that although processes and policies for special event coverage may have common denominators, the capabilities of event organizers to reduce the risk and the capabilities of emergency services within the community will force the development of a set of planning tools specific to the community. The literature review provided sufficient information for the author to recognize that a basic process for evaluating the needs of

special events within the jurisdiction of Durango Fire Protection District has been developed by others but that the specifics of a local standard definition, evaluation method, level of service recommendations and data collection are not in place. The author completed the Emergency Management Institute on-line course IS-00015.b Special Events Contingency Planning for Public Safety Agencies in addition to the literature review. This course reinforced the importance of planning for special events as discussed in the reviewed literature.

Procedures

The first procedure involved interviews to determine whether the three primary agencies (City of Durango, La Plata County and DFPD) were approaching and evaluating special events in the same fashion. A survey was created through www.surveymonkey.com as the second procedure and distributed to the Colorado Fire Marshal's Association to evaluate what was occurring in other jurisdictions in the State of Colorado.

The interview questions were designed to acquire data from each of the three agencies. The city and county were provided identical questions, whereas DFPD was provided questions more applicable to the provider of the service rather than the recipient. Each agency representative was informed that a meeting would be requested once the information was provided to the author. The questions to the city and county were:

1. How does your organization define "special event"?
2. What regulations have been adopted by your organization to regulate "special events"?
3. How many special events were processed and/or permitted in 2013 and 2014?
4. What is the breakdown on the type(s) of events?
5. What is the attendance, both projected and actual, for each event?

6. What were the date(s) and time(s) for each event that was permitted?
7. How many of the event(s) provided medical aid and what type?
8. How often and when is security required for event(s)?
9. Are you informed when medical incidents occur at events that are permitted?

The purpose was to determine whether the three organizations were coordinating and working together as a team to address life safety issues, and what the expectations of each organization were.

The interviews with local government agencies were followed by a survey generated through www.surveymonkey.com, which was then sent to the secretary for the Fire Marshal's Association of Colorado who emailed the survey link to the membership (134 members).

The first three survey questions were designed to gather data regarding the respondent's agency and services applicable to the research problem. The information would differentiate which organizations were part of the City or County government and which were special districts. It would also provide information on what level of emergency medical service was provided and whether the agency had an obligation to provide special event coverage.

The fourth and fifth questions were used to determine whether agencies had developed agreements on providing coverage for special events and whether they had agreed on a definition for special events. The purpose was to determine whether governmental agencies were interacting in a consistent manner to provide coverage for special events.

Questions six, seven and eight were designed to gather information regarding staffing within the organization. This information provides a background to the type and depth of the respondent's organization.

The ninth and tenth questions inquired whether organizations charge a fee for special event coverage. The purpose was to determine how the event coverage is funded and if there are variations in the fee for non-profits.

The eleventh question asked the organization how special event coverage is staffed. This information was gathered to determine whether organizations were paying staff to provide standby coverage. In question twelve they were asked what criteria are used to determine special event coverage needs and were permitted to check all that apply. This provided a weighted response as to the criteria most used to determine special event coverage.

The thirteenth question was to see which types of events were increasing call volume. Once again respondents were permitted to check all that apply. The author did include an option for “don’t know” as it had become evident in the interview portion of the research that this might be an important point. The fourteenth question tied into the previous question by asking if they had a method of recording incidents that occur within a special event. The final question was simply to discover if the financial impact of special events was significant enough that special coverage was identified in the annual budget. This would provide information indicating how great the impact on the organization has become.

Limitations with the interviews involved not being able to meet and dedicate significant time to discussing the questions with each of the interviewees. This limited the information that was received from them. The next limitation was that the City of Durango maintains some data regarding special events but it is not complete. The data maintained by La Plata County and DFPD are not sufficient to evaluate what is occurring at special events. An example is that in the software used by DFPD incidents are not tied to an event. The data can be searched for incidents that occurred on the date of the special event, however information that would allow correlation

of the incident directly to the event has not been recorded. DFPD can only correlate trends indirectly to increased call volume on days with special events but there is no direct correlation shown in the data being collected.

Results

The author conducted a face-to-face meeting with City of Durango Community Events Supervisor Mike Kelly. He had received a letter from the author with written research questions prior to the meeting (see Appendix A for letter to Mr. Kelly). During the meeting the questions were discussed. The first question was, how does the organization define special event? Mr. Kelly indicated that there is no set definition in the Code of Ordinances for special event. He did propose that an appropriate definition might be as follows: a special event is any event, held on public property requiring some form of permit for permission, or on private property requiring equipment or variances from the City.” Mr. Kelly did not believe that La Plata County had a definition either, even though he does meet to discuss events with them.

Question number 2 inquired as to whether regulations had been adopted by the City of Durango to regulate special events. The City Code of Ordinances section 18-32 does address the requirement for permits whenever a group wishes to use a city park, playground or recreational facility for an event. The permit application is first acquired from the police department and then approved by the Director of Parks and Recreation or a representative (see Appendix B for city permit application). The ordinance lists eight requirements that must be met in order for the permit to be issued. Public safety is addressed in the second requirement and reads as “the proposed activity or use will not unreasonably interfere with or detract from the promotion of public health, welfare, safety and recreation.” Mr. Kelly also stated that he is in the process of developing a special events policy, which he stated he would provide to the author when it was

completed. He stated at the time that nowhere, that he was aware of, was there a requirement for the fire district to provide coverage for special events. However, he thought it was expected that the coverage would occur.

Question three asked how many events were processed and/or permitted in 2013 and 2014. Although Mr. Kelly stated that he believed there to be approximately 250-300 annually, the final count that he provided was 188 for 2013 and 190-195 for 2014. Mr. Kelly indicated that although he could provide the number of events for each year, the question would be how they are counted. An example would be the Fourth of July. There are multiple events occurring that day, but do they count as a single event or multiple events? The discussion continued directly into the fourth question as to the breakdown of the type(s) of events that are permitted. Mr. Kelly indicated that events are broken down into either a) park permits or b) special activities permits. Park permits are for events in the municipal parks and special activities permits are for events that impact the City right-of-way. Essentially the City of Durango issues permits for events in the parks and events in the street. Within both of these categories could be found the following types of events: parades, festivals with and without alcohol, cycling events, running events, sporting events and vending events.

Question five inquired into the attendance numbers, both projected and actual. Mr. Kelly stated that he only knows the projected attendance numbers supplied on the permit application. There is no required reporting for actual attendance at completion of the event. There are some events that sell tickets and those events would be fairly easy to acquire numbers for in the future.

Question six requested the date(s) and time(s) for each event permit. Mr. Kelly stated that the dates are simple to report as they are currently recorded on an Excel spreadsheet. However, times are only on the application. He was unclear as to why this was of interest. The

author stated that it was in order to determine whether time of day plays a role in the potential for medical emergencies.

Question seven inquired as to how many events provided some form of medical aid and if so, what level of aid? Although Mr. Kelly was not 100% sure, he stated that 75 to 80 events had some form of medical aid in 2014. Eleven events involved Durango Fire Protection District providing medical on-site standby coverage while the remaining 60 to 64 events had medical coverage provided by the Red Cross or some other group. He believes that the numbers were similar for 2013.

Question eight requested information regarding how often and when security is used at events. Mr. Kelly indicated that any event with alcohol requires security. Events that either require early setup or are multi-day events require event security. Mr. Kelly had a much better breakdown for events requiring law-enforcement. He stated that in 2014 there were 16 events that required law enforcement, 12 events required law enforcement and security, approximately 100 events required volunteer security, and 20 to 30 events that used a private security company. He stated that generally when law enforcement is required there is also a requirement for another form of security whose purpose is checking identification, collecting money, and monitoring exits and drunkenness.

The last question for Mr. Kelly was whether he, as the Community Events Supervisor, is informed of any medical incidents that occur at events. He stated that he is only informed if it is a major incident. There currently are no records kept to inform him of what occurs at first aid tents or even regarding ambulance transport. In other words, he is not informed of the incidents that occur as a result of the events. This places him in an awkward position as he could not even

begin to guess whether the medical coverage is appropriate or not as a result of lacking this information.

Mr. Kelly provided a summary and written documentation of much of the information included above (see Appendix C for Mr. Kelly written response). He is in agreement that although the organization and administration of these events has improved significantly there is still more to do. He is interested in the outcome of this research and is open to recommendations on how all of the organizations involved can improve procedures to ensure the safety of the community attending these events.

The same questions used in Mr. Kelly's interview were sent to the La Plata County Director of Planning, Mr. Peduto (see Appendix D for Mr. Peduto letter). Through brief informal 5-minute discussions around the questions that were sent to him, his written response to the questions (see Appendix E for Mr. Peduto's written response) and information from his staff, the following results were gathered.

The first question was does La Plata County have a definition for special events? La Plata County defines a special event in Section 82-3 of the Land Use Code (see Appendix F for Land Use Code Section 82-3) as "a use or activity at a specific location at which 50 or more persons may gather, may attract more than 25 vehicles per day, or may create significant onsite or offsite impacts, and does not exceed seventy two hours." It was noted that a challenge occurs if three agencies are working together on an event and the agencies have three different definitions of what constitutes a special event. It was important to Mr. Peduto that the agencies develop a common terminology and process around special events. Question number two asked if La Plata County had adopted regulations regarding special events. Resolution No. 1992-27 (see Appendix G for Resolution 1992-27) was adopted by the La Plata County Board of County

Commissioners to regulate special event permits for the La Plata County Roads. This resolution requires that anyone wishing to host an event that uses county road right-of-way or other county property must apply for a permit. This may include activities such as cycling events, walks, or runs. If the event causes the normal traffic use of the road to be modified or restricted a permit is required. The permit may be acquired from the office of the La Plata County Road and Bridge Department. An insurance certificate for \$400,00 per occurrence and \$150,000 per person is required. Preliminary approval is acquired from Road and Bridge and the La Plata County Sheriffs office. The applicant may be required to provide an emergency medical plan. The regulation does not require any information be provided to the Fire District, which provides the emergency medical services. The only required notification to the Fire District in this resolution is to notify the Fire District(s) two weeks in advance of the event of road closures or restrictions related to the event. In 1998, the La Plata County Board of Commissioners passed resolution No. 1998-7. It rescinded resolution No. 1992-27. It stated that a special event permit application for use of La Plata County roads to host a bicycle race, ride, foot race, walk or other event that impacts the normal traffic flow could be acquired through the Clerk to the Board of County Commissioners. Once again, there is no mention of notifying the Fire District and the emergency plan requirement was removed (see Appendix H for Resolution 1998-7). Resolution No. 2013-09 was passed in 2013, which stated that the Board of County Commissioners had the authority to adopt regulations related to the closure of County roads for special events or athletic events that impact the regular traffic flow. This resolution amended the county code to allow the planning department to accept applications for special event permits. Approvals were required from the County Sheriff's Office, the County Office of Emergency Management, and the Department of public works. The Director of Public Works could approve the special event

permit provided, in addition to other requirements, that an emergency management plan and appropriate conditions to protect the health, safety and welfare of the public were in place (see Appendix I Resolution 2013-09). The last of the regulations in the county regarding special events is Section 82-13 of the La Plata County Land Use Code. Section 82-13 was mentioned as the source for the definition of special events in the County. This section also states that the requirement for a special event permit does not include private events at a private residence that do not exceed 24 hours in duration. The application and submittal documents shall be provided to the planning department. Required plans do not include emergency planning or contact with the organization(s) providing emergency response to the participants.

Question three asked how many events were permitted in 2013 and 2014 and question four asked for the breakdown on the type of events. The information provided was three events in 2014 and nothing was reported for 2013. There was no description as to the type of events. Question five asked about the projected and actual attendance numbers. Question six requested the date(s) and time(s) of the events. No data was provided for either one of these questions.

Question seven asked how many of the events provided medical aid and what type? Mr. Peduto stated that he did not believe that this type of data is kept but that it could be captured in the future. Question eight asked how often and when security is required for events. He stated that this was weighed on a case-by-case basis and recommended as a condition of the special event permit. He thought that this data might be better captured in the future. Question nine asked if La Plata County was informed when medical incidents occur at permitted events. Mr. Peduto stated that his office is only notified if the applicant happens to mention it. This is information that is not available to La Plata County.

Due to Mr. Peduto's schedule we were unable to meet to go over his written answers. In the short discussions we had between other meetings, he stated that it would be beneficial if the agencies were all working together and that if there were recommendations to assure the proper medical coverage for special events, he would be more than interested in developing a policy. He also theorized that cycling races and runs are the type of events that would require staged medical aid of some sort. In our discussions Mr. Peduto indicated that it is expected and assumed by all entities that the DFPD provides the appropriate medical coverage.

The last interview was with Scott Sholes, EMS Chief for Durango Fire Protection District. He did not receive the same questions as the previous two individuals. Question one asked whether DFPD had a definition for special event. Chief Sholes stated that he believed the "DFRA Special Events Policy – Medical" had a definition (see Appendix J for draft DFRA Special Events Policy). DFRA (Durango Fire & Rescue Authority) was in existence up until January 1, 2014 when DFPD was formed. Upon researching the policy it was revealed that the policy does not define special events.

Question two for Chief Sholes was slightly different from that provided to the other two agencies as Durango Fire Protection District provides emergency medical services to both the City of Durango and La Plata County, so he was asked what contracts or agreements govern EMS coverage of an event? The other two agencies were asked what regulations had been adopted that regulate special events. Chief Sholes stated that there was no actual contract with the City or County that involved special events. There is a La Plata County EMS Resolution that only addresses ambulance licensing. It does not include special event coverage. The City of Durango has a contract with the Durango Fire Protection District to provide fire, ems, technical

rescue, wildfire suppression, hazardous materials, fire prevention and education to the community. It does not specifically include special events.

Question three inquired as to the number of events processed or permitted in 2013 and 2014. Question four was how many events did the organization provide medical coverage for? Chief Sholes stated that we do not keep records of event requests. As there is no central point of contact for events, the requests can come in to numerous individuals within the organization including the author of this research. As a result there are no records for question four either. Chief Sholes indicated that some event records were in a file and that might provide information. On researching that file, it was interesting to note that the majority of the eight events listed in the files are not events permitted by either the City or County but are activities such as rodeos, roller derby, high school football, and concerts in facilities designed to host concerts.

Question five asked what is the breakdown of the types of events and question six inquired about date(s) and time(s) of events. Once again Chief Sholes indicated that the organization did not have this data. Question 7 inquired as to the level of coverage provided for each event. Chief Sholes stated that events provided with standby coverage receive a minimum level of an emergency medical technician-basic unless a medic unit is assigned to the event and then the minimum level is upgraded to include a paramedic. He was not able to provide definitive guidelines for when medical on-site standby is required.

Question eight inquired as to what factors determine the type of coverage provided. Chief Sholes stated that there is currently no policy that determines the level of coverage, personnel and units assigned, but that knowledge of regularly occurring special events dictates the level of coverage provided. Other indications that an event may require coverage are a general impression of the level of risk associated with the event and the availability of resources.

Question nine asked how many incidents have occurred at the special events and what types of injuries are associated with these events. Chief Sholes indicated that the organization does not currently have a method of tracking incidents related to special events.

The last question was whether it makes a difference with these incidents if the emergency responders were on-site verses if they had been dispatched and responded from the station. Since the District does not track incidents at special events, it was not surprising that Chief Sholes responded by stating that we would need to define this first and track incidents so that we could evaluate incident response and needs. He also expressed that what the District views as appropriate response may not be the same as the community's or event organizer's viewpoint.

Chief Sholes has indicated that he believes the organization needs to develop policies and procedures relating to special events. There are certain times during the year when many events are occurring and the demand on emergency resources is great. This seems to coincide with wildfire season and summer when volunteers, reserves and off-duty personnel want to spend time with family and friends. The EMS Division for DFPD does have a survey that can be completed by all transported patients which provides data on the quality of the service. Within that data there has been no correlation to poor care at an event.

Chief Sholes interview questions were modified as the author was attempting to learn what standby coverage was occurring and what the impact on incidents was. Chief Sholes' information about what service level was provided would then be used to relate to what the City and County are expecting in terms of medical coverage at events.

The interviews provided insight for the first research question regarding which special events are currently staffed and how. The City of Durango was able to provide data that stated that Durango Fire Protection District staffed eleven special events and Durango Fire

Protection District was able to answer that when a special event requires coverage without a medic unit, then the coverage is basic life support. If the special event required a medic unit for standby coverage then a paramedic (advance life support) is provided. What was not provided in these interviews is a method for determining level of risk and probability of injury to effectively evaluate whether the on-site standby met the needs of the event was at an appropriate level, or reduced the impact on normal everyday emergency response.

The second research question was to determine what the expectations of the City of Durango and La Plata County were regarding special event medical coverage. The interview with Mr. Kelly indicated that he believed that it was up to the Fire District to evaluate and let the City of Durango know when and how coverage should be provided. This is similar to the discussion with Mr. Peduto when he stated that he believes that the community expects the District to provide the necessary coverage and it is simply assumed that the appropriate coverage is provided.

Research questions three and four were not answered in the interviews and are addressed in the survey as a result. A survey was developed using www.surveymonkey.org. The purpose of the survey was to acquire an overview of how special event standby coverage was occurring across the State of Colorado. The survey was distributed to the Fire Marshal's Association of Colorado by email to the membership. Nineteen responses were received over a three-week time period. The survey was then closed. The survey can be found in Appendix K and complete summary results can be found in Appendix L.

Six of the nineteen (31.6%) organizations responded that they were city departments and thirteen of the nineteen (68.4%) indicated that they were a special district/authority. No respondents identified that they were a County Department.

Nine of the nineteen (47.4%) responding organizations answered that they provide emergency medical services at the level of transport, advanced life support (ALS) and basic life support (BLS). One organization responded that they provide ALS and BLS but do not transport and six responded that they only provide BLS. Three of the nineteen (15.8%) provide no emergency medical services. It is possible that there is an error in the three of nineteen as one respondent indicated that they do not provide emergency medical services (EMS) however the same respondent indicated in question three that their organization provides EMS and fire coverage for special events. This should be taken into account when evaluating question three as well.

Of the thirteen special district/authorities, ten provide EMS and fire coverage at special events and the remaining three provide only fire coverage. The city fire departments were split in their reporting and provided either fire or fire and EMS coverage. No organization responded that they did not provide coverage at special events or that they only provided EMS coverage.

Eleven (57.9%) of the respondents indicated that their organization had an agreement with governmental agencies to cover special events yet nine agencies had a common definition of special events with the governmental agencies. Of significant interest is that 26.3% stated that they used different definitions for special events and an equal percentage stated that they had no definition for special event.

Organizations were asked to identify the staff responsible for processing and scheduling special event coverage. Figure 1 does not show that 6 respondents chose “other”. The respondents could then explain in their own words to what positions they were referring. Those positions were:

1. Public Education Specialist
2. Designated member of the fire prevention bureau
3. Anyone within the organization
4. Battalion Chief and Operations Chief
5. EMS Chief and EMS Billing

An overview indicates that the Fire Marshal's office is the predominant intake position for special event coverage.

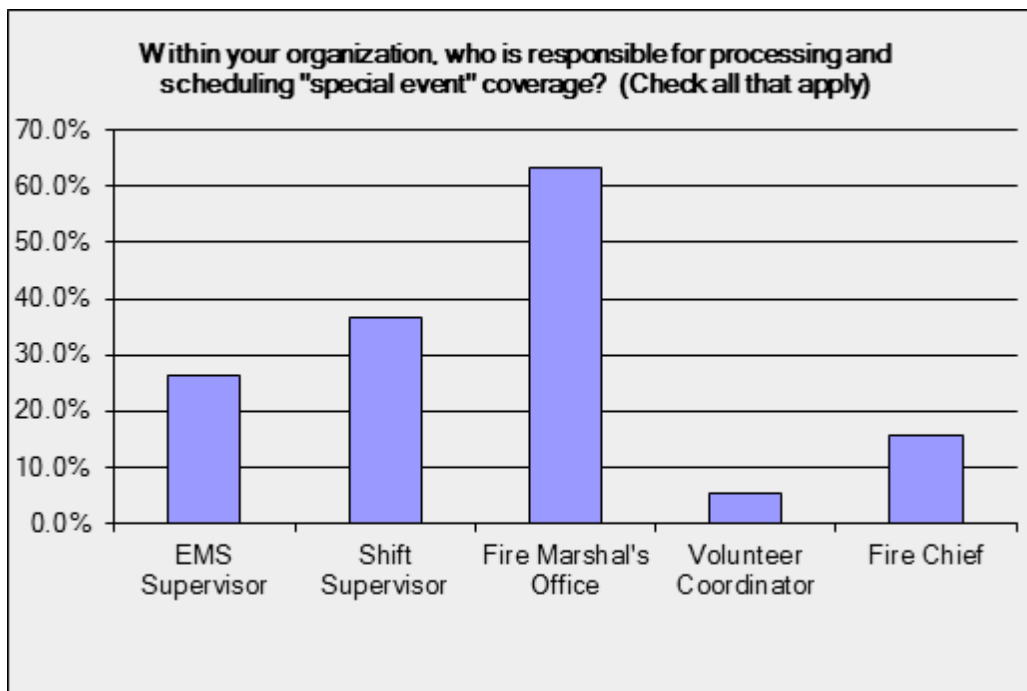


Figure 1: Response to whom within the organizations processes special event coverage

Only 36.8% (seven of nineteen) of respondents indicated that they did not charge a fee for special event coverage. Of the 63.2% that indicated they charged a fee, 47.3% indicated that they charged the fee or a discounted fee to non-profits. The table below indicates the breakdown of those who charge a fee and those who do not.

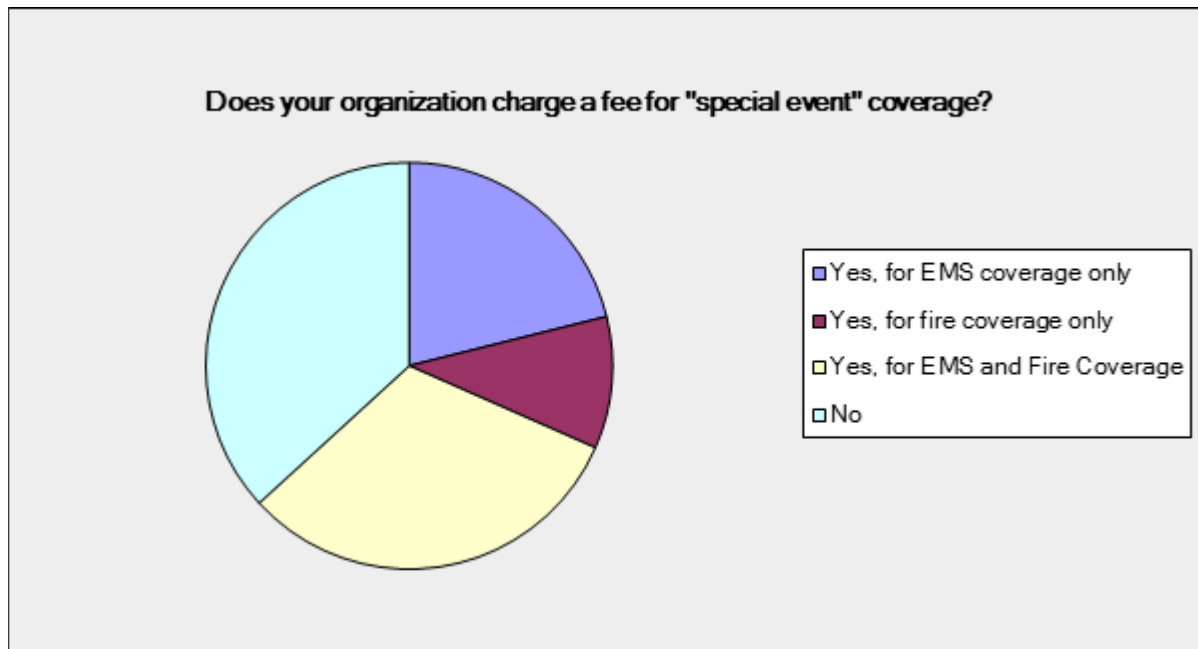


Figure 2: Graph depicting breakdown of organizations that charge a fee for special event coverage.

Thirteen of nineteen responding agencies use off-duty staff to cover special events and one uses reserves. It is interesting to note that only eight respondents indicated that special event coverage costs were identified in their budget.

Multiple criteria were used to determine special event coverage. Anticipated attendance numbers was used by all but two agencies (89.5%) to determine special event coverage. 73.7% identified risk level as the second most used criteria. It is interesting to note that the third criteria are past history, which had in parenthesis the note: "because we always have". 6 respondents chose "other". Write-ins in the other category included: fire protection systems taken off-line, when requested by other agencies or event organizers, tents, pyrotechnics, special site hazards such as mobile cooking, time of day and length of event. Location and age of participants are the least used criteria per the survey. Please refer to the chart below of complete breakdown of criteria.

Which of the following criteria does your organization use to determine "special event" coverage needs? (Check all that apply)		
Answer Options	Response Percent	Response Count
Anticipated Attendance Numbers	89.5%	17
Road Closure(s)	42.1%	8
Site Constraints	42.1%	8
Alcohol/Drugs	26.3%	5
Response Times	42.1%	8
Risk Level (e.g. rodeo, freestyle skiing, etc.)	73.7%	14
Age of Participants	15.8%	3
Public Relations	42.1%	8
Past History (because we always have)	52.6%	10
Location	36.8%	7
Other (please specify)		6
<i>answered question</i>		19
<i>skipped question</i>		0

Figure 3: Response to what criteria are used to determine special event coverage needs.

Twelve of nineteen respondents believe that festivals increase their call volume. Outdoor sporting events and concerts were also identified as events that would increase call volume. Only five of nineteen respondents indicated that events with alcohol increase their call volume. Four respondents indicated that they don't know what types of special events increase their call volume. 57.9% of respondents use fire and EMS software to track incidents and 26.3% attach the incident to the standby incident. The remainder use either a special event spreadsheet

What types of "special events" increase your call volume? (Check all that apply)		
Answer Options	Response Percent	Response Count
Don't know	21.1%	4
Outdoor sporting events	47.4%	9
Indoor sporting events	21.1%	4
Concerts	42.1%	8
Parades	26.3%	5
Festivals	63.2%	12
Events with alcohol	26.3%	5
Political Rallies	5.3%	1
Other (please specify)		0
<i>answered question</i>		19
<i>skipped question</i>		0

Figure 4: Respondents response to which special events generate additional incidents.

or do not have a method for tracking incidents within the special event. Only 36.8% indicated that they start an incident for special events.

The individual results can be found in Appendix M. The interviews and surveys provided significant information in addition to the literature review in regards to what is occurring within the State and what is occurring locally.

The characteristics of local special events that generate additional incidents was not answered in the interviews with the City of Durango, La Plata County or Durango Fire Protection District. The survey did show that, in the state of Colorado, the special events that generate additional call volume are festivals, outdoor sporting events and concerts. This can be compared to the San Diego matrix that lists concerts/festivals, athletic sporting events and parades as special events that require ALS ambulance medical coverage with attendance numbers between 2,500 and 15,500. Concerts/festivals are also required to have BLS ambulance at less than 2,500 participants. (Stauber, 2006, p. 33)

The last research question was what level of emergency responder staffing is needed to provide adequate coverage for special events that generate additional incidents? The author of this research evaluated whether to discontinue this project when the interviews were completed as the author recognized that at the local level it was only known that DFPD provided bike medics or a medic unit with a paramedic at 11 events that were permitted by the City of Durango in 2014. The data is currently not maintained to evaluate whether this was adequate staffing. There are no known complaints related to lack of sufficient coverage at special events that have been received by DFPD from the community. The literature review provides guidelines from numerous sources for medical coverage needs at various types of special events. These can be

used at present until such time as there is sufficient data to evaluate what is occurring in the local community.

Discussion

The author's viewpoint and approach to the project was based on Durango Fire Protection District's perception of the impact of the special events, permitted by the City of Durango and La Plata County, on the fire district's staffing. As the author began the literature review it became clear that the basic fundamental planning process necessary to manage risk and hazards at special events is available but not implemented in the local jurisdictions. The research questions designed to address the problem were not the right questions. This became even clearer at the conclusion of the interviews. It was at this point that the author debated changing the purpose, the problem and the research questions. The author did none of the above but chose to continue the process as it was anticipated that the results would ultimately address the purpose and problem.

The literature review and the Emergency Management Institute course entitled "Special Events Contingency Planning for Public Safety Agencies" emphasized the importance of developing a definition for special events that is used by all entities involved in the oversight of special events. The definition used in the Special Events Contingency Planning for Public Safety Agencies was "a non-routine activity within a community that brings together a large number of people" (Federal Emergency Management Agency, 2010). Mr. Kelly of the City of Durango proposed that a special event would be any event, held on public property requiring some form of permit for permission, or on private property requiring equipment or variances from the City. La Plata County defined special events in their land use code as "a use or activity at a specific location at which 50 or more persons may gather, may attract more than 25 vehicles per day, or

may create significant onsite or offsite impacts, and does not exceed 72 hours.” (see Appendix F for Land Use Code Section 82-3) The District did not have a definition of special events. The City of Durango’s proposed definition was based on identifying a type of activity that would require some interaction with the City for use of equipment, roads, or parks whereas the County definition placed emphasis on a specific number of individuals, vehicles, time-frame and impact both on-site and off-site. The District informally views special events as an activity that requires medical or fire coverage above and beyond the normal everyday response.

When the City or County receives an application for a special event and comment is requested from the District or the other governmental agency, the viewpoint is based on the impact on that particular entity. The three entities are evaluating the special event in different ways and responding to the application with no coordination. The interviews indicated that the District participates in special events that are not considered special events by the City or County.

The Irish Rugby Football Union handbook states that event management is dependent on the venue, scale of event, duration and planned activities. (IRFU, 2008) The Emergency Management Institute Course indicates that the following four questions can assist in helping a community determine whether an activity is a special event:

1. Is the event out of the ordinary or non-routine?
2. Does the event place a strain on community resources?
3. Does the event attract a large number of people?
4. Does the event require special permitting or additional planning, preparation, and mitigation efforts by local agencies? (Federal Emergency Management Agency[FEMA], n.d., Lesson 1)

Based on the information above, each community has different capabilities and characteristics and therefore should develop a definition using the guidance from FEMA and the Irish Rugby Union. It is stated by FEMA “what may be classified as a special event in one community may not place a strain on resources in another community”. (FEMA, n.d., Lesson 1)

All three entities (City, County, District) have formal or informal rules and regulations governing special events. The city requires permit approval through the application process from nine city departments and the fire district. The fire district has two sign off lines, one for the Fire Marshal and one for the EMS Chief. The city includes fees for emergency medical services for staffed ambulance, medic, or bike medic in the fee schedule yet there is no formal fire district special events policy for medical coverage.

The county permit involves county departments such as the Road and Bridge Department, Planning Department and the La Plata County Sheriff’s Office. The application states that the Sheriff’s Office is responsible for security and safety with the enforcement authority to stop any event that has not met a required condition or violations of the permit. The application requires an emergency management plan and an emergency medical plan.

The informal fire district policy states that it is prudent to have medical coverage if an event has a high likelihood for injury and the event is legitimized with all necessary city/county permits. High priority events require a dedicated medic unit(s) and staff may be volunteer or career. The informal policy states that there are times when there is no need for medical coverage however there is a public relations benefit. Other events have a strong benefit to the community and the participation of the fire district increases the benefit. Non-legitimate events are identified as those not in the District, requests for personnel that are not functioning under

District authority but are working for the event, insufficient lead time and commercial events that refuse to pay for services.

The three paragraphs above give the appearance of planning for a special event, however there is no joint planning to evaluate the hazards and risks. Planning is identified by all literature as critical to the success and safety of the event and its participants. Berlonghi developed a special event guide for planning and documentation which discusses evaluating hazards and risks during the planning stages to determine whether mitigation measures can be put into place to reduce the impact on the emergency response community and to determine the appropriate level of coverage needed at the event. (Berlonghi, 1996) The Irish Rugby Union identifies within the planning activity the need to manage risk by examining all aspects of the event to determine where loss may occur. (IRFU, 2008, p. 9) The loss falls into four general areas of personnel, property, income and liability. In evaluating the four areas, risk factors will be identified. The risk assessment in relation to health and safety is a schematic approach in which hazards are identified, likelihood of the hazard causing harm is evaluated, methods to reduce or minimize the risk are developed, and finally contingency plans are formulated.

FEMA uses a similar system to plan for special events and their needs. One of the aspects of evaluating hazards and the potential risk related to the hazard is reviewing historical and predictive data for the hazard. (Federal Emergency Management Agency, 2010) This information can then be used to evaluate the potential impact on the community based on the community's capabilities. This is where historical data plays a vital role in determining whether an event will require medical or fire standby coverage and whether the coverage is dedicated strictly to the event or not. The historical data maintained by all three entities combined provides an overview of the number of special events that are occurring but the

missing components are an evaluation of the hazards for each type of event, methods of reducing risk, implementation of an emergency plan that may include standby coverage, and evaluating the impact that the planning had on the outcome of the event and incidents within the event. Once this type of planning is implemented the three governmental entities may find that the impact on all entities can be reduced and they can still provide successful coverage for events.

Crowd management is identified in the literature as a significant method of reducing hazards and risk. Crowd management involves recognizing participants' behaviors at various stages in the proposed event and then adjusting the activity, venue or layout to account minimize the hazard and therefore the risk. (Fehr, 2007) Crowd management requires expertise and training to perform effectively. Crowd management is not the role of the fire services although based on past history in the City of Durango and La Plata County the fire service has accepted a portion of this role. In one instance an event has been staffed with an emergency medical technician basic allowing for a 10% increase in occupant load even though the space and the egress components have not been modified to perform with the additional occupant load. It was assumed that the emergency medical technician basic would in the event of an emergency be able to control and manage the crowd. In another event it was assumed that in an incident, regardless of the type of incident, the emergency medical technician would function as the safety officer for the event. Crowd management per the literature states that it is the responsibility of the event organizer to use individuals or organizations that are trained in this function.

Kincaid, in his applied research project, determined that organizational planning for special events was inconsistent in his district and therefore it was unclear if the appropriate level of standby coverage, whether for fire or medical, was provided. (Kincaid, 1996) The standby coverage provided by Durango Fire Protection District is inconsistent, and there is a lack of tools

to evaluate the special events for hazards and risk. It is the hazard and risk level that will determine the degree of standby coverage required. The Irish Rugby Union developed a methodology for evaluating risk level. (IRFU, 2008) Where the likelihood is identified as medium or high the Union advises evaluating the reasons the injury is likely to occur and modify the event to reduce the level of risk as much as possible. If the risk is low but the severity is high then a plan should be developed to address the incident should it occur.

Raymond Hill, in his applied research paper, recommended that the fire service, law enforcement, and emergency management personnel implement the use of a dedicated special events oversight team. (Hill, 2013) The oversight team would operate under the rules and regulations of a special events ordinance that classified special events based on expected hazards and attendance. Hall suggests that a multiagency collaboration is required to create safe facilities. (Hall, Cooper, Marciani, & McGee, 2012) This type of collaboration includes all entities affected or impacted by the special event, not the limited group described by Hill. This type of approach is a significant change to the current method of classifying special events used by the City, County and Fire District.

It is currently not feasible to evaluate a type of event within the city or county based on history of incidents at events, as the data is not consistent, nor complete. Kincaid came to the conclusion that the fire service would benefit by committing to an information management system that would record incidents related to special events in a manner that is useful for future planning. (Kincaid, 1996) The survey indicated that festivals, outdoor sporting events and concerts have the greatest impact on call volume, but 21.1 % of respondents indicated that they did not know what type of events generate addition call volume. It is difficult for the individual(s) responsible for processing special events applications to evaluate the event if there

is no final report that includes items such as incidents associated with the event and/or any other challenge that occurred.

Staffing levels for special events should be based on the impact that an event has on the normal operations of the responding agency. The impact is dependent on the responding entities capabilities to provide and fund services. (Federal Emergency Management Agency, 2010) The survey sent to the Fire Marshals' Association of Colorado provided information that there is a disparity across the State of Colorado regarding charging fee(s) for standby coverage and for discounting fees for non-profits. Respondents to the survey indicated that less than 50% of organizations identify special event costs in their budgets. If staffing is provided by off-duty, reserves or on on-duty personnel there is a financial impact on the organization providing the staffing. Although funding was not included as a research question, the information gained has indicated that this has an impact on the level of standby provided.

The implications to the Fire District are multi-fold but can be consolidated into a single statement: the organization does not have the tools in place to evaluate current staffing for special events, predict future staffing needs around special events, reduce the risk levels at various events or anticipate the future costs to the organization of the special events coverage.

The United States Fire Administration Strategic Plan for Fiscal years 2010-2014 has five goals. The first is to reduce risk at the local level through prevention and mitigation and the second is to improve local planning and preparedness. (FEMA, n.d., p. 13) In other words, if the entities involved in special events operate as a team, evaluate the special event for hazards and risks, mitigate the hazards and risks, staff appropriately for the hazards and risks that cannot be mitigated, and then evaluate the event upon conclusion, all the entities involved will have met these two goals.

Recommendations

The following recommendations are based upon the literature review, the interviews, and the survey. The first recommendation is to develop a team that consists of the City of Durango Community Events Supervisor, the La Plata County Planning Director, Durango Fire Protection District EMS Chief and Durango Fire Protection District Fire Marshal. The purpose of the team is to develop a common definition for special events and to develop goals and objectives to ultimately bring together a pre-event planning team for special events.

The second recommendation is to develop the pre-event planning team for special events. The planning team will develop the regulations and policies for how special events are managed in the community. The regulations will be at the city and county level and adopted legally. The policies will incorporate the concerns and needs of the entities affected by special events with criteria that can be used to evaluate the impact.

The third recommendation is for the pre-event planning team to develop a hazard and risk analysis process for the three phases of an event. The three phases are build-up and load-in, operations and load-out and breakdown. The process can be further broken down into various types of hazards such as traffic, security or law enforcement, medical, etc.

The fourth recommendation is for the event to be evaluated at its conclusion. The evaluation will begin to bring together the data that can be used in the future to predict the likelihood and severity of medical challenges and other associated with specific types of events in the community of City of Durango and La Plata County.

The fifth recommendation is strictly for the fire district to evaluate the software that currently tracks all incidents to determine if there is a standby option for incidents, how that would impact NFIRS (National Fire Incident Reporting System) and whether incidents within

the event can be linked to the standby option. There should also be a method of tracking costs associated with standby coverage.

Implementing the five recommendations will eventually provide the planning tools necessary for all entities impacted by special events to plan and prepare for the future. On the fire service level it will provide a systematic approach to providing effective and efficient medical/fire coverage for special events. It will provide an opportunity to reduce the hazards and risk thereby reducing the need for medical/fire coverage. With planning it will be possible for the fire service to anticipate the scheduling and staffing needs earlier and eliminate staffing of events that do not require medical or fire coverage.

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