Preparing for Tough Questions on the Horizon

by: Dr. Rich Gasaway

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The economy has led to a considerable impact on municipal budgets and, subsequently, on fire department budgets. Elected officials are feeling the strain to reduce operating expense and they are looking at all options for balancing budgets. This includes the fire department.

Public safety budgets were, at one time, considered sacred areas and immune from reductions. This is not the case any longer. The strain of the lost revenue has exposed every aspect of a municipal budget to scrutiny. The International City and County Managers Association (ICMA) are fueling the scrutiny of public safety budgets. The ICMA has developed a program they are presenting to municipal leaders entitled “Asking your police and fire chief the right questions to get the right answers.”

Some fire department leaders have been administrating their departments for many years using a business model that captures, evaluates and applies metrics in their budget justification process. Those who have been progressive visionaries will find few surprises and little heartburn among the questions the ICMA is suggesting elected and appointed municipal leaders ask their fire chief. For these departments, the questions are not only easy to answer, but the principles behind the questions have been driving the department’s direction long before the economy downturned.

Some fire department managers, on the other hand, have not been as astute to the metrics used to drive decisions. Those who have been less progressive may find themselves underprepared for the tough questions they are likely to be asked. The blind trust and open checkbook days have come to a close (at least for now and are likely to remain closed for the balance of most currently sitting fire chiefs’ tenure).

It is important to understand both the questions and the metrics that support quality answers. Unfortunately, the data that supports responses to some of the questions require the accumulation of longitudinal data (statistical performance

data gathered over years). An astute official, rightfully so, is likely to question the characterization of short-term data (gathered over months or a few years) as not being indicative of trends.

When facing tough questions, it's always better to anticipate them to have well-prepared responses. Through their seminars, website and magazine, ICMA consultants are coaching administrators on the tough questions to ask. Consider this series to be your coaching on the answers to the tough questions.

1. How does the performance and cost of fire department programs objectively benchmark against other fire departments with similar call volumes and demographics? Where does the data come from answer this question?

2. Are the fire stations in the right locations to optimize the response capabilities and resources of the fire department?

3. How many response resources is the "right" amount for fire calls? For medical calls? What determines the correct amount?

4. What is an acceptable productivity level to expect from EMS personnel?

5. What is an evidence-based and legally defensible response-time goal for the community, and how often does the fire department reach critical response levels (i.e., too few units)?

6. Many communities use a 90th-percentile response time as a standard for first arriving units. What is the fire department's response time standard?

7. Does the fire department need to send large apparatus to all calls for service, including all medical requests from 9-1-1?

8. Do fire department units need to respond with lights and sirens to all 9-1-1 calls, despite the nature of the complaint?

9. How much down time do fire and EMS personnel have while waiting for calls? How do we evaluate the right number of personnel to have on-duty and the appropriate schedule for them to work?

10. Does the fire department treat the standards published by the National Fire Protection Association (NFPA) and the Insurance Services Office (ISO) as requirements or as guidelines?

11. If the number of fire-related responses are trending downward, when do the numbers become low enough to consider consolidating or contracting with another community for fire protection? What are the alternatives to having our own fire department?

12. Some communities are selectively closing fire station (sometimes termed “rolling brownouts”) to reduce costs. What are the benefits and risks of this strategy?

13. In addition to providing medical first response service, should the fire department get into or out of the business of transporting patients?

14. Should the fire department consider getting into the business of non-emergency transports (inter-facility and scheduled transports). How much extra revenue that might this generate?

15. Regardless of what others are doing, is *our* fire department better positioned to provide EMS transportation in our community than other organizations? What factors should be considered?

16. Besides privatization, what strategies could be used to improve efficiency of our fire services?

17. Can service levels be enhanced without changing the governance structure or making significant additional investments?

18. How can we be assured that the processes, procedures, and protocols utilized in managing our fire department reflect current best practice? Where are we getting our information?

19. Fire and EMS are dangerous occupations and generate significant internal and external litigation. How should our fire and EMS system evaluate and mitigate both safety and legal risks associated with providing these services?

20. Emergency services represent a large percentage of our community's budget. How do we show the taxpayers we are getting the best value for the dollars we spend?

Whether the tough questions will be coming from town administrators, elected officials or citizens, it is important for fire department leaders to be ready for the questions with well-prepared responses. The ICMA is coaching their members on the questions to ask, speckled with some opinionated forgone conclusions on the answers.

Each segment of this series will address the questions and provided answers based on best practices. These are tough times and some fire service leaders are navigating uncharted waters. This series will provide coaching to help you survive and thrive.

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Twenty Tough Questions You Should Be Prepared to Answer - - Solutions

Question 1: How does the performance and cost of our program objectively benchmark against others with similar volumes and demographics and where can we get the data to answer questions?

Before answering this question, it may be beneficial to work with your city administrator and elected officials to determine which performance benchmarks are important to them. As the chief fire executive, you can surely make recommendations to them. However, it may be unrealistic to assume the benchmarks valued by a town administrator will align with those valued by the fire chief.

This is a good discussion to have. It will improve everyone's understanding of perspectives and priorities. It may also help prevent expending effort to gather performance and cost data that are not valued by the town administrator or elected officials. Agreeing on the list, in advance, will improve the efficiency of your time.

The next challenge is to gather information from departments that are similar in size, similar in staffing, similar in call volume, and similar in community demographics. Finding organizations whose parameters closely match yours can be a challenge. When using comparisons, it may be helpful to articulate how the comparison departments/communities are similar and different. This adds perspective.

Ideally, it would be best if your comparison organizations were in your geographic region or within your state. Elected officials can get uneasy about making comparisons in regions they are unfamiliar with. As you cross state lines there can also be laws or programs that impact how towns are funded that makes the playing field uneven. Neither you nor your elected officials may be aware of these laws and programs. This can contribute to a proverbial 'apples to oranges' comparison of agencies and communities.

When comparing your agency to others it is a best practice to use statistics that evens the playing field. For example, let's look at the demographics and some basic budget information for two communities:

Smithburg	Jonesville	
Resident population:	8,000	12,000
Transient (daytime) population:	20,000	5,400
Square miles served:	10	36
Fire department budget:	$500,000	$300,000
Total payroll budget:	$350,000	$200,000
Revenue from taxes	$300,000	$300,000
Revenue from fees	$200,000	$ 0
Full-time fire department employees:	4	0
Part-time fire department employees:	24	72
Call volume	1,000	400
Average response time:	9.2 minutes	7.1 minutes

Looking at the raw data, you can draw some inferences about each of the communities. Comparing them using a measurement that evens the playing field reveals a more telling story.

Smithburg	Jonesville	
Residents per square mile	800	333
Daytime population per square mile	2,000	150
Cost per call for service:	$500	$750
Full-time equivalent (FTE) employees	12	24
Payroll cost per call	$350	$500
Revenue generated per FTE	$16,667	$0
Response time to critical calls	5.9 minutes	7.1 minutes

Here are some explanations for what the second data set reveals. This new way of looking at the numbers reveals a different perspective of the two communities.

Smithburg has a smaller population, but it is more densely populated. The transient (daytime) population statistic reveals Smithburg's population swells during the day. Something is causing Smithburg to attract people during the weekday. Perhaps people are coming to Smithburg for retail, educational, medical, industrial, professional, recreation or a variety of other reasons. Regardless of the cause, the potential demand for services rises as the daytime population rises. Jonesville, on the other hand, sees a sharp decline in daytime population. This indicates that more people are leaving Jonesville during the daytime hours than coming. Jonesville is the classic 'bedroom community.'

While Smithburg's budget is higher than Jonesville, the cost per call for service is lower in Smithburg. This can be an indication of organizational efficiency. It can also be related to the type of calls each community responds to. For example, an EMS call should be less expensive to respond to than a structure fire.

Smithburg has four times the number of full-time employees as Jonesville. This is true. But Jonesville has three times the number of full-time equivalent employees (FTE) as Smithburg. For the sake of this example, a FTE is how many part-time employees it takes to equal the workload (and cost) of one full-time employee. I used the ratio of 3:1, which is not written into law anywhere, but is a commonly referenced benchmark. This means every three part-time employees count as one full-time employee.

It is a common misperception that part-time employees are far less expensive than full-time employees. In some cases that may be true. In other cases it is grossly inaccurate. Following best practices and solid principles, the cost to recruit, hire, train and outfit a firefighter (volunteer or career) should be the same… and it is expensive. It can easily range from $8,000-$15,000. If turnover of part-time or volunteer members is high, this can be very costly. Also, in a system where part-time or volunteer members are paid on a per-call basis, the cost per call can be significant if the number of personnel responding to each call is not controlled. If the department dispatches an "all-call" (everyone who's available can respond) for a car fire, they might find themselves paying 30-40 responders for a call that required a crew of 3-4. That may be a sign of response inefficiency.

While the number of full-time employees working in Smithburg is higher, the payroll cost per call for service is significantly lower. Again, this is a measure of efficiency. The explanation for this may be that in Smithburg the on-duty personnel respond to fire alarm activations during the workday and do not call additional responders in from home unless the dispatcher receives additional calls or gets a confirmation of a fire on a callback to the premise. In Jonesville, the same fire alarm activation is an 'all-call' and 30-40 members respond to the station (and are paid) for a call that may have only required one person to reset an accidental alarm. Again, it's a testimony to the efficient use of resources.

While municipal fire departments are not for-profit agencies, the revenue generated by a fire department can be an important component of the overall

budget. This is especially true during a challenging economy where budget dollars are tight and elected officials are reluctant to raise taxes. In Smithburg, the fire department has three programs that generate revenue: Emergency medical services, extrication services and fire safety inspections. In Jonesville, there are no programs to generate revenue. Thus, if you look at the revenue generation per FTE, Smithburg is in a better position to justify staffing levels because they are, in part, paying for themselves through revenue generating activities.

Twenty percent of Smithburg's annual budget is derived from fee income while Jonesville's entire budget comes from taxes. Some may argue that fees for services are just another form of taxation by government. Others might opine that taxes provide a basic level of services (e.g., response to a structure fire) at no cost to the resident. All other services are above and beyond the basic level and are, therefore, fee eligible. Fees may or may not be palatable in your community. That is a discussion to have with elected officials, especially in this tight economy.

The final measure in this example is response times. You will notice that for Smithburg the average response time is 9.2 minutes but the average response time to critical calls is 5.9 minutes. In Jonesville, both numbers are the same, 7.1 minutes. Why? In Smithburg, they separate the response times for critical calls for service from the response times to non-critical calls. This is a more accurate measure of response performance where it means the most (i.e., the critical calls).

Additionally, in Smithburg, the measure for average response time begins at the receipt of the 9-1-1 call. In Jonesville, the response time measure begins when the first fire apparatus responds. This is a huge difference and if the question is not asked, the comparison will not be accurate. Average response times can be measured many ways. Here are just a few examples:

1. From start of the 9-1-1 call.
2. From the time the fire department is toned out.
3. From the time the first unit responds.
4. Until the first fire department member (whoever that is) arrives on the scene.
5. Until the first staffed fire engine arrives on the scene.

Average response time numbers can be ‘fudged’ as well. I once knew an agency that announced ‘arriving’ while they were still blocks away from the scene. There may be a variety of reasons for this. Regardless of the reason the arrival times are not completely accurate. I also knew of one agency where the on-duty personnel would call themselves responding from the station as soon as they received the dispatch tones (before they even went to the apparatus bay to put on their gear). Again, I’m not judging, just sharing observations about how response times can vary so widely across agencies.

Once you decide to seek comparisons, it is important to know which data points you want to capture, and it is vital that you understand how other fire department(s) operate in comparison to your own operations. Don’t be surprised if some departments do not measure the data you are seeking. However, many progressive departments track their statistical performance measurements and benchmark themselves against others.

One place you are likely to find departments who will have complete and accurate performance measures is the list of fire departments who have been accredited through the Center for Public Safety Excellence (http://publicsafetyexcellence.org/). Among the host of criteria essential for accreditation is the need to develop and maintain accurate measures of performance. If you can find accredited departments of similar size and consistency, it’s a sure bet they are progressively measuring their performance. Contact an accredited department and ask them for their data.

Question 2: Are fire stations in the right locations to optimize the response capabilities and resources of the fire department?

The primary responsibility of your fire department is to deliver fire, rescue and life safety services to your community. To provide these services, fire departments have historically placed stations throughout their response area based upon the premise of a timely response, i.e. arriving on-scene with sufficient resources to initiate fire, rescue or emergency medical activities in an acceptable response time.

Determining what is an acceptable response time as well as what constitutes sufficient resources should be decided, primarily, by the elected officials whose

responsibility it is to set policies to serve the greatest good of the community. Fire officials should establish, cooperatively through dialogue with elected officials and city management, what the response times and resources should be. Establishing these performance benchmarks is central to determining the distribution and concentration of fire station coverage.

The term concentration is used to describe the spacing of multiple fire department resources arranged so that an initial effective response force can arrive on-scene within the established time frames. An effective response force is a set of resources that will stop the escalation of the emergency incident. Differing incident types require different levels of initial and secondary staffing based on the nature of the incident. Distribution is used in to describe the physical location of fire stations ensure a rapid response and support the effective response force.

Generally, fire station distribution and concentration are based upon development, risk analysis and response time requirements. Other important criteria include the organizational staffing model and station overlap for support coverage. Unfortunately, The National Fire Protection Association (NFPA) and the International City Management Association (ICMA) are silent on the matter of "when" and "where" fire stations should exist. The Insurance Services Office (ISO) does provide guidelines for fire station spacing by the ICMA has characterized the ISO standards as antiquated. According to the ICMA consultant's presentation, fire stations are located 1.5 miles apart to meet the ISO requirements. This requirement is allegedly based in how far horses could run at full gallop. In defense of the ICMA, if that is true, the standard is out of date.

Critical criteria that should be considered to determine adequate distribution and concentration of fire stations include:

Desired response times: When considering this important factor, assign a percentage of responses that will meet the desired response time criteria. For example, "For 80% of emergency responses, the department shall place a suppression apparatus on-scene in not more than eight minutes for the first alarm assignment" (and the resources of the first alarm need to be established as well). Some fire departments rely on the NFPA 1710 or NFPA 1720 as response performance measures. Variables to consider in determining response time are infrastructure features such as road type, design and traffic pattern. What is the

area being served? For example, a rural area may have longer response times due to the larger geographic area and the limited availability of resources.

Services provided impacts the model: Providing medical responses in addition to fire suppression may influence the design of the model. Medical responses vastly increase the number of calls for service and increase the number of times where response times are critical.

Appropriate staffing model: One essential consideration in evaluating response times and station location is the organizational staffing model. It is strategic for volunteer departments to locate stations in areas volunteers live and/or work. The station location is based on responder availability. Recruiting and retaining firefighters assigned to s station located in an industrial area will be challenging. Volunteer departments often respond multiple apparatus from one station so the need to have sufficient personnel residing or working in proximity to the station is important.

Alternatively, career fire departments often respond with one or two apparatus from each station and dispatch multiple stations to significant alarms. This can help meet both the response time and staffing benchmarks.

Historical fire and medical activity: Using historical response data such as event history, activity levels, risk characteristics (fire potential, occupant exposure) it may make sense to locate fire stations near high population areas that experience high call volumes. If the service area has a significant commercial or industrial area, it may also be essential to ensure appropriate resources are located to ensure those community assets are protected.

Shared services with neighboring departments: Consideration should be given to the availability of mutual aid partners, particularly those that border your jurisdiction. The reciprocal use of automatic mutual aid to provide service may reduce the need for fire stations. This is particularly applicable when you a neighboring department is geographically close and can provide quick service. Collaborate on sharing services.

Using technology: The use of technology can help in the justification of station locations by offering quantifiable data to support location decisions. Modern geographic information system (GIS) computer software can provide accurate data about demand and response times. The old concentric circles on a map

technique offers limited value when compared to the data derived through the application of GIS technology. Inputs such as travel time, travel speed, roadway variances, time of day and day of week analysis can be projected by GIS technology onto mapping to visually compare response data.

Station overlap as well as fire district demand zone for each fire station can be calculated and displayed. Layering of data can be added to demonstrate different response routes, coverage overlap, percent of area covered in anticipated response time and areas that fall outside the desired response time.

Municipal services are challenged to maintain a balanced budget, without new revenue streams, while having little or no impact upon the services delivered. Fire departments focused on maintaining core services need to embrace data to drive decisions and focus on what they are striving to achieve. Focus on the desired outcome. Providing evidence-based response data can be valuable information in determining and justifying resource allocation.

Question 3: How many response resources are the "right" amount for the fire call? For medial calls? What determines the correct amount?

A successful response can be reviewed as having three distinct parts: Staffing, response time and resources (i.e., apparatus). Resources, in the form of apparatus required to get the staff to the emergency in a timely fashion, has become a contentious issue.

In an environment where many organizations are experiencing reduced funding the fire chief must be able to justify how he or she determines the "right" amount of resources needed to efficiently and effectively manage an emergency.

Each community individually determines their precise resource needs. Presenting factual data that captures, appraises, and predicts current and future outcomes is imperative to mounting a successful defense. Here are some recommendations to answer this tough question:

- Begin with a realistic assessment of the fire department budget, both expenditures and revenue. Anticipate factors (such as legislative actions) that may impact your future budgets.

- Scrutinize your budget internally. For example, look at your fleet costs in terms of fuel and overhead. Look for efficiencies in the fleet operational costs by considering the use of smaller vehicles to respond to calls for service that may not need a full-sized fire engine.

- Conduct a retrospective analysis of your calls and call patterns. For simplicity, we'll examine metrics to consider for structure fires.

  - Evaluate call volume, time-of-day, day-of-week, frequency of occurrence, location, occupancy type, staffing, and outcomes.

  - Look at responses to protected (sprinklered) and non-protected properties. Examine the same criteria as above, with particular attention given to the outcome. If the property was protected, what role did a heavy response of fire apparatus contribute to the outcome?
  - Consider developing a demographic profile for the various demographic regions you serve, giving consideration to the number of multi-family occupancies in one region of your town compared to another that may be primarily single family residential.

  - The distribution and concentration of fire stations will assist in determining the "right" resources. Partnering with neighboring communities may also improve service delivery and reduce costs. It can be very productive when there is cooperation to send the closest unit. Partnering also makes sense when there are response time challenges due to geographic, roadway configurations, or staffing challenges (e.g., low staffing levels in certain periods of the day).

- Evaluate your staffing model. Evaluate the staffing of your previous emergencies to determine if and when you are able to staff your companies with your pre-determined minimum staffing (e.g., 4 firefighters on every call). Determine if your department can realistically and financially meet your staffing standard.

In some departments the number of firefighters available to respond to an emergency can be a persistent challenge. If a department is consistently

understaffed, it could consider smaller response vehicles. Ideally, there should be sufficient redundancy or overlap in your system to handle simultaneous calls or a high call volume without compromising the safety of the public or firefighters.

After evaluating your historical call data, consider developing a response matrix. The matrix pre-establishes the response resources desired for each type of emergency. For example, low risk calls may be handled with two firefighters in a utility vehicle or a mini pumper. This type of measured response can keep remaining on-duty personnel available for other duties.

Develop and communicate your department's response goals and objectives. Align your response matrix with your benchmark and consider realigning resources to meet your goals. For example, the objective might be to have fifteen firefighters at a structure fire in less than ten minutes for 90% of the time.

For emergency medical services (EMS) responses the concepts are the same. Evaluate the metrics previously described and complete a historical analysis to assist in developing a response matrix. Many EMS systems have successfully applied these concepts to predicting resource needs during high call volume periods. Consider parsing the EMS response matrix based on the severity of the emergency (e.g., life threatening versus non-emergent calls). If your department responds to medical calls with a fully staffed engine company, consider whether responding those resources are always appropriate for the type of emergency. For some types of medical calls a response of two personnel in a smaller vehicle may be more efficient.

As resource needs are evaluated, involve all levels of the organization in the process. Keeping personnel informed and involved will improve understanding and cooperation.

It will be important to ensure your elected officials and the citizens are informed of the resources and service levels they can expect. Each level has a cost. When resource levels are low there will be a potential consequence. Use factual data, applied in a logical manner, to justify your resource allocation decisions.

To answer this tough question, fire department administrators may have to engage in tough discussions with elected officials, fire department members and citizens. The expectations of each group may vary widely and may be driven by different motives. The fire department administrator's job is to be an educator

and an advocate for a right-sized response that ensures firefighter and public safety.

Question 4: What is an acceptable productivity level to expect from EMS personnel?

This question has a hidden nuance in how it is worded. It uses the terms ‘acceptable’ and ‘expect.’ While we should strive to never answer a question with a question, this may be one of those rare exceptions because it must be established as to whose job it is to determine what is acceptable and what the expectations are.

The simple answer may appear to place the burden of making the determination into the hands of the elected officials. They are, after all, ultimately responsible for setting service expectations. However, as the example I will share shortly demonstrates, elected officials often lack the intimate, contextual knowledge of the daily operations of the fire department. This can lead them to make uninformed, superficial and arbitrary decisions about productivity expectations. This problem can be exacerbated when elected officials are feeling pressured due to budget shortfalls.

Our recommendation for dealing with this question is avoid deferring the decision to elected officials in total. Rather, we think it best to engage the elected officials in meaningful discussion about how to define first responder productivity, be that for fire personnel, EMS personnel or those who provide both services.

It is often difficult for elected officials and appointed administrators to comprehend the schedule and workload of paid first responders. As the ICMA consultants are strong advocates for volunteer and paid-on-call services (except in the largest and busiest cities) we will exempt staffing-on-demand models from this discussion because their contribution to financial challenges is far less impacting.

Engaging your decision makers in defining expected service levels is a key element in determining your response or deployment model. The response model – determining when, where, and how your crews and trucks are deployed – can then be directly linked to the productivity of your EMS crews. Be prepared to make connections between your response model and outcomes. For example several cities such as Jersey City (NJ), Boston (MA), Seattle (WA) have

demonstrated that a focused team approach of basic life support specialists along with advanced life support paramedics positioned strategically throughout their region improved safe rates in cardiac arrest patients (i.e. patient returned to spontaneous circulation). The improvement was dramatic, increasing from 18% in 2005 to 46% in 2011.

The key to delivering quality care as illustrated above is driven by the productivity of the crews, specifically having crews positioned properly during the times of highest call volumes. This type of resource staging and deployment is based upon an analysis of your response system historical data – studying when, where, and what type of EMS calls have occurred over a given period of time. This combined with seasonal fluctuations, as well as demographic changes will reveal the best places to deploy your resources.

This defensible method to determine your deployment model accurately reflects predictive modeling; a term describing deployment decisions based upon an historical analysis of call patterns or trends. Crew assignments such as number and type of staff, as well as varying work assignment(s) to match expected call patterns will improve overall system performance. Employee productivity is improved with a redesign of work schedules that match supply to demand.

An early step in determining the level of productivity of EMS personnel is to track crew activities for a period of time. How long to track? While it might appear burdensome to track on-duty activities for extended periods of time, short-term activity tracking may project productivity levels that are not accurate. For example, if you tracked activity for a week and it was an unusually slow or busy week it could skew the results.

The tracking should be hour-by-hour and personnel should list what activities they were involved in each hour of the day. It's important that work activities not be embellished. The truth always has a way of coming to the surface and exaggerating the activity of personnel will only serve to harm the credibility of the department and its management.

The purpose of tracking is to allow fire department managers to look an average workday to determine if personnel are being used in productive and efficient ways. For example, if a department has a crew dedicated to EMS response and transport and that crew responds to an average of 4 calls per 24-hour shift and each call last 1.5 hours in duration the crew's committed time to EMS

emergencies is 6 hours per shift. Add 30 minutes for cleaning, restocking and report writing, and the committed time increases to 8 hours.

Other activities that consume a shift employee's time should also be factored in. This may include 1 hour for training each shift, 3 hours for meals, 1 hour for physical fitness and 1 hour for station cleaning and maintenance. Now the employee's committed time for all activities has increased to 14 hours.

If the employee works a 24-hour shift this example may leave the elected official believing the EMS provider has 10 hours of unproductive time, right? Not exactly. We haven't yet talked about the proverbial elephant in the room yet. Sleep.

Elected officials and appointed administrators don't like the thought of paying employees to sleep on the job. Granted, sleeping is not productive time for task accomplishment. However, rest is an essential part of efficient, effective and accurate work performance.

Providing emergency services requires mental acuity, be that fire, EMS or police work. There's often no opportunity for a 'do-over' if something gets messed up because the provider was mentally fatigued. If elected and appointed administrators don't like responders sleeping on the taxpayer's dollars, the solution is to change the work schedule, not to expect responders to stay away for extended periods of time while working long schedules. But that is a topic for another article.

How much rest time should be provided during a shift? The exact amount of sleep a person needs varies widely person-to-person but it's not unreasonable to allocate 8 hours for rest throughout the shift. Some of that rest time may come at night. Some of it may come during the day.

One example for how to track productivity is slot each activity it into one of three categories: Mission Critical, Mission Support and Mission Maintenance

Some examples of items that would fall under each category might me:

- Mission Critical: Timely and appropriate response to emergency calls.

- Mission Support: Medical reports, restocking and cleanup from a call, public education programs, and training.

- Mission Maintenance: Station cleaning, equipment checks, physical fitness and meals.

This system may be helpful toward educating elected official in understanding that not ALL time is mission critical time.

I once had an elected official come into a fire station and found a paramedic sleeping in a reclining chair. He was livid and demanded I suspend the employee for sleeping on the job. In his eyes there was no excuse for such laziness (his words, not mine). This paramedic was working a double shift due to someone reporting off ill and was up, literally, all night the previous night running medical calls. I provided the elected official the details of what the medic had experienced the night before. I told the official that I authorized the medic to rest because I wanted him fresh if there was a medical call that would require him to do drug calculations. The elected official backed down but it allowed me to witness, firsthand, how quickly they can jump to conclusions with limited information. This elected official's snapshot assessment of our efficiency was troublesome.

Ok, if you've done the math so far, we're up to 22 hours. There are still 2 hours of unproductive time left in the EMS responder's workday. What should they be doing that is productive? The potential activities are many but I would suggest focusing on activities that relate to advancing the department's mission and improving the quality of life (from a health and wellness perspective) for your residents.

This might include installing child safety seats in vehicles, on-site blood pressure clinics, glucose screening, flu shot administration, wellness education programs, senior check-up programs, distributing medical educational materials (including how to use 9-1-1) in various languages visiting schools to talk with kids about the importance of wearing helmets and safety pads when skateboarding. The list could go on and on and may be driven some by your community's demographic and types of calls for service.

The more time dedicated to mission critical tasks, the less time there will before mission support and maintenance. Conversely, if less time is dedicated to mission critical tasks, more time can be dedicated to mission support and

maintenance. The goal is for all personnel to be (within reasonable expectations) active, productive, visible and advancing the mission of the department as much as possible.

Question 5: What is an evidence-based and legally defensible response time goal for the community and how often does the fire department reach critical response levels (i.e., too few units)?

This question is particularly challenging because of its connation that a certain response time may be legally defendable. To the best of our knowledge there is no law that defines or establishes response times for emergency services. Thus, the question may be better framed to determine if a particular response time to an emergency raises a claim of misfeasance, malfeasance or nonfeasance of duty.

- Misfeasance: Taking an action determined to be inappropriate even if with good intent. (Example: A response time is deemed to be too long by a plaintiff even though the fire department was operating to the best of its abilities.)

- Malfeasance: Taking an action that purposefully results in harm. (Example: A response time was delayed because the members were engaged in a softball game and decided to finish the inning before responding to the emergency.)

- Nonfeasance: Taking no action at all where a prudent person otherwise would have (Example: The fire department did not respond at all because there have been too many false alarm calls to that address in the past.)

We need to make it clear that we are not attorneys. Thus, asking an attorney questions about response time liabilities would be prudent. Ask several attorneys and you're likely to get multiple opinions. It would be smart to get your legal opinion from your town or department attorney because he or she will be the one providing the defense if a legal challenge is raised about response times or failure to respond in a timely manner.

So, what about the evidence for a response time standard? Unfortunately, the empirical evidence is somewhat limited. Most responders possess anecdotal

evidence, gathered through years of experience while responding to emergency calls. Armed with this experience, responders know a quick response makes a difference in the outcome.

Some scientific proof of fire growth does exist, however. The National Institute of Standards and Technology (NIST) has modeled fire growth for multiple scenarios including incidents where firefighters were killed. These videos can easily be found on YouTube using the search terms “NIST fire modeling video” or “NIST flashover video.” NIST has also measured and graphed fire growth using devices that track heat generation over time. NIST’s work provides solid evidence that fire, left unchecked, will grow exponentially as it consumes the contents of a structure.

Fire departments with quick and appropriately staffed responses to fires (assuming the fires are reported early and efficiently) have a better chance of saving lives and reducing property damage than a department whose responses are slower. The fire growth charts support this.

But where is the evidence that supports what a response time goal should be? Unfortunately, this is where the empirical data falls short. It has not been proven, scientifically, the difference in outcome when a response time is four minutes versus five minutes versus six minutes versus ten minutes. Several videos are available that helps demonstrate the results of time delays. These can also be found on YouTube.

First, is a video created by Underwriter’s Laboratory (UL) demonstrating the differences in legacy contents versus newer contents in homes. In this video, the UL team lights two fires in mock-ups-built side by side and show fire progression. In the modern contents mock-up, flashover occurred in 3 minutes, 40 seconds. In the legacy contents mock-up, the flashover takes 29 minutes, 25 seconds to occur. Search “New vs Old Room Fire Final UL” for this video.

Second, are the many videos created by fire departments across the U.S. during fire sprinkler demonstration exercises. In these videos two mock rooms are set on fire. One of the rooms has a sprinkler system and the other does not. The difference in fire progression and damage is significant. Search “Home fire sprinkler demonstration” for these videos.

The National Fire Protection Association (NFPA) Standards for deployment and response (NFPA 1710 for predominately career fire departments and NFPA 1720 for predominately volunteer departments) establishes response time goals for fire departments. However, it could be contested these numbers have not been validated scientifically.

So how should a community develop a response time goal for emergencies? All stakeholders (elected and appointed officials, first responders, citizens and visitors) are likely to agree that response times to critical emergencies should be quick and efficient. No one wants to call 9-1-1 when their house is on fire and wait thirty minutes for the fire department to arrive. In such a scenario the outcome (a total loss) would be highly predictable.

Combined, we have over 40 years' experience as chief officers and from that we have concluded that many citizens assume their emergency services providers are going to respond quickly when called. We can count on one hand how many times a citizen has called, saying they were considering moving into our community and wanted to know what the response time was for the fire department to an emergency. Why do citizens seem so unconcerned about something that's so important?

We think there are two foundational reasons: indifference and assumptions. Citizens are indifferent because they believe house fires are very rare and such a tragedy will never happen to them. Citizens also assume the fire department (and the town's elected and appointed officials) are looking out for their best interest by ensuring emergency responses will be quick and efficient.

A personal experience

> Almost twenty years ago I conducted an informal community survey to try to determine what level of service my citizens felt were acceptable. In one survey, I asked the citizens to tell me how fast they would like the fire department to respond if they had an emergency. The results were consistent, 4-6 minutes. This was about what I expected. Then we tried to pass a levy to ensure we could provide the response times they said they wanted. The levy failed.
>
> I retooled the survey and my questions on response times tied a level of funding that would be needed for each response time increment. For

example, if the citizen wanted a response time under 4 minutes, their property taxes would increase by $300 per year. If they wanted a response time of 4-6 minutes, that would increase their taxes by $270, 6-8 minutes $250 and so on. How did the results of this survey compare? The acceptable response time went up from 4-6 minutes to 12-14 minutes. I was devastated because I knew, anecdotally, that a response time of 12-14 minutes would increase property loss and increase risk to our citizens.

But reducing risk has a price tag and that cannot be ignored no matter how passionate we are about our beliefs that fast response times save lives and reduce property losses. As I contemplated the survey results I felt the citizens didn't really want to accept more risk because of the cost. Rather, my belief was the citizens could relate to the cost of emergency services, but they didn't understand the correlated risks. In other words, they were not aware of what can happen if a fire was left to free-burn for 12-14 minutes versus being extinguished in half the time.

So, we launched an educational campaign, armed with videos and data that explained fire growth. As we conducted our programs many of our residents were astonished with what they didn't know about how quickly fire grows and how rapidly a structure is filled with deadly smoke and gasses. Others were unimpressed and accused us of using "scare tactics" to try to increase our funding. I found this mixed feedback frustrating.

How could we paint an accurate picture without leaving our residents feeling we were using unscrupulous tactics? As luck would have it, we acquired a structure to burn and seized the opportunity to invite residents to observe and elected officials to participate. Fortunately for us, our elected officials accepted our invitation and many citizens came to watch the fire department at work – an experience that most citizens and elected officials had never seen first hand.

We outfitted a room with standard furniture, set it on fire, and video recorded the results. For the sake of firefighter safety, the fire was extinguished using an exterior attack. But the visual effect of citizens and elected officials seeing fire growth first hand was priceless. We also broadcasted the video on a local cable TV for the citizens who were not able to attend. The video was narrated to explain what was happening and a timer was added on to the video to show the elapsed time. It wasn't science, but it was enough to convince our residents that quick response times were important. The levy passed. – Rich Gasaway

The response time goal set for any community should be an informed decision. Those involved in the decision should understand the benefits and consequences of various response times (with acknowledgment there is little science to support an exact number). First responders, while passionate about a quick response, need to understand that every community and the citizens who live there have financial constraints and competing demands for limited budget dollars.

We (public safety) are just one among many priorities that elected officials and citizens have. And for so much as we may think we are the most important priority in the lives of our tax payers, we may not have sweeping community backing to support the service level we think our residents deserve. The goal is to work with elected officials and the community to establish the response time goals.

Once the mutually agreed upon standard is set, the next step is to ensure there is a means in place to measure performance. For example, the standard for your community may be to have the first apparatus on-scene of a working structure fire in less than six minutes and a full first alarm assignment (two engines and a ladder truck for the sake of this example) on the scene in less than twelve minutes. Along with this, there may be personnel response goals, say four persons on the first arriving apparatus and a total of fifteen personnel assembled on the scene in twelve minutes.

How well does the department do at meeting this goal? What should the acceptable “fail” rate be (i.e., how often the goal is not met due to extenuating circumstances such as multiple simultaneous calls or severe weather delays)? While the objective may be 100% compliance to the goal it is not realistic to expect that can happen. Thus, in addition to setting the response time goal, the stakeholders should also establish the acceptable limits for outliers.

For example, a community may establish it is a goal to have a fire engine on the scene of any reported structure fire, with a crew of four, in six minutes, 90% of the time. Additionally, at no time should the first arriving engine take longer than twelve minutes. When responses exceed the goal an evaluation should be conducted to determine how and why it happened and what steps could be taken to reduce the likelihood of a reoccurrence.

If exceptions occur more than 10% of the time (i.e., less than 90% compliance), the shortcoming should be resolved. This may mean retooling the way the department responds to emergencies, allocating additional resources to meet the goal, or adjusting the goal to meet the capability of the department within the confines of existing resources. All three options should involve input from elected and appointed officials, department representatives and the community.

The goal of every fire department is to provide the very best service for its community and one measure of that service is response times. However, fire department administrators must realize resources are not unlimited and there are many competing demands for budget dollars.

Question 6: Many communities use the 90th percentile response time as a standard for first-arriving units. What is the fire department's response time standard?

Response time and available staffing are the two most important factors that influence fire department success at emergency scenes. There has been much debate in the fire service literature and among fire service managers and city administrators about the relative effectiveness of fire companies (i.e., a functional working unit of a fire department, usually consisting of a given number of personnel assigned to a single piece of apparatus) at various staffing levels. The main issue is what is the minimum company size needed to be able to provide basic fire suppression capabilities, combined with a timely response to ensure the highest potential to impact both fire control, firefighter safety and civilian survivability. Let's evaluate the use of response time as a service benchmark – a long held indicator of performance.

Before we get into benchmarking your response time performance, we should start with developing a working definition of a response time. The definition of response time often depends on perspective; that of the customer and of the fire department. From our customer's viewpoint, response time begins from the time they notice or become aware of a problem. On the other hand, the response time clock starts for the fire department when the call for help is received from our customer. In either case, the response time clock stops when the fire department arrives at the emergency scene.

In both cases, the quickest response is deemed to be the most effective (assuming you're adequately staffed) in terms of fire control and victim rescue.

Keep in mind that there are several limitations with respect to response times, not the least being they are highly subject interpretation. In other words, the measurement of response time frequently varies from one department to the next and the measurement methods render comparisons as inaccurate. Some departments begin the response time clock from the time the fire department is dispatch until the arrival of the first suppression apparatus. Others may begin the count when the call is received at the 9-1-1 center and stop the clock when the first emergency responder arrives on-scene (regardless of whether they have the ability to suppress the fire or rescue victims). Some departments measure response time for ALL events; emergency and routine (i.e., no lights/siren), while some choose to track only response times to emergency events, where the apparatus respond with lights and sirens activated. Another consideration is reporting "on-scene" prematurely or forgetting to communicate the arrival. For our discussion in this article, we will consider the response time clock stopping when the first suppression apparatus arrives on-scene. In addition, we will measure response time for the emergency events only. As we've stated, there is no national standard on how to measure response time. While the National Fire Protection Association's (NFPA) standards (1710 & 1720) offer guidance, those standards are not laws. Thus, compliance is voluntary.

Since staffing studies and fire growth models support the benchmarks established in NFPA 1710 and 1720 response standards, let's use NFPA 1720 as a template for establishing your response time benchmark. The chart indicates recommended standards of response set by the NFPA for predominately volunteer fire departments.

Demand Zone	Demographics	Staff/ Response Time	Percentage
Special Risk	AHJ	AHJ	90
Urban	>1000 people/mi. 2	15/9	90
Suburban	500-1000 people/mi. 2	10/10	80
Rural	<500 people/mi. 2	6/14	80
Remote	Travel distance >8 mi.	4	90

This standard is good in that it avoids a standard cookie cutter approach to benchmarking a response times. It measures your service based upon your community profile and demographics. You will also notice a recommended

compliance rate, illustrated in percentage of responses attained. For example, in a community with a population density of 1,000 residents or greater per mile, the standard recommends a response time of 9-minutes for 90% of responses measured. Many departments use the 90th percentile as a measure of success. However, a department may choose to use a higher percentage or lower depending upon community response expectations. Ok, so how should you determine your appropriate percentile measurement?

Keep in mind when establishing response time measures there is no single guideline that conveniently fits all departments. A systems approach that considers economics, staffing model, risks, political aspirations, topography, and community demographics should be evaluated to reach your desirable goal. Response goals should be matched to the individual municipality and identified by the community with the active involvement of elected officials, city management, fire administrators and the citizens.

Common measure points to consider include identifying what events are you including (e.g., emergency or non-emergency events). Achieving a single standard may be more difficult if you lump and measure all responses together. Since many of us in the fire world believe that a quick response affects the outcome of true emergency events such as structure fires, perhaps the better approach is to measure only emergency events. This not only improves your chances of meeting your response time benchmark, but also gives you an idea on how you are performing for your most critical events.

Many departments further qualify response time and divide the overall response time to emergency events into category of response for specific event types. Examples may be structure fires (divided further into occupancy type) and technical rescue events. Drilling further, time-of-day and day-of-week will also paint a broader picture of your department's strengths and where you have opportunities to improve your response delivery. Plotting your response time geographically may also help in planning for adequate coverage. Seasonal fluctuations in response time is another consideration, especially in regions where there is heavy tourist populations (congesting traffic) or in regions prone to poor weather (e.g., ice and snow).

Let's use the fictional town of Jonesville and compare the town's demographic profile to the NFPA 1720 standard to determine a response standard.

Resident population	12,000
Transient (daytime) population	5,400
Square miles served	36

Fire department budget	$300,000
Total personnel budget	$200,000
Revenue from taxes	$ 0
Full-time fire department employees	0
Part-time fire department employees	72
Annual call volume	400
Average response time	7.1 minutes
Residents per Sq. Mi	483

Using the NFPA's 1720 criteria, Jonesville would be classified as a *rural* community in terms of fire protection. In this case, the Jonesville Fire Department might establish their response time goal as follows: The Department shall be capable of placing six firefighters on the scene of an emergency in no greater than 14 minutes, 59 seconds for 80% of the *emergency* responses.

For discussion, we've taken the liberty of defining when the clock starts (from dispatch) and that we will count only emergency calls. We've also determined that the clock stops when the first suppression apparatus arrives on-scene.

The second part of the response time equation is tracking of the number of personnel arriving on-scene to determine if you meet the minimum staffing requirement of six fire personnel. For simplicity, we feel that recording the number of responders arriving on suppression apparatus to emergency events is easier to track then attempting to track the number of responders to all events. To further quantify your service, you could capture the number of responders on the first three arriving suppression apparatus to gauge the total number responders arriving (hopefully) early enough to improve the outcome.

On average, Jonesville responds to 400 calls for service on an annual basis. If 20% of their annual calls comprise emergency events, then we would be measuring 80 calls. Looking at these 80 calls, the 80th percentile would be 64 calls. Did Jonesville arrive with six personnel in less than 14 minutes, 59 seconds or less on 64+ calls?

Many fire departments are constantly evaluating their service and place a priority on reducing response times and increasing staffing levels to emergency incidents. Several approaches have been adopted to address these response issues. A partial list may include:

- The closest district fire station geographically located to the incident is alerted of the call and responds to it.
- Multiple station dispatching is used by many departments to improve both response time and staffing deficiencies.
- Incorporation of a Duty Officer program to ensure an immediate response to size up (or triage) calls quickly. This helps readily determine the needs of an emergency incident and helps coordinate response resources.
- Automatic mutual aid to reported working structure fires and rescue events.

For simplicity, the department may choose to separate the response time into community preparedness, turn-out time and total response time and develop strategies that address each. In this manner, each portion of the response measurement can be evaluated and possibly improved.

Question 7: Does the fire department need to send large apparatus to all calls for service, including all medical requests from 911?

Many of the installments of this series have referred to the new challenges that have been placed upon the fire service and, more specifically, how to pay for those services. Many governmental agencies – federal, state and local – are critically examining their expenditures and making attempts to balance budgets while trying to manage rising service expectations. This is compounded by the reality of reduced revenue streams to support the host of many government services delivered. To a large extent the easy budget cuts have all been made. Fire departments are now being asked to examine several long held beliefs on how services are delivered. Question 7 speaks directly to examining one of these traditional beliefs – response protocols. Is it appropriate to respond to all calls for services with an engine or ladder truck?

At the heart of this question is organizational efficiency. Are you using your limited resources in the most cost-effective manner to provide service? Looking through the lens of elected officials, the view equates efficiency to budget dollars expended. And to a large degree they are correct in that efficiencies are often directly related to expenditures, in this case driven by how we use our resources. Staffing and equipment equate to budget dollars spent. City leaders expect their

department managers to demonstrate efficiencies in their operations. In the new economy efficiency is no longer optional. It's a requirement.

City administrators often turn their sights on the efficient use of staff. They question our perceived need to have four (or more) firefighters responding to non-life-threatening EMS calls. They also question the staffing for the perceived *minor* calls for service. In terms of the efficient use of resources, we are being asked to justify why we perceive the need to send four firefighters on an apparatus that is very expensive to purchase and maintain.

Whether we like it or not, these are fair questions and anyone in a position to steward public money should have the right to ask them and be provided with good answers.

In jurisdictions where the public safety response to a medical emergency or minor fire call also includes the dispatch of police officers and, in some jurisdictions a third-party EMS provider, it should be easy to see why city officials might question the need for so many resources to respond. The essence of the question might be paraphrased this way: Do you really need four highly trained firefighters, riding in an expensive taxi, to deliver a service that in all probability only requires two responders in a much smaller and more efficient vehicle?

Looking at this issue purely from the viewpoint of resource expenditures to outcomes, responding in smaller vehicles with less people makes sense. The goal of fire service leaders should be to ensure the response model reflects an efficient use of resources while maintaining quality service that accounts for the safety of the firefighters. Is it possible to reshape our response protocol without sacrificing service, while achieving a reduction in operating costs?

The response protocols for many fire departments in the United States are based on a model designed around responses to structure fires. This means there are some jurisdictions providing services using a decades-old delivery model despite a reduction in structure fires in recent years. And while fire responses have been declining, the demand for EMS has risen steadily.

Arguably, the core business of the fire department will remain – extinguishing fires and rescuing people from predicaments. However, the time to reevaluate our response to minor emergencies is upon us. Sending large fire apparatus with more staffing than is needed to minor calls is not efficient.

As we talk to fire service leaders from around the United States this is becoming a common question. Unfortunately, many fire service leaders are not used to having their response protocols questioned and find it offensive. This can lead them to view the question as an attack in their expertise. This, in turn, can lead to an emotionally driven response that may include statements perceived as using *scare tactics*. Such tactics may have worked in the past but in today's economic environment you're risking the loss of your credibility. This problem can be made worse if you try to defend your position with inaccurate statements or incomplete data.

One concern revolves around the potential consequences of splitting up the staffing to satisfy the use of smaller vehicles on minor calls. The belief is this may reduce safety and effectiveness on the fireground. This can trigger emotional responses such as "people will die" or "buildings will burn down." In our experience, it's best to address these concerns with quantifiable data acquired from reputable organizations and institutions.

The need to keep crews intact to adequately staff the fireground is critical to firefighter safety. This is often the justification for why large fire apparatus with full crews are sent to all calls for service, including medical emergencies.

When someone suggests splitting crews up the topic becomes contentious. When the suggestion to have two firefighters assigned to an engine and two firefighters assigned to a smaller response vehicle the justification is rooted in firefighter safety at structure fires. We need the crew of four firefighters, intact, to engage in an offensive structural fire attack.

There are many occasions where fire departments arrive on the scenes of structure fires with an initial response team of less than four firefighters. They key is to ensure all firefighters are trained on how tactics vary based in staffing levels. The training is complimented by the discipline to only perform fireground tasks that can be safely completed with the staffing available. Departments should also train on how to perform initial tasks with limited staffing. This component can be missed during live fire training because the staffing levels are always adequate – and readily available.

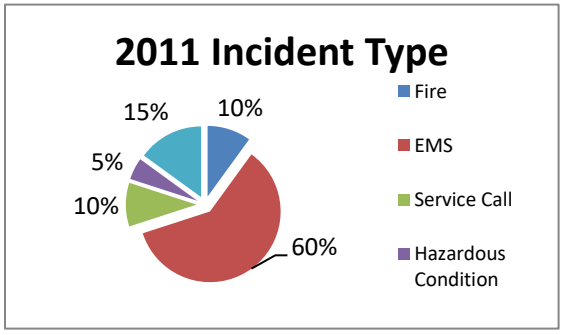
Department operating guidelines should also provide strategic and tactical alternatives based on staffing. These standards should also address crew expectations when arriving understaffed. Otherwise, firefighters may engage in the same fashion as when there is adequate staffing, increasing risk taking to

unacceptable levels. Organizations taking an all-hazards approach, striving to have the capability to handle any type of emergency call, can complicate the issue.

Supporting evidence for keeping staffing intact on structural fire apparatus may be found in the recent residential fireground experiments conducted by the National Institute of Standards and Technology (NIST). This research quantified the impact of crews arriving early and with delayed arrival as well as the overall effectiveness of staffing varying levels. The NIST findings offer validated research data that can support the need to keep crews intact.

We would argue that firefighter safety can be maintained even when splitting crews or when smaller crews arrive separately (not all on one suppression piece). In cases when the optimal response cannot be achieved, a calculated approach to the fireground must be taken. A risk management plan, with a realistic risk/benefit analysis conducted must occur before the operational mode is declared.

Additionally, fire service leaders must be prepared to address concerns about call volumes and patterns for call types. Data should be compared over time to identify patterns or trends. It should not be assumed that elected or appointed officials are able to look at data and see the problem. Visual representations of data can be a very effective way to illustrate the issues and demands for service.



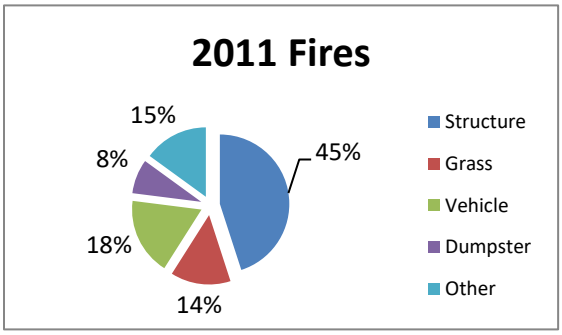
Further evaluation of call types may be useful when considering changes to your response protocols. For example, evaluating where and when structure fires are occurring. This includes evaluating the occupancy types for structure fires. If most structure fires are in occupied dwellings it may help illustrate the risk and complexity of the response. For example, more resources may be required for apartment building fires than single-family dwelling fires. Be prepared to provide data on how many of the reported structure fires are actually structure fires. There's a big difference between what is reported and what is actual. Elected and appointed administrators deserve to be provided accurate data. You may be able to make an argument the response is the same based on

how the call is reported but don't try to fool them by overinflating the number of actual structure fires.

It may make sense, based on the topography and layout of your community and the location of our stations to respond with smaller vehicles.

Calls by type indicates that a majority of calls received are EMS related. Ten percent of the total call volume are "fires."

Forty-five percent of the fires were structure related.



Based upon your review you may find it beneficial to send smaller trucks, with less people to minor events, but will this be more efficient and save money? Let's look.

One argument often cited is that smaller fire apparatus costs less to operate than larger apparatus. Generally, this would be an accurate statement when comparing the initial cost of both vehicle types. Additionally, we need to measure and report the day-to-day operating costs. Below is an example comparing two years of data gathered during a trail evaluating a change in response protocol; reducing the usage of larger apparatus on certain types of calls.

Type	Allocation (yr)	Part/Labor	Fuel Cost	Miles/Hr.	Operation Cost Mile/Hr
Eng. 21	$37,000 $45,000	$11,461 $10,231	$5,375 $6,788	11,159 11,664	$1.51 $1.46
Utility 21	$2,4,46 $2,778	$11,461 $10,230	$1,130 $1,868	4,310 3,257	.53 .54

A comparison between two different apparatus types is shown. Metrics can help when evaluating changes to response protocol. RED data indicates fleet data for both Engine 21 (1250 gpm/500 gal) and Utility 21 (4-door extended bed pick-up) for 2010. **Black** indicates data for 2011.

It's important to know the significance and limitations of your data. For example, fuel costs tend to fluctuate as well as increases in allocation fees due to labor cost and inflation.

Consideration should also be given to the type of vehicle in which to respond when evaluating smaller vehicles staffed with less personnel. Technology and engineering available in today's fire apparatus allows for the effective use of smaller vehicles in multi-mission roles. An example may be a mini-pumper equipped with a compressed air foam system (CAFS).

Determining what type of response to send the smaller vehicle too largely depends upon a thorough review of your call volume, event type patterns, staffing and expectations. Also, consider outcomes. Not all calls for service require four responders. Identify which types of calls could be effectively handled with two responders. A sample matrix is provided. Such protocols should account for local circumstances and following a risk assessment. This is not a one-solution-fits-all proposition.

RESPONSE MATRIX

EVENT TYPE	ROUT.	EMER.	NOTES	APPARATUS
Lift Assist	x			Utility
Check Burn	x			Grass Rig
Wash Down	x			Utility
Missing Person	x			Utility
Odor Investigation	x			Engine
Gas Leak Outside	x			Engine
Grass Fire Contained	x			Grass Rig
Wires Down or Arcing	x			Utility
CO Alarm w/No Illness	x			Utility
Smoke Investigation Outside	x			Engine
Dumpster Fire w/No Exposure	x			Engine
Elevator Rescue w/No Medical	x			Engine
Fire Alarm	others	closest truck	Ask dispatcher to call inside.	Engine
Vehicle Fire	others	closest truck		Engine
Gas Leak Inside	others	closest truck		Engine
Accident with Injuries	others	closest truck		Engine
Medical		x		Utility/Rescue
Rescue		x		Engine/Rescue
Structure Fire		x		Engine
Unknown Fire		x		Engine
Grass Fire Uncontained		x		Engine/Grass Rig
Smoke Investigation Inside		x		Engine

This operating guideline establishes procedures for responding to calls for service, type of response and response mode. Responders shall conduct an ongoing risk vs. benefit analysis for every call – minimizing risk through analyzing and matching call

type to response mode and resource allocation. Conditions, time of day, and call information, staffing and crew integrity shall be considered when responding to a call for service. A “routine” (non-emergency) response is preferred due to the reduced risk of accident. The officer may upgrade or reduce the response based upon prevailing information.

When evaluating changes to response protocols it’s important to give consideration to the culture of your organization. If your department has a history of continuous improvement through self-evaluation such changes will be taken in stride as an expected response to economic pressures. Where members are stuck on traditional models and modes of thinking it can be very difficult to try new approaches. This subjects them to criticism of being inflexible and stuck in old ways of thinking and operating. Fire departments with cultures that foster innovative solutions to challenging problems will prove they are resilient and responsive to the tough questions from elected and appointed officials.

Question 8: Do fire department units need to respond with lights and sirens to all 911 calls, despite the nature of the complaint?

The quick answer is a resounding “NO.” You don’t need to respond to all “911” calls in an emergency fashion. The operative word in this question is *all*.

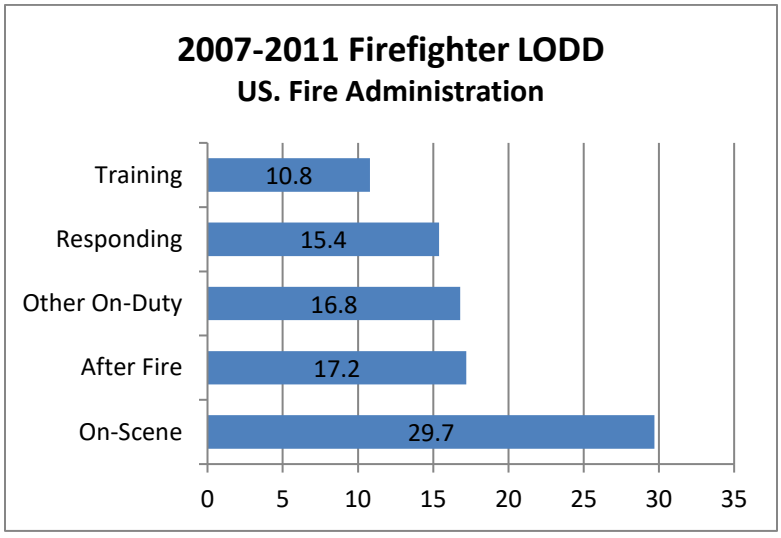
The success or failure of fire service emergency and non-emergency functions is dependent upon the safe operation of fire department vehicles. “Arrive Alive”, a slogan popular with first responders points directly to the fact that if we don’t arrive safely to help the customer, we are no good to anyone. In fact, not arriving at all because you’ve been in an accident will add complication to the first emergency call. Without the safe operation of emergency vehicles to incident scenes, an emergency service organization cannot effectively achieve its mission of saving lives and protecting property.

Responding emergency versus non-emergency is a matter of risk management. How much risk is the fire chief willing to assume or tolerate? Members will practice risk management based on the example set by department leadership. Poor safety records, demonstrated by workplace injuries and death, are frequently the result of inadequate or ignorance towards reducing risk to first responders. Risk management is a comprehensive approach to safe workplace practices. Practitioners of risk management recognize the landscape is

continually changing and must consider how this impacts their organization. Success, as measured by a safer work environment, is best achieved through focused and coordinated efforts. The question discussed in this article focuses on reducing risk during emergency responses. This is an important topic and progressive fire service leaders consider risk management to be a top priority of their organizations.

One of the more significant occupational risks, in terms of injury and death to firefighters, is traffic collisions involving fire apparatus. In 1999, a study authored by the Center for National Truck Statistics found that fire apparatus (defined as using emergency signals on the vehicle) were involved in 62 percent of the fatal accidents surveyed and 56 percent of non-fatal accidents. The study also found that when fire apparatus were involved in accidents with other vehicles, fatal injures most often occurred in the civilian vehicle, with injuries occurring in 24 percent of the crashes. Seventy-six percent of the accidents tabulated involved property damage to some degree. The results are closely linked to the size and weight of fire apparatus in comparison to the passenger vehicles with which they collided.

Historically, some American fire service agencies have resisted efforts to reduce line-of-duty deaths attributed to emergency responses. Although more recently more departments are recognizing the need to reduce risk when responding by "managing" their response. We will elaborate on a managed response shortly.



A recent decrease in fatalities involving apparatus accidents during incident response is encouraging. Long-term reductions will occur as we apply a risk management approach to driving and response.

Managing risk is a fundamental responsibility at every level of management in the organization, but especially for top leadership.

The term “risk management” can be applied to a wide range of functions and activities, requiring a multi-faceted approach that encompasses many elements within the delivery of emergency services. These elements include safety and health programming, financial and loss control. Our discussion will focus on the delivery aspect of our service – the response – and reducing risk while responding. It is a fundamental principle of risk management to identify areas where risk can be reduced or eliminated. Using the chart below, let’s look at reducing or eliminating risk when responding.

Technology	Process	People
Adequate	Guidelines-SOP	Training
“Right”	Monitoring	Assignment
Engineering Control	Administrative Control	Awareness

Simplify the management of risk by reducing the scope of the problem. Divide your analysis of how to reduce risk by looking at technology, process, and people. Taken individually, the management of risk will not be as daunting.

Risk management through the use of technology enhancements offers options for a safer response. These tend to be viewed as quick and simple “solutions” that can, in some cases, be expensive. Examples include occupant restraint systems, vehicle speed governing and monitoring, traffic pre-emption equipment, or using driver training simulators. Administrative guidelines and monitoring are common mechanisms in efforts to identify and reduce risk. Having sound emergency vehicle response guidelines in place will assist the department by providing clear direction to its officers and drivers. These are considered process-oriented and must go hand-in-hand with our final element; people. Placing people in the correct assignment based on knowledge, skill and attitude, combined with a robust training program is considered the best long-term solution when addressing risk in the workplace. One simple strategy is to increase the awareness to specific risk areas through an active communication process.

If an ethical or moral responsibility doesn’t compel the fire chief to consider a risk management approach for incident response, then perhaps the threat of legal

proceedings might prompt action. In a previous article, we spoke of the legal concept of misfeasance, taking an action determined to be inappropriate even if with good intent. When misfeasance is applied to our incident response protocols, we should ask, “Have we taken all reasonable steps to reduce risk to our responders and the public while responding? Have we defined our response protocol through a practical, rational and calculated manner? Or is our response defined by subjective reasoning?”

Let’s use a fire alarm response as a basis in designing a managed response. A managed response infers that our decision is based upon an objective, balanced and deliberate assessment in an effort to reduce response risk. For example, let’s use an outcome-based review of 100 fire alarms received. Following a review of the fire incident report, we find that 15 percent of the total responses resulted in an actual fire or smoke event. Of the total events (100) 55 percent were to single-family dwellings, 35 percent were to multi-family units, and ten percent were to commercial occupancies. In outcomes where fire or smoke were evident, eight events occurred in multi-family dwellings, five in single-family and two in a commercial structure. When we look at time-of-day when the call was received, we find that an overwhelming majority, 70 percent of the total, occurred between 6:00 a.m. and 6:00 p.m. Of the 15 percent with fire or smoke on arrival, ten events occurred after 6:00 p.m.

Based upon our review of 100 fire alarm events, we found that although most occurred during normal business hours, only 15 of these events were found to have smoke or fire evident on arrival. Of these, most occurred in single-family dwellings. From a risk management perspective, a managed response seems appropriate and should be considered. The following chart illustrates a managed response plan, identifying apparatus and response mode. The officer or senior member has the authority to alter the response plan based on information received, weather/road conditions, available resources, etc.

In this scenario, it is a requirement for the dispatcher to contact the alarm location to verify if a problem exists or not. This is done following the dispatch of the fire department. The information provided by the dispatcher is then used by the officer in deciding the response mode.

EVENT TYPE	ROUT.	EMER.	NOTES	APPARATUS
Lift Assist	x			Utility
Check Burn	x			Grass Rig
Wash Down	x			Utility
Missing Person	x			Utility
Odor Investigation	x			Engine
Gas Leak Outside	x			Engine
Grass Fire Contained	x			Grass Rig
Wires Down or Arcing	x			Utility
CO Alarm w/No Illness	x			Utility
Smoke Investigation Outside	x			Engine
Dumpster Fire w/No Exposure	x			Engine
Elevator Rescue w/No Medical	x			Engine
Fire Alarm	others	closest truck	Ask dispatcher to call inside.	Engine
Vehicle Fire	others	closest truck		Engine
Gas Leak Inside	others	closest truck		Engine
Accident with Injuries	others	closest truck		Engine
Medical		x		Utility/Rescue
Rescue		x		Engine/Rescue
Structure Fire		x		Engine
Unknown Fire		x		Engine
Grass Fire Uncontained		x		Engine/Grass Rig
Smoke Investigation Inside		x		Engine

This operating guideline establishes procedures for responding to calls for service, type of response and response mode. Responders shall conduct an ongoing risk vs. benefit analysis for every call – minimizing risk through analyzing and matching call type to response mode and resource allocation. Conditions, time of day, and call information, staffing and crew integrity shall be considered when responding. A “routine” (non-emergency) response is preferred due to the reduced risk of accident. In 2011, this department responded to 1473 calls for service. Of this total, 60 percent were handled in a non-emergency fashion.

When considering your response mode, keep in mind that the primary responsibility of all fire chiefs is personnel safety – providing a safe work environment for their members. Reducing risk to our responders requires a thoughtful and practical decision-making approach. Modifying your response to non-life-threatening events will reduce risk to our responders and vastly improve the chances that we “arrive alive.”

Campbell, K.L. (1999). Traffic Collisions Involving Fire Trucks in the United States. *Center for National Truck Statistics, University of Michigan Transportation Research Institute, UMTRI 99-26.*

Question 9: How much down time do our fire and EMS personnel have while waiting for calls? How do we evaluate the "right" numbers and scheduling for staffing?

These questions get to the heart of the fire department's efficiency. Set aside for a moment that it is extremely difficult to predict when an emergency will occur. On-duty staffing serves, in some respects, as an insurance policy for businesses, citizens and visitors to your town. And while many businesses and individuals pay for insurance, few think they're ever going to actually use the benefits contained in their policy. They are, however, very happy to know the policy was there to protect them when a loss occurs.

The fire department is very similar to an insurance policy in the minds of some citizens and elected officials. They don't like paying for first responders to be on-duty and appearing to be non-productive (not handling emergency calls). In some respects, this is understandable. All employers want productive employees and they surely don't want employees who can sit idle for extended periods of time, cook and eat on company time – even sleep on company time. And citizens don't want their hard-earned tax dollars being spent for workers to sit idle. This can lead to some fire departments being criticized for having seemingly large amounts of idle time and the seemingly non-productive use of that idle time.

On-duty fire and EMS personnel are *on-duty* for a reason – to provide a quick response to critical emergencies in hopes of keeping a bad situation from becoming worse or to prevent an unfortunate event from becoming a tragedy. The decision to have on-duty personnel is one made by elected officials as they are charged with being the steward of their community's public funds. If, in their wisdom, the funds are wisely spent having ready-responders on-duty, then fire and EMS are funded to ensure so.

On duty first responders in some communities are very busy – answering 15-20 emergency calls (or more) in a 24-hour period. Others are not so busy – answering 3-5 emergency calls (or less) in a 24-hour period. The question is how much down time do the on-duty responders have and what is the right size for the response force.

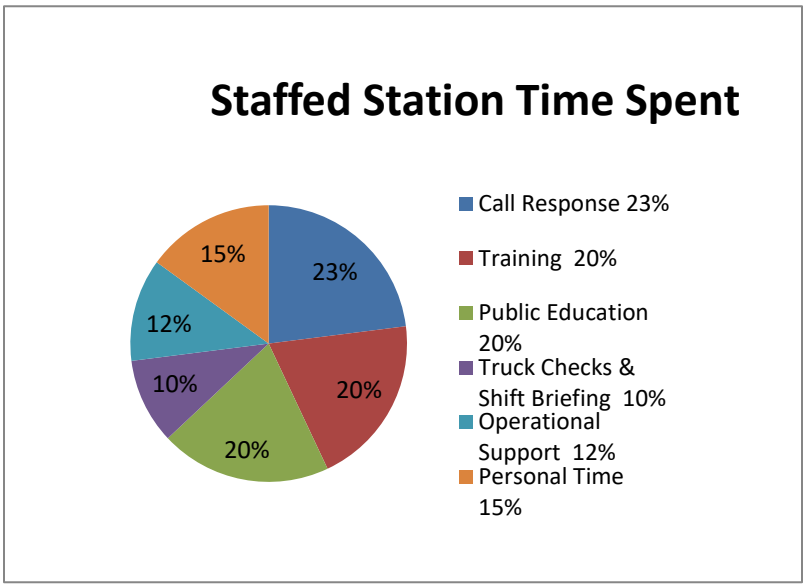
Down time

The down time component of the question is easier to answer than the right size of the response force. The amount of time committed to calls, house duties, training, administrative duties, prevention, fitness, resting, etc. can, and should,

be tracked. The only way to know how busy you are is to measure it. And not just your committed time, but what your personnel are doing during their committed time. This data can help paint a clear picture of efficiency.

The results of tracking and measuring productive time can be complimentary of the department's efficiency or it can point out some opportunities for improvement. For example, if the committed time to all activities averaged 8-12 hours during a 24-hour shift then one could make a reasonable argument that the personnel are being used efficiently, with consideration for time for breaks, meals and rest. If, however, the committed time averaged 3-6 hours in a 24-hour operational period, then one could surmise there are opportunities for greater utilization of staff time in productive activities that advance the mission of the fire department or in support of the mission of other departments in the city.

Measuring productive time is no less important for those volunteer agencies that use a duty schedule type program for their volunteer firefighters. These programs will typically allow the volunteer workforce to schedule their own time to work on-call (on-shift) duties. This satisfies the commitment requirement of the volunteer while ensuring predictable response. The following chart illustrates a "typical" day for a volunteer firefighter staffed station program.



This graph represents time spent in various activities, based upon a 15-hour work day. The more structure that is added to staffed station programs allows for more accurate measurements. The percentages shown represent average time spent in general categories.

If you do an efficiency study it is important the records are accurate and realistic. Listing 5 hours per day for training every shift may not be realistic nor accurately reflect what is happening. Two hours a day to clean the station isn't realistic either unless you have a massive station or very messy people.

The time needed to perform many of the department's activities and duties are, in fact, predictable and relatively stable. The time needed to clean, perform equipment checks, cook and eat meals, daily training, and public education are examples of workload whose time commitments are relatively stable and predictable. Even the time to handle most EMS calls and many of the fire-related calls are predictable within a range.

What is not predictable are the most critical and time-consuming calls for service, like rescues, structure fires, extrications, etc. It is impossible to program for these and when they happen it's going to set off a chain reaction that will impact all of the scheduled activities for the shift. A house fire, for example, can easily last 2 hours with an additional 2 hours for cleanup and getting all the equipment and apparatus back in-service. Such events will have a four-hour impact on other scheduled activities. As well, the physical demands of a working fire or a rescue may also warrant a rest period for personnel to allow for physical and mental rejuvenation.

It is also unrealistic to expect first responders to remain physically engaged in programmed work-related activities for extended periods of time (beyond 10-12 hours). First responders need to be rested and prepared for the physical and mental demands of their high-stress, high consequence work. Responders may only get one chance to get something right – be that a decision at an emergency scene or a medication calculation for a critically ill patient. Physical and mental rest is important in this line of work.

The argument for being physically and mentally rested noted, many organizations still have opportunities for greater utilization of personnel time. In fact, personnel in some department have become – putting it bluntly – lazy. And it is such laziness that leads to more scrutiny of the efficiency of operations.

Track what personnel do and how much time they spend doing it. Then ask yourself the hard questions about the essential nature of that work. Is it busy work or is it productive work that advances the department's mission. Are

personnel being kept engaged in activities that advance the mission at least 8 hours of the shift?

Schedules

Many fire departments staff the same number of personnel around the clock. However, statistically speaking, the volume of emergency calls probably follows a predictable pattern that reveals different times of the day/night and different days of the week are busier than others. This is where critics can challenge staffing models. Let's say you have 40 on-duty response-ready personnel for fire and medical emergencies in your community. Further, let's assume your call volume is busiest from 7:00am until 9:00pm and then it tails off significantly. Your individual community's call experience may mimic this example, or it may be very different. But rest assured, there is likely a distinctive pattern for emergency responses.

Critics of consistent staffing models might argue it would be wiser to staff up for periods when call volumes are predictably higher and then staff downward for periods when call volumes are predictably lower. Fundamentally, this makes sense. However, the fire department needs to have a solid "Plan B" in place for those anomalies – those times when the moons and stars align and the call volumes are far above expectation. While this can happen at any time, it's not likely to happen all the time. If it did all the time, it would change the pattern and predictability curves for call volume.

Staffing levels

It is not realistic or financially feasible for most communities to have enough staffing on-duty to adequately handle worst-case scenarios 24-hours a day. In fact, only the very larges metropolitan-sized departments may be able to ensure that level of resource availability. For the rest of us, the goal should be to staff for the typical and predictable call volumes and workload demands and have a solid callback system and/or a pre-established mutual aid/automatic aid program in place to serve as the safety net for larger scale, far less frequently occurring events.

Determining adequate staffing is somewhat more difficult for those volunteer agencies, primarily because of the uncertainty of response. What challenges the volunteer chief is they don't always have an accurate idea of whom or how many

will turn-out for a call. Not having a static number of personnel on-duty but relying on a mobile workforce complicates the chief's ability to predict adequate fireground staffing. For example, attempting to define volunteer staffing for day events can be very frustrating. Attendance may fluctuate daily, by the week or even seasonally. To our knowledge, there are no hard and fast rules that may be applied to determine how many volunteer members are needed to provide adequate staffing for all periods of the day and week. However, if we've kept accurate staffing statistics, i.e. number of responders attending, by type of call, and associated response time data, we are able to quantify our staffing requirements.

Let's use the following assumption of 2 apparatus carrying 4-firefighters (per apparatus) to respond to critical events. This would equate to eight firefighters. Historically, our department averages 33% of the available pool of personnel who respond. The formula would look like this:

2 apparatus x 4 firefighters = 8 personnel needed.
8 personnel / 33% of available pool of personnel respond. This would equal 24 total personnel need at this station to better ensure an adequate response force.

The accuracy of your record keeping forms the foundation for a staffing discussion with your city leaders.

If you've taken an all-hazards approach to your emergency planning and have adequately prepared for large-scale events, you have solid response plans in place for hailing assistance from other communities when needed. Being heavily staffed for rarely occurring "what-if" events may seem logical on our part to maximize effectiveness and expediency, but it may not be financially sustainable and it may subject us to criticism.

The goal

Our goal, as good stewards of public dollars, should be to ensure we have properly trained personnel on duty (or available for callback) at the right times, in the right quantity, to effectively mitigate emergencies. Further, when not engaged in emergency activities, those personnel should be engaged in activities that advance the department's mission for a reasonable amount of their workday (with consideration for reasonable breaks and rest periods).

Tracking, documenting and reporting these efficiencies in a proactive manner will serve to both educate the community and elected officials of the fire department's efforts to fulfill its mission and it will help justify the on-duty staffing in a way that directly correlates to the mission.

Be proactive

Finally, consider proactively educating your elected officials and community about why it takes so many first responders to handle critical emergencies. Residents can be critical when six responders show up for a medical call that ends up being a minor fall. However, what they may not know is the call was dispatched as "one down," triggering a response in preparation for a potential cardiac arrest. Or they see five pieces of fire apparatus responding to a call for burnt food on the stove. However, what they may not know is the call was dispatched as "smoke in a building" triggering a response in preparation for a potential structure fire.

Accurate documentation of your call patterns, call response and staffing trends, including outcomes are important to demonstrate your thoughtful approach when discussing fire department operations. Elected officials and city administrators rely on accurate, historically based data to support future decisions. Creating an understanding is vital.

Citizens and elected officials tend to be most critical of our operations when they lack understanding of what we do, how we do it and why we do it. Take all the mystery out of the fire department's operations by educating them on the what, how and why. Take a hard look at the what, how and why of what you do. The answers should never contain "That is the way we've always done it."

While looking at the fire department through the lens of a citizen or an elected official, see if what you do makes sense. Is it defensible in a tight economy? Does it represent good stewardship of the tax dollars? If you cannot come up with good, defensible explanations for what, how and why, that may be a red flag that there is an opportunity to do it differently and more efficiently.

Question 10: How does our department treat the standards that are published by the National Fire Protection Association (NFPA) and the Insurance Services Office (ISO)—as requirements or as guidelines?

As I will explain from the start, the answer to this question might be more meaningful if it were restated and asked of the entity that is the authority having jurisdiction (AHJ): How does our AHJ treat the standards that are published by the National Fire Protection Association (NFPA) and the Insurance Services Office (ISO)—as requirements or as guidelines?

NFPA

The NFPA is a non-profit organization who, according to its website, has a mission to reduce the worldwide burden of fire and other hazards on the quality of life by providing and advocating consensus codes and standards.

While the standards developed by the NFPA are used to guide many aspects of fire department operations, they are not laws. And since they are not laws, they are not requirements. However, if the AHJ adopts an NFPA standard, then it could be argued the standards then become requirements. Absent the formal adoption by an AHJ, a fire department has no obligation to comply with a consensus standard.

This does not, however, absolve an AHJ from potential liability in the event something would go awry and an attorney representing the aggrieved would cite an NFPA standard as a nationally accepted best practice for whatever argument the attorney is advancing on behalf of the plaintiff. So even if the AHJ does not formally adopt an NFPA standard that does not mean the standard may not be used as a means to judge a fire department's compliance to a national accepted best practice as defined by an NFPA standard.

The best thing a fire department can do is to consult with their attorney to determine if the AHJ should adopt a standard and to obtain an opinion on the potential liability for non-compliance. The decision to adopt or not adopt an NFPA standard rests with the AHJ. Where the fire department may be an independently operated entity, they may be the AHJ. If the fire department is a municipal department the city is then the AHJ and makes the decision whether to adopt NFPA standards.

ISO

The ISO collects and maintains information about municipal fire protection efforts throughout the United States. The ISO analyzes data using its Fire Suppression Rating Schedule. This results in the community receiving a Public Protection Classification (PPC™) from 1-10. A classification of 1 is assigned to fire departments who are believed to, by the ISO's rating system, provide superior property fire protection. A classification of 10 indicates the municipality's fire

suppression program does not meet the minimum criteria set by the ISO. According to the ISO's website:

> By classifying communities' ability to suppress fires, ISO helps the communities evaluate their public fire-protection services. The program provides an objective, countrywide standard that helps fire departments in planning and budgeting for facilities, equipment, and training. And by securing lower fire insurance premiums for communities with better public protection, the PPC program provides incentives and rewards for communities that choose to improve their firefighting services.

Like the NFPA, the standards set by the ISO are now law and therefore each AHJ has the opportunity to consciously decide how much deference they wish to give to their ISO PPC rating.

The decision as to what PPC a municipality obtains, or maintains, is one to be made by the AHJ. It is a recommended best practice that the goal for what PPC a municipality achieves or maintains established with close consultation with the fire department. Each incremental improvement in the ISO PPC has an associated cost. This cost is not just to achieve the rating, but also the cost for on-going maintenance of systems, equipment, staffing and training to keep the classification.

An AHJ needs to weigh the cost of obtaining or maintaining a certain ISO PPC with the benefits (perceived or real). For example, a real benefit may come in the way of a reduction in fire insurance premiums for residential and business properties. A perceived benefit might come in the belief the fire department is "better" than the fire department in the next community because their ISO PPC is lower. While this benefit may be real (i.e., the fire department with the lower rating may be "better" the definition of what constitutes "better" is not clearly defined).

For example, would having firefighters who are cross-trained as paramedics and able to respond to a heart attack in 4 minutes be "better" than a fire department that does not provide any form of EMS and the non-fire department ambulance response time to a heart attack is 20 minutes?

According to the ISO's website, the FSRS evaluates three criteria:

> **Fire alarm and communications systems** - A review of the fire alarm system accounts for 10% of the total classification. The review focuses on the community's facilities and support for handling and dispatching fire alarms.

Fire department - A review of the fire department accounts for 50% of the total classification. ISO focuses on a fire department's first-alarm response and initial attack to minimize potential loss. Here, ISO reviews such items as engine companies, ladder or service companies, distribution of fire stations and fire companies, equipment carried on apparatus, pumping capacity, reserve apparatus, department personnel, and training.

Water supply - A review of the water-supply system accounts for 40% of the total classification. ISO reviews the water supply a community uses to determine the adequacy for fire-suppression purposes. We also consider hydrant size, type, and installation, as well as the inspection frequency and condition of fire hydrants.

The ISO FSRS and PPC system has not been without its critics and sources tell us they are in the process of revamping the rating system to consider things like response times – an arguably critical component to determining the effectiveness of fire suppression efforts – yet noticeably absent from the list above.

The ISO PPC is neither a standard nor a requirement. Rather, it is a tool that an AHJ, in consultation with their fire department, can use in goal setting and in the justification process for funding improvements that will reduce the PPC.

The authority having jurisdiction normally determines the “need” to adopt a consensus standard or to what extent they support the ISO-PPC classification system. Regards, we recommend that all departments be diligent in their maintenance of their response data. Data may be applied to defend the option to adopt a particular standard. If we use the NFPA fireground staffing standards, 1710 and 1720 as examples, we know of departments that have developed their own standard of response based upon an historical analysis of response data. These departments have meticulously maintained response data; tracking types of response, number of responders, response and control time, etc. in order to determine benchmarking for their agency. This often makes sense, since the outcome (response benchmark) is truly based upon local data and not a national consensus.

Your local data may also be used to justify why you should strive to meet a national consensus standard such as NFPA 1710 or 1720, especially if your numbers show an inability to meet the standard. For example, both of these standards describe minimum staffing for fireground operations. If you’ve kept accurate fireground staffing numbers, and this data indicates that you’re not able to place the recommended number of responder’s on-scene within the stated time, this may be useful in demonstrating a documented need. Keep in mind that

you will need to tie in the meaningfulness of the staffing to fireground operations. Using the NIST residential fireground study will help in this endeavor.

Question 11: If the number of fire-related responses are trending downward, when do the numbers become low enough to consider consolidating or contracting with another community for fire protection? What are the alternatives to having our own fire department?

Indeed, in many communities, the number of structure fires has been trending downward. The reduction in structure fire responses can be attributed to many factors, not the least being effective fire prevention programs, active inspection programs and aggressive code enforcement – the proactive efforts many fire departments use to prevent the occurrence of fire.

While some may argue that better designs and detection and suppression systems have contributed to a reduction in fire responses, this is not an accurate statement. While early detection and early suppression systems improve victim survivability and reduce fire losses, the fire department still responds.

The central question is: When do the number of fire responses become low enough to consider consolidating or contracting with another community for fire protection? The core issue of this inquiry may not be one of quantity. Rather it may be one of quality. When looking to consolidate or contract with another community, the elected and appointed officials should first, and foremost, give consideration to what impact that will have on the level of service the residents and businesses receive post-contract or post-consolidation.

Before evaluating the impact of contracting or consolidating, elected and appointed officials should first establish what is the acceptable level of service – or standards of coverage – for the community. While the number of fires may be declining, they are not being eliminated. It is important to keep in mind the residents or businesses that do have a fire are not going to be concerned with the downward trend in overall fire responses when their home or business is on fire. They are going to expect, and deserve, a prompt and effective response and resolution to their emergency.

Thus, it all boils down to finances and risk management. How much risk a community is exposed to and how much money a community can afford to expend to reduce the level of risk exposure. Where funding is not a concern (and

yes, there are a few pocketed areas around the country that seem to have been immune from the impact of the economic downturn), the elected and appointed officials may be comfortable with funding a fire department to a level that assures a prompt and effective response to all emergency calls, even where the overall number of actual fires has been declining.

In communities where finances have been hard-hit, all services have been subject to review and tough decisions are at hand. For the fire department, that means asking: At what point does the combination of reduced fires and economic hardship compel a community to consolidate services or contract for services?

There is no formula for figuring this out. There are benchmarks that can be used for comparison (e.g., calls per resident, cost of fire protection per capita, incremental cost of a fire call response per capita). However, a word of caution is necessary here. Ratios and statistics are just one component to be used in the decision-making process and, arguably, may not be the best. For example, one community's cost-per-call may be $1,300 while the neighboring community's cost-per-call is only $700.

These are the kind of numbers that can make elected officials set up and take notice. The numbers don't lie, right? Or do they? We are reminded of a quote by British Prime Minister, Benjamin Disraeli (later popularized in the U.S. by Mark Twain). "There are lies, damned lies, and statistics." What was meant by that is statistics, taken out of context or with a certain "spin" added to them can be made to say just about anything. For example, if it were determined that a fire department's average cost per call were $1,300, it might be assumed that half the calls for service cost more than $1,300 and half the calls for service cost less than $1,300. Where, in fact, a closer look might reveal that 99% of the calls may have cost $500 per call and 1% of the calls for service cost over $20,000.

Clearly, statistics do not tell the whole story. Yet, elected officials often find themselves having to make decisions with limited time and information. It can be an easy trap to fall into – believing the statistics at face value. This is especially true when a certain "spin" is being put on the statistics and most elected officials are not statisticians. In the hands of an artful spin master, a statistic can be made to say just about anything they want it to say.

Before looking to contract or consolidate, it is important for officials to set the expectations for service levels and then to determine if those levels can be provided through contracts or consolidation. If the level of service is less, then hard decisions need to be made about service level expectations. Is the potential financial savings worth the corresponding reduction of desired levels of service?

Some might argue it's a decision to be made purely on economic premise. However, the family or business that suffers a greater loss from the reduction in service may not see it the same way.

Emotions will impact the decision as much as economics. However, we encourage fire service leaders to avoid making statements like “babies will die and buildings will burn.” Such tactics rarely endear the leader in the eyes of elected officials who are already struggling to make tough decisions. Rather, go down the path of educating and engaging the elected officials in discussions that lead to establishing what level of service they feel comfortable with providing for the citizens they represent.

Ideally, the response to a fire would be instant and the responding resources would quickly overwhelm the fire, saving all lives and minimizing all damage. This is the mission (and passion) of every fire department. It would also endear the resident or business owner to the elected official for their excellent allocation of tax dollars to ensure their safety and economic security. But we don’t live in an ideal world and there is a clear and measurable tradeoff between efficiency and effectiveness. The tradeoffs represent the tough decisions elected officials are put into office to make.

What are the alternatives to a community having its own fire department, completely funded by tax dollars? The options are many. However, there are factors (laws and geography, for example) that may prohibit certain options. For example, a special taxing district to create and fund a regional fire department may be an option – but only if the laws of the state allow it. Contracting with the neighboring community may be an option – but only if the community is geographically close enough and has the capacity to absorb the additional call load.

Contracting and consolidating also bring up issues of control. When a community contracts for services or consolidates with another jurisdiction a certain amount of control over the quality of the service is lost. Another governing board may now make decisions impacting your community’s level of service. Your elected officials may hold one or more seats on a regional governing district’s board, but they are not likely to hold the majority of voting positions. Thus, decisions may be made that may not represent the best interest if your residents or businesses.

It is also important to acknowledge that once the decision is made to contract or consolidate fire protection there can be a financial consequence as much as a benefit. The initial start-up costs of forming a consolidated service district needs to be taken into consideration. There may be savings, eventually, but not likely

initially. Also, once a level of service is stopped, there is a cost of restarting the service if contracting or consolidating does not work out as planned.

In some communities there are few alternatives to having their own fire department. In other communities, there may be many alternatives. The opportunity for a fire department is to provide the best, most cost effective, service the elected officials desire (or will support), balanced to what the community can afford (and will support). Affordability is the driving force behind many of the questions now being asked about all government services and fire departments, as noble as the calling may be, are not exempt from these tough questions.

Question 12: Some communities are selectively closing fire station (sometimes termed “rolling brownouts”) to reduce costs. What are the benefits and risks of this strategy?

As budgets have become tighter many fire departments have been forced to find ways to reduce operating costs. Many of the twenty tough questions are focused on the benefits and consequences that result from creative problem solving. This question deals with the concept of reducing operating expenses by closing fire stations temporarily as staffing reductions dictate.

For example, in some jurisdictions where staffing reductions have been implemented there may not be adequate personnel to staff the apparatus in each station. Permanently closing a station can have serious political consequences as residents and business owners tend to value a certain level of protection from risk that comes from having a staffed fire engine that can respond quickly in the event of an emergency.

Where overtime budgets have been reduced and minimum staffing is a standard or contractual obligation, the options become limited. One strategy that can be deployed by city officials to prevent having to endure the backlash of permanently closing a fire station is to invoke rolling brownouts. This means a fire station is not permanently closed. Rather, apparatus are taken out of service on a temporary basis. The duration can be as short as one shift or for months. The brownout may be slated for a single station or can rotate among stations. It can impact one piece of equipment, such as one ladder company or it can be rotated among various apparatus. There aren’t really any rules for how a department browns out companies.

No matter what name is chosen for it, temporarily closing a fire company or a fire station is, nonetheless, a closure. While the incidence of fire or medical emergencies (for those fire departments that also respond to medical calls) may be greater in some areas of some cities, the occurrence of fires or medical emergencies are not completely predictable. And this begins the discussion on the challenges of brownouts.

Arguably, it is the role of government to provide equal access to a basic level of services and protection from danger for all citizens without prejudice or discrimination. The periodic closure of a fire company or a fire station denies the taxpaying citizens and businesses served by that company or station the same level of service that those living in the non-browned out areas receive.

Which companies or stations to brownout can be the focus of great debate. This is a decision that should directly involve the elected officials, as it is the elected officials who are accountable to the citizens who elected them. When a fire company or station is browned out, risk increases. This includes risk to the citizens, risk to businesses owners, risk to visitors and risk to firefighters.

Let's compare the equivalent of a fire company brownout with examples for how the concept might apply to other services or obligations of government. Remember, to brownout a fire company means to close the company, even if only for short periods of time.

Handicap accessible ramps: The handicap accessible ramps are going to be browned out, meaning wheelchair bound citizens will not be able to access city hall on Mondays. If it is a rolling brownout, then the handicap ramps will be closed on Monday one week, Tuesday the next week, Wednesday the next week, etc. The handicapped citizen won't know, in advance of arriving at city hall, which day the ramps are open (much like the citizens won't know which fire companies are open or closed until they have their emergency). This could be remedied with a phone call to city hall each day from the citizen to see if the handicap accessible ramp is open or closed, followed by a conscious decision to postpone the visit on any day the ramp is closed. Unfortunately, citizens don't consciously choose which days they'll have a fire or medical emergency based on whether the fire company is open or closed.

Baseball fields: The baseball fields in the city parks are going to be browned out, meaning the fields will be closed on Mondays. If it's a rolling brownout, the fields will be closed on Monday one week, Tuesday the next, etc. just as in the example of the handicap accessible ramps above. If teams show up to play a game and don't know the fields are closed, they are going to be angry – and

rightfully so. They had a reasonable expectation that if their game was scheduled on a given day at a given time, the field should be open.

Risk Management

A department that considers brownouts as an option to reduce operating costs can benefit from looking at the decision from a perspective of risk management. Managing risk is all about probabilities not possibilities. In fact, anything is possible, and it is not realistic for a fire department to be equipped, staffed, trained and prepared to handle anything. What's more realistic is for the fire department to be able to be equipped, staffed, trained and prepared to handle the emergencies they are most likely to experience (i.e., the high probability events) and to have a plan for how to manage emergencies that will only rarely happen – if they happen at all (i.e., the low probability events).

The decision to brownout a company or station should be rooted in risk management. This is where data can aid in the decision-making process. The demand for services ebbs and flows based on time of day and day of week. Logic would say staff when and where the probability of an emergency is greatest. For example, a company or station may be very busy during the weekday and the number of critical calls declines at night (e.g., the company or station is located in an area of town that is predominately retail and calls for service decline sharply during times when the retail stores are closed) it may make sense to brownout a company or a station in that area at night.

It may be risky to brownout companies or stations randomly without consideration for probabilities of critical calls. For example, browning out a company or station during a time when the station is known to be busy increases risk.

When red outs = brownouts

The reality is, companies are browned out all the time. Every time a company responds to a call (i.e., "red out") the company is out of service – closed. While a company is out of service handling one emergency call it is, essentially "browned out" for responding to another emergency call and this is going to cause a delay in service as the replacement company comes from another station in another part of town. Depending on how busy a station is, the occurrence of simultaneous calls can range from infrequent to common.

Benefits

Browning out a company, when done with deference to risk management, can be an effective way to reduce operating costs while reducing the impact of having a company or station out of service. Browning out a company or station can reduce overtime costs. This can, in turn, prevent the permanent closure of a company or fire station and may also prevent a reduction in staff.

Summary

Browning out a fire company or a fire station, while an option to balance a budget, does impact service levels and increases response times. However, when all other possible cost reduction measures have been taken, brownouts are an option that may reduce operating costs, avoid station closings and prevent layoffs.

Question 13: In addition to providing medical first response service, should the fire department get into or out of the business of transporting patients?

There are two components to this question. First, should the fire department be providing first responder medical services? Second, should the fire department be providing transport medical services? The heart of the policy issue for fire-based EMS is threefold and based on desire: What level of pre-hospital medical care does the community desire? Does the community desire to have the fire department provide some component of their pre-hospital medical care? And, does the community desire to pay for some form of government-provided pre-hospital medical care.

The issue is best addressed by doing an assessment of the current system. What is working? What is broken? Across the country, the pre-hospital delivery of health care is shifting towards cost efficiency in today's economic climate; cities may be unwilling to pay more for services that are currently provided by a private entity. Financial investment comparisons, conducted through efficiency studies reveal economies of scale associated with employee cost and utilization, vehicle purchasing, medical equipment, supplies and communications.

If we look at how private sector business operates, i.e. remains competitive in the marketplace, we find that reductions in goods and service often result in the private side examining their business model; finding more efficient ways to compete for business. This may be through payroll reductions, elimination of staff, changing of product lines and collaboration with fellow business. Difficult

economic times are driving local government to re-examine services offered and to what degree those services are provided. As we've stated previously, our customers are very conscious of government spending and often critical of new endeavors. This isn't to say that the progressive organizations shouldn't examine their business to reveal efficiencies and perhaps take on new programs. That progressiveness must be balanced with the reality of the "new normal." Is the timing right for new initiatives when the taxpayer is looking for less government?

Are there opportunities for improvement? The evaluation of an EMS system's efficiency and effectiveness might best be conducted by an independent third-party. (Note: The authors are not seeking business opportunities with this recommendation. Neither of the authors are in the business of conducting such EMS system evaluations). City leaders should carefully assess the data collected in an efficiency and effectiveness study. Most cities are very interested in curbing future expenditures. The bottom line may be based upon cost and not who is best to treat the patient; it's about conserving cost and capitalize on efficiencies of service. An independent evaluation by a reputable firm assures no special interest influences the findings. Before embarking on an endeavor that can result in the creation of an EMS system that is worse than the one currently in place, it makes sense to see if anything is wrong with the current system. No system is perfect. There are always opportunities for improvement. Even if the evaluation determines the current system is functional, it's likely to also reveal the opportunities to make changes.

There are some distinct advantages and disadvantages for fire-based EMS systems, whether at the first responder or transport level of service. Arguments can be made for and against the fire department providing medical services. We will list some of the items for consideration with full acknowledgment that for some of these items, whether it is considered as asset or a liability will depend on local circumstances and which side of the fire-based EMS issue a person is lining up on.

Management: A true business model and plan are required to successfully manage an EMS delivery system. Most fire departments don't have this business model background and experience. It is essential that senior leadership acknowledge the need for a "business mind" and select a leader to manage that aspect of the department.

Control: Where EMS are provided by a government agency, the elected officials have greater control over how the services are provided. Where EMS is provided

by a private entity, elected officials may have less control over how services are provided.

Financial: There is a cost to providing EMS. Personnel, apparatus, equipment, supplies and training are the most significant expenses incurred when providing EMS. There are also opportunity costs – the costs associated with other duties responders could otherwise be doing if they were not providing EMS. These might include prevention, inspections, training and even responding to other non-EMS emergency calls for service.

There can also be a revenue generation component to EMS. Many fire-based EMS services, like their private EMS counterparts, charge for services. Changes in reimbursement rules have made collection of fees more challenging and limitations in reimbursements from Medicare and Medicaid limits also impacts the revenue recovery. However, for so long as local officials are willing to charge for EMS, the full cost of the program does not have to be paid by taxpayers. Some opponents to charging for fire-based EMS services might argue that a fee for service is the same as a tax. That is a discussion to be held in local council chambers.

Where fire-based EMS currently do not charge for services, the discussion should be held on the benefit and detriment of billing. Some may argue that charging a fee where it was previously free will deter the sick and injured from calling EMS when they really need it. The argument seems plausible. However, where agencies have billed for services, that has not been their experience. That discussion should compare possibility to probability. Is it possible that a person having a heart attack would not call an ambulance because of the cost? Yes. Is the probability of it happening high? Not likely.

Competition: Some may argue that public entities should not provide services that could otherwise be provided by private entities. Again, this is a discussion to be held in city council chambers. However, as a city council looks to the services that could be provided by private entities, they should fairly look at ALL city services through the same lens. There are private entities that can blow the snow, mow the grass in the parks, maintain the roadways, fix broken traffic signs and provide recreational programs. There are also private contract agencies that can provide administration services, finance services, and city management services. The slope can be a slippery one.

Quality of Services: Some may argue the services provided by a fire-based EMS service are higher quality than those delivered by a private EMS provider. This may be true. It may be false. An independent evaluation of the services can help

make that determination. The delivery of public safety should be viewed from a global perspective, a systems approach with interrelated parts. Who is positioned best to provide a service and for what cost? Cost may be viewed not only in the fiscal nature, but also from staffing, time saved or spent; other opportunities created, improved coverage, etc.

We've discussed the importance of defining outcomes when evaluating service delivery. When looking at quality of service, having a desired outcome, i.e. response time, patient to hospital time, patient outcome, system redundancy, etc. is a key ingredient in determining the appropriate provider.

Some within the fire department may argue responders who work for the city are local residents who will show greater compassion for their neighbors than those working for a profit-driven company. Again, the quality can vary widely. There are fire-based EMS systems that are wonderful providers. There are some that are terrible. The same can be said for private systems.

EMS System Abuse: The 900-pound pink elephant in the room is: The health care system in the United States is broken. Notwithstanding efforts to pass various pieces of legislation to fix the problem, the system is a problem and, at least for the pre-hospital care component, the current laws will not provide the fix. For many Americans their first (and only) access to medical care is the hospital emergency room. Thus, the EMS system is being abused. First responders are routinely summonsed to take people to the hospital for a wide variety of non-emergent injury and medical conditions. Some of the system abusers simply don't know any better. Some know EMS to be their only way to get access to medical care. Some know they are abusing the system and seem to care less. They see it as their right to have an ambulance at their beckon call to take them to the emergency room any time they want for whatever reason they want.

Some system abusers are cleaver. They have learned what "trigger words" score them the automatic ride – chest pain being one. For some, they are simply seeking a ride downtown and the ambulance provides it. Once their care is turned over to hospital staff, the patient signs themselves out of the ER, or they simply get up and walk out. There's no law that compels them to stay. In fact, there's no law that can compel the hospital staff to make them stay. And the next time they want a ride downtown, EMS will be there again to provide it.

Clearly, the system is broken and it needs fixing on a broad scale. We've been told of some EMS agencies that have actually gone as far as providing taxi cab tokens, so system abusers can simply take a taxi to their desired destination instead of abusing the EMS system. Those with legitimate injuries or illnesses

that are minor are also provided with a taxi cab token for a ride to the emergency room. The real system abusers don't like this however because they don't get the express entry into the ER like they otherwise would when they come by ambulance. If they come by taxi, the wait in the ER can be hours.

Response Times: Some argue that response times are critical in medical emergencies. Indeed, for some emergencies every second counts. However, in some cases, time is not critical. One only need to take a trip to an ER for a minor emergency (e.g., suturing a lacerated finger) and see the people waiting for hours. While the emergency room waiting room is full, most of what is there are not emergencies. The same it true in the pre-hospital environment. Many, if not most, of the calls for EMS are not true, life-threatening emergencies. The caller may require medical care, just not EMERGENT medical care.

However, for those with an emergent illness or injury, response times are critical and truly, every second does count. Part of the problem is often times first responders don't really know what is emergent until they arrive and assess the patient. Even in systems where dispatchers are trained to ask the right questions and provide pre-arrival medical instructions, the system is not perfect. An accurate patient assessment cannot be conducted over the telephone. Only a trained responder assessing a patient's condition and truly determine the emergent need for medical care. In a litigious society, the risk is too great so many systems default to treating every EMS call for service as emergent.

System demand: When assessing the impact on a fire-based response system, it is not abnormal to see EMS accounting for 70% - 85% of calls for service. Clearly in some systems it is the vast majority of the services provided by the fire department. Some might argue that reducing or eliminating fire-based EMS would allow a city to significantly reduce the number of firefighters on the payroll. This conclusion may be premature if elected officials lose sight of the core mission of the fire department – to protect the lives and property of the residents, businesses and visitors from the ravages of fire. In most systems, the on-duty EMS responders are also cross-trained firefighters and when there is a fire it is an extremely labor-intensive activity. For example, a working fire in a single-family residential dwelling could easily require 15-30 personnel depending on the size of the structure and the complexity of the incident (i.e., size and construction of the building, contents, extent of fire involvement, rescue of occupants, water supply, etc.). As staffing is reduced, so are the number of responders available for labor-intensive fires and complex rescues. While those happen with far less frequency than medical calls, the consequences in relation to the loss of life and property is often exponentially greater.

Exit Strategy: The determination to outsource or privatize a function that historically the fire service has provided is an extremely difficult and often emotional decision. Often this tough decision to eliminate a service is predicted on sound and rational findings, the efficiency and effectiveness study we spoke of earlier. Right-sizing and restructuring of fire department resources has become the norm. We are sometimes forced to decide what services we can adequately provide. This may result in discontinuing a prized service.

Opportunity Cost or Opportunities Lost: While it was mentioned briefly earlier, the opportunity for responders to be doing something else in lieu of responding to medical calls warrants additional discussion. Notwithstanding the previously noted system abuse issues, if responders were to benefit from less calls for EMS, what else could they be doing? This is a question fire department administrators should be prepared to answer. Perhaps stated another way, what could the fire department do more of, or start doing that they don't currently do, that would advance the core mission of saving lives and property from the ravages of fire? What other proactive prevention-oriented activities could the fire department be involved in to help reduce calls for service or enhance the quality of life for citizens. A few examples come to mind:

- Home fire safety inspections
- Safe cooking awareness classes for seniors
- Assisting in child-proofing homes to prevent injuries and poisonings
- Swimming pool safety classes
- Child restraint seat installations
- Slip and fall prevention programs
- Teaching non-English speaking populations about fire safety and the EMS system
- Rental housing inspection
- Fire station quick clinic for minor medical

The list for each community would be customized based on local need. However, there are likely a list of prevention-oriented activities that could fill the void and serve a valuable purpose.

The initial question was whether the fire department should provide medical services and if so, at the first responder or transport level. The answer lay in having a meaningful discussion with elected and appointed officials about control, finances, competition, quality of services, EMS system abuse, response times, system demand, opportunity costs and opportunities lost.

Question 14: Should the fire department consider getting into the business of non-emergency transports (inter-facility and scheduled transports)? How much extra revenue might this generate?

Essentially there are two types of medical transportation services – emergent (EMS) and non-emergent (transport services). This question revolves around non-emergent medical transportation services. Many privately run and hospital-based medical transportation services provide both types of services. While it is far less common, there are some fire-based EMS services that also provide routine non-emergent transportation.

From a strictly financial perspective, the non-emergent services tend to be more lucrative because the client can be pre-qualified for payment and matters of reimbursement and insurance can be worked out in advance of the trip. This is vastly different that emergent medical transportation where service is first priority regardless of the customer's ability to pay. The former allows the transporting entity to ensure payment in advance. The latter has no assurance of payment for services.

Revenue

The amount of revenue that can be generated may be difficult to estimate and is a function of many variables. A few of the factors influencing reimbursement include: The age and demographic of the population; how many of the residents are privately insured; how many residents have Medicare, supplemented with private insurance; how many residents have Medicare with no private insurance supplement; how many nursing homes and extended care facilities are in the jurisdiction; the presence (or absence) of facilities that provide on-going medical services (e.g., kidney dialysis, cancer treatment centers, etc.); and, the presence or absence of competition for private transportation services.

Staffing

One benefit of scheduled non-emergent transportation is the personnel needed to provide the services are based on scheduled demand and therefore is far more predictable. Non-emergent transports also tend to serve non-critical patients. Thus, the crew may not be required to hold higher levels of medical certification like their counterparts on the emergent side of the transportation business.

One of the potential detriments from providing non-emergent transport services is staffing shortages for emergencies if the on-duty ready response crew is used to staff transport vehicles. This is something to be evaluated closely. A community does not want to suffer a loss as a result of the on-duty emergency response personnel being committed to a non-emergency, revenue-generating activity. This may lead to public criticism and would likely impact the morale of the emergency responders.

Local or long-distance transports

Another consideration when providing non-emergent transport services is the reach of the services provided. A decision needs to be made whether non-emergent transports will be strictly local or if the department will also do long distance transports and, if so, what is the geographic range for the services. Depending on the location of the jurisdiction in relation to specialty care centers, the number of long distance transport opportunities can be substantial.

For example, a smaller town hospital may not have specialty trauma, burn, cardiac, cancer, neurological, orthopedic, pediatric and/or geriatric care available and patients needing this care might need transportation to and from facilities 100-300 miles away. If the patient is not ambulatory or their comfort is hindered by a long-distance transport by private vehicle, a non-emergent ambulance ride may serve them well.

Sometimes the transport personnel wait for the patient to receive a scheduled treatment and then return the patient to their originating facility (or home). While the waiting time may be billable, it does take personnel out of service for longer, and sometimes unpredictable, amounts of time.

Workload Management

As communities seek ways to obtain higher unit utilization (i.e., less down time) for fire department personnel, non-emergent transportation may be looked at as an additional service that can generate revenue. This may appeal to elected and appointed officials because revenue above the cost of providing transports may be used to help pay the expense of running the emergency operations.

A word of caution is in order when evaluating unit utilization for emergency response personnel. The high stress, high demand nature of providing emergency services can take a toll on responders and down time is important so the responders can rest the body and their minds. Fatigue impacts work performance and the quality of decision making. In emergency services,

responders may only get one opportunity to get it right and the consequences of error can be catastrophic.

Competition

Presumably there are one, if not multiple, private entities providing non-emergent transport services in any jurisdiction. As the fire department makes entry into this market, private providers feeling the strain of competition may complain that government is encroaching on the private sector and, furthermore, the public provider has a financial advantage because the operation is being subsidized by taxpayer dollars. To compete with private entities is a policy discussion and decision for the elected officials.

The role of government

This topic to the role of government as a provider of services. If a fire department provides non-emergent transportation services are they providing a service that meets the essential needs of the citizens or are they providing a service to generate revenue (i.e., for profit). Where would the line be drawn? Could the police department start competing with private entities to provide private security at facilities? Could the public works department start plowing the snow from the parking lots of businesses or from private driveways? As the economy has made a fundamental shift that will be slow to return (if it returns at all) government is feeling strained to reduce costs or enhance revenues. Non-emergent transportation services may be a viable option.

Question 15: Regardless of what others are doing, is *our* fire department better positioned to provide EMS transportation in our community than other organizations? What factors should be considered?

This question is a continuation of last month's discussion about fire-based EMS. While it is widely considered a best practice by efficiency consultants to benchmark and compare your organization to others this question, implies, ironically, that such a comparison is irrelevant.

Perhaps the basis of the question is the notion that the decision to provide, or not provide, fire-based EMS transportation in any jurisdiction is uniquely individual to the community and not a decision that should be influenced based on what other communities are doing. To a great extent, this is true. However, it is worthwhile to look at like-sized communities that provide or don't provide fire-based EMS

transportation and to ask them why they do or why they don't. It may also be advantageous to look at fire service organizations that have recently (say, within the past five years) started or stopped providing fire-based EMS transportation and seek to understand what compelled that decision.

Mission

The decision to provide, or not provide, EMS transportation is one based on the mission of the fire department. For most departments, the mission includes a focus on protecting of life and property and the prevention of injuries and loss (perhaps not in those exact words). EMS transportation is a logical fit and within the scope of purpose for many fire departments. However, that does not make the decision to start providing EMS transportation easy. In fact, the decision can be quite complicated. Let’s look at a few of the factors.

Competition

If the fire department does not currently provide EMS transportation, someone is doing it and that someone is most likely a private EMS provider. As we discussed last month, the decision for a public agency to provide services that might otherwise be provided by a private entity is a policy decision to be made by elected officials and, hopefully, after great consideration to the benefits and detriments of doing so.

Where a private EMS agency provides the transportation services for multiple communities, the revenue they might lose if one of the communities decided to have the fire department provide EMS transportation services could have a significant impact on their ability to provide EMS to other communities. And while the elected officials are only required to do what is best for the community they are elected to represent, there is a humanitarian (if not ethical) obligation to at least give consideration to the broader impact of policy decisions. A policy decision to start providing fire-based EMS transportation that, in turn, causes the current provider of EMS transportation for multiple communities to go out of business could have a significant impact. It may be especially detrimental if the other communities did not know the change was coming or if the other communities are not in a position to provide their own fire-based EMS services.

Of course, this could provide an opportunity for the fire department to become the EMS transportation provider of choice for the region and serve the needs of other communities as well. This sort of cross-jurisdictional provision of services can quickly become complicated and very political, especially where neighboring community relations (or neighboring fire department relations) have historically been strained.

Quality of Service

One of the key drivers in the decision for a fire department to implement transportation services should be a focus to improve the quality of service. However, to improve the quality of service, there should first be an assessment of the existing quality of service. That should include identifying what defines quality and then measuring the existing level of service to the definition of quality. It would be bad business to start transportation services only to find the quality of services declined as a result.

A vital (and sometimes overlooked) factor in determining whether a fire department should enter the EMS transportation business or be providing EMS of any form for that matter, is a determination whether the existing fire department personnel are capable of providing EMS. While it may be a logical extension of the mission, it should not be assumed that individuals who signed-on to be firefighters will be quality medical providers.

A top-notch firefighter who faints at the sight of blood or who suffers from trypanophobia (a fear of medical procedures and/or hypodermic needles) may not be suited to serve as an EMT or paramedic. Involving the membership in the EMS transportation decision process is vital and you need to determine, in advance, how to get members on-board and, equally important, how you will resolve the issue of those who cannot or who do not want to support EMS transportation. As the employer, you may have the legal and contractual right to determine the scope of services but involving the members in the process of changing the scope is critical to the success of implementing EMS transportation services.

Financial

As communities experience the financial strains of a changed economy, the natural course of action is to look for ways to reduce costs or to enhance revenues. One-way revenue can be enhanced is through EMS transportation. However, revenue generation should never be the primary function of a government-provided service (excluding the Internal Revenue Service).

> *The function of a municipality is to: "…generally take responsibility for parks and recreation services, police and fire departments, housing services, emergency medical services, municipal courts, transportation services (including public transportation), and public works (streets, sewers, snow removal, signage, and so forth)."*[1]

Local governments can charge fees for services so long as state law does not prohibit from doing so. While taxation has long been the primary source of revenue for most municipalities, many charge fees for services ranging from building permits to recreational program fees to building inspections to CPR classes and more.

“A fee charged by government is just another form of taxation” a resident once exclaimed during a public meeting I was attending where the elected officials were debating whether to start billing for what had previously been free EMS services (that included transportation). The lure to start EMS transportation for the benefit of revenue generation can be strong. However, health care reform, including changes in Medicare and Medicaid laws has reportedly made reimbursement more challenging than ever.

The problem with predicting future revenue from EMS transportation in the future of health care remains very unpredictable. This means the solid financial projections generated today could quickly change and EMS transportation could become a financial burden on the community in the future. It would be extremely unfair for elected officials to hold fire department administrators accountable when changes in health care impact EMS transportation revenues. But we all know that is a real threat. One way to reduce the possibility of being caught off-guard is to create three sets of financial projections based on best case, most likely and worst-case scenarios.

Cost of Entry

There is a cost for entering the EMS transportation business. The first, and perhaps most obvious cost, is the need to have vehicles to transport patients. Those vehicles must also be provisioned with medical equipment and supplies. Add the cost of maintenance, fuel, and insurance.

EMS transportation will also require trained personnel to staff the ambulances. This will most certainly require the addition of personnel to avoid the creation of a dangerous depletion of firefighting resources to staff ambulances. EMS transport personnel also require training and on-going continuing education to ensure skills remain sharp. Some of the training and continuing education may be done on-shift but some classes are so extensive that attendance may have to be done off-shift and require paying overtime. This is a financial consideration that should not be taken lightly as labor costs are the single largest expense in an EMS transportation system.

System Demand & System Abuse

EMS transportation creates a demand on resources that should be considered prior to entry. Depending on community demographics, the size of the community and the location of hospitals, the resource commitment to provide transportation services can be significant. While it may not be broadly known throughout society, issues with how health care is managed nationally has an impact on EMS systems. For many citizens, their first (and only) means of medical care is through the hospital emergency room. Oftentimes the perceived means of access to the healthcare system (for medical issues as non-emergent as poison ivy or constipation) is through EMS transportation to a hospital. This has led to a tremendous load on the EMS system and a fair amount of system abuse.

Only a small fraction of EMS transports are truly emergent and life saving. A vast majority of patients transported did not need to be taken to the hospital emergently by ambulance. In fact, most didn't need care or treatment in a hospital at all. But the absent of alternative means of transportation and alternative forms of healthcare have created a system ripe for heavy use (and abuse). EMS providers know the system is broken but the issue is much larger than EMS. In fact, EMS in many respects is a victim of failings of the broader health care system.

Nonetheless, until the system gets fixed, EMS will be saddled with the responsibility of responding to every call for service and providing transportation services to hospital emergency departments for patients who really did not need the service.

Paying the Bill

The challenge is compounded when a customer does not have a means to pay their bill for EMS transport services. For those who cannot pay, government then assumes the financial cost of providing the service. If those without a means to pay become system abusers, the drain on city resources can become significant.

One exercise worthwhile is to determine the fixed costs to provide EMS services. These would include facilities, vehicles, equipment, personnel, training, utilities, insurance and opportunity cost (the cost of lost productivity for other things the staff might have done had they not been on an EMS call). These are the costs that would not change based on the call volume. Next, calculate the variable costs. These are the costs that would change based on the call volume. Examples would include: Supplies, fuel, maintenance, and billing services fees (if the fee is based on a percentage of billings). Based on fixed and variable costs, calculate the average cost per call for service based on an estimate of the number of calls. Keep in mind the cost of a transport will be greater than the cost

of a non-transport so estimates the percentage of EMS calls that would result in transports.

[1] *The White House website: http://www.whitehouse.gov/our-government/state-and-local-government*

Question 16: Beside privatization, what strategies could be used to improve efficiency of our fire services?

The wording of this questions immediately leads the reader to the presumption that privatizing fire services will improve efficiencies. While privatization may produce improvements in service, it is not a guarantee. We would propose structuring the fire services in a fashion that optimizes productivity and efficiency.

The downturn in the economy has profoundly impacted municipal budgets. Elected and appointed leaders are under pressure to do more with less and to maintain, if not reduce, spending. This has led to greater scrutiny of all municipal spending, including fire protection. And while residents are expecting a reduction in spending, they do not holding an equal expectation for a reduction in services. While these expectations may be unrealistic, they are nonetheless present and causing pressure for fire service leaders to do more with the same or fewer resources.

All the while, municipal fire departments will find themselves facing more competition from large, well-funded, for-profit (private) corporations who can make proposals for providing fire protection appear as though they can provide equal (or better) service more efficiently.

Finding new ways to increase productivity and efficiency starts with an examination of your existing operations and challenging your paradigms. Improving the performance of the fire department by modernizing the organization makes good sense, both to better protect the public, produce economic benefit and capitalize on existing resources. You may benefit from asking yourself these two questions:

> Are we using our resources in the most cost-effective manner and producing sustainable results?
>
> Are we strategically positioned to capitalize on the changing landscape of emergency services?

When considering efficiencies in your service delivery model, first determine what you're trying to fix or in what areas you feel you could provide improved productivity (e.g., workforce deployment, reducing duplication, etc.). Evaluate how changes will increase or reduce costs. In nearly every fire department it is possible to improve efficiencies, reduce cost, utilize personnel more effectively and provide better service without turning the entire department upside down.

It is fair to acknowledge that efforts to improve utilization of assets in some organizations will be a painful process. The organization's culture will pay a role in how resilient the members will be to fundamental shifts in design. If your department has a history of continuous self-improvement through critical self-evaluation, it is far more likely that innovative change will be taken in stride. For organizations stuck in traditional models and mindsets, improving efficiency through fundamental shifts in design will be much more challenging.

No doubt, fire service leaders are (and will continue) to face tough challenges and will be forced to make difficult decisions. However, the process for improving efficiency may be more palatable by using the following advice.

Hold a realistic understanding of what the community's expectations are for service from the fire department. Defining your organization's core mission is essential. Establish your priorities based on community expectations and the fire department mission. For example, it may not fit the community expectations or fire department mission to implement EMS transportation services. While it's a given that the infirmed expect quick and caring service, it should not be assumed that fire-based transport services is their expectation. Perhaps the fire department's role is better suited providing first responder EMS.

Efficiencies may be gained through changing how resources are utilized. Some examples may include: Staffing with a mix of volunteers and full-time personnel to improve efficiency; responding to emergency calls in a smaller vehicles; or partnering with a neighboring communities to share staffing and apparatus. The key is justifying changes with quantifiable data.

After establishing the mission, the next step is to evaluate and prioritize existing services based on the mission. Focus on ensuring that those core services get the proper attention they deserve. Evaluate how the department spends time and resources – where do you invest your time, energy and money. This should be an analytical evaluation, not an emotional evaluation.

For example, one service some departments provide is hazardous material response. In some organizations the demand for this service may be infrequent at best yet the fire department may have a fully trained and fully equipped hazardous materials response team. In this example, this service has been provided by the department for twenty years at an average annual cost of $25,000 per year. This cost covers normal expenditures associated with providing hazardous materials response services (personnel, training, vehicle allocation, equipment, etc). And, as would be expected, the cost of providing this service has risen annually.

In the twenty years of operation, the department has experienced a downturn in the number of members interested in serving on the team (due mostly to the infrequency of actual hazardous materials emergencies). At the team's inception, twenty members signed-on and received the initial training. Today, the team struggles to maintain fifteen members and it is anticipated that five members of the team will retire within the next three years. Since budgets are tight and the demand for the service is low, the city administrator is questioning the need to replace the retiring members. The circumstances make this service ripe for an evaluation and may create an opportunity to discontinue providing it.

In some states, funding has been provided to establish hazardous material response teams located strategically throughout the state. Such as system might provide a tiered response where the deployment is resources is based on the complexity of the incident. Response costs are recovered through billing the responsible party. The fire department is not billed for the response. In this scenario, the fire department leadership team could analyze the role hazardous materials services play in the core mission and priorities of the fire department. Looking at cost to operate the team, the frequency of the team's use, the interest of personnel to participate on the team and risk of providing a service so infrequently, it may be appropriate to contract the service to the statewide team or to a neighboring jurisdiction. The fire department could continue to provide an operations-level of service and utilize the services of another team for more serious (and less frequent) incidents.

As mentioned earlier, making data-driven decisions is a sound strategy when matching available resources to service demands. Focusing on outcomes (e.g., areas where you are trying to improve efficiencies). Use the power of information to help enlighten and educate decision makers.

The fire department should look critically at all services and ask hard questions about whether the service needs to be provided and, if so, to what level.

Business as usual is no longer an option. In addition to benchmarking the fire department's operations to best practices within the industry, leaders may benefit from looking at best practices for service delivery outside the fire service. Look at companies that are admired for being service leaders and see what lessons could be apply to fire department operations.

If a private provider states they can deliver the same or better service at a lower cost – and they are able to prove it – what can the fire department learn about how they are able to do it? It may be possible to adopt practices based on private industry models that make the fire department more efficient than competitors.

Benchmark and compare key metrics with other fire departments. Be sure to make apples-to-apples comparisons when evaluating communities with different demographics. For example, cost per call is not a fair comparison across communities that provide different services. The cost per call for a department that provides fire and EMS services is going to be lower than the cost per call for a department that provides fire services only. Also the incremental cost of an EMS call is far less than for a fire call. For example, responding to a false medical call is far cheaper than responding to a false fire call. Responding to a chest pains call is far cheaper than responding to a residential structure fire. The goal is to compare efficiencies and then seek ways to become more efficient.

Question 17: Can service levels be enhanced without changing the governance structure or making significant additional investments?

The first part of this question insinuates a change in governance structure is the precursor to enhancing service levels. The second part of the question concludes significant additional investment is required to improve service. In most cases neither of these assumptions are accurate. Of course, there are many factors and depending on the governance model being used, a change may be necessary to improve service. And, depending on the fire department's budget, an additional investment may be necessary to improve service quality.

Begin with the end in mind

We borrow this principle from the late Stephen Covey. It's one of his seven habits for highly effective people. To begin with the end in mind, start by having conversations with citizens and elected officials to determine what level of

service is appropriate for the community. This includes determining community expectations and evaluating the community's ability to pay for those expectations.

There is often a gap between expectations and the ability to pay because many elected officials (and most civilians) have no idea what services cost. All they know is when they need the fire department they want them there fast; they want them to have the resources (apparatus, equipment and personnel) to handle their emergency effectively; and they want them to have expert problem-solving knowledge and skills.

The governance roadblock

Once the level of service is determined and the cost of service established, the next step is to determine if the governance model facilitates or prohibits the service level expectations. If it is determined to be prohibitive, then the department and elected officials could work to identify how to fix the problem. It may be a new governance model isn't necessary. Rather, making adjustments in the existing model may be sufficient.

Developing a new governance model can be a costly and labor-intensive process. Additionally, it may solve one problem and create others. For example, it may be determined that several jurisdictions should combine and the new governance model would be a fire district board of directors. Who makes up the board, what interest they represent and how voting powers (control) are assigned may create a very challenging environment in which to enhance service. If two communities combine and each have an equal representation on the board, it could become messy if one community wants to enhance service quality when then other does not.

Occasionally, based on the laws of a state or county, governance could present a roadblock that requires the implementation of a new model. If this is the case, take your time and consider all the stakeholders. Talk with other communities that have adopted similar governance models to glean what works well and what doesn't. Try to avoid the mistakes they may be regretting.

More money

Does a fire department need more money to improve the level of service? The short answer is: It depends. We encourage you to look back on the previous

issues as we have discussed, extensively, how to evaluate the efficiencies of your department.

In some cases, it may be possible for the department to improve service levels with no additional investment. This may be accomplished by seeking ways to provide existing services more efficiently. Some additional ways this could be accomplished include:

- Reducing or eliminating some services – those services that are no longer mission-critical. Here, we are referring to those “nice to provide” services that some departments started providing when they expanded their mission during good economic times);
- Partnering with other departments within the city;
- Partnering with neighboring communities share resources;
- Outsourcing services to private entities;
- Collaborating with other non-fire agencies in the region to provide services; and/or,
- Investing in technology to reduce the cost of operations.

It should never be assumed that service level improvements automatically require additional funding. Some enhancements may be achievable within the limitation of the existing budget and staffing. For example, if the fire department wanted to enhance service by promoting community wellness it could (in most cases) begin conducting blood pressure clinics, on-site blood sugar screening, or drive-through flu shots at a very low cost.

If, on the other hand, the desired service level improvements included reducing the average response time for the arrival of first-alarm companies to a residential dwelling fire (e.g., 2 engines, 1 ladder, 1 command officer and 13 firefighters) to under ten minutes, it may require an additional investment for on-duty staffing or entering into an automatic aid agreement with a neighboring community.

A lesson in economics

Everything the fire department does (or doesn’t do) has a cost. There are several ways to evaluate the cost of services including:

> Fixed costs: This is what it costs the taxpayers to have an operational, functional fire department. These costs would be incurred even if the fire department did not run a single call for the year. Some examples would include: Building, utilities, apparatus, equipment, non-usage related

maintenance and repairs, training, insurance, on-duty staffing. Using a personal example, if you owned a vacation home there are fixed costs associated with the purchase price of the home and payment of property taxes regardless of whether you ever use the home or not.

Variable costs: Sometimes called incremental costs, this is what it costs the taxpayers for the fire department to actually provide services when called upon. This would include: Fuel, usage-related repairs and maintenance, callbacks, fire and medical supply replacement. Using the vacation home example, this would be the cost of travel to and from the vacation home, utilities and the cost of activities you incur while using the vacation home (that you would not have otherwise incurred if you did not use the home).

Direct costs: These are the costs that can be directly attributed a particular service. For example, when there is a structure fire, there are costs associated with that response. In other words, just like a company can determine the cost of production for a product (e.g., the actual labor, raw materials and machining cost to produce a widget), a fire department can determine the cost for each service provided. Using the vacation home example, these costs may include upgrades (like new carpeting or installing a pool of you want to swim).

Opportunity costs: The cost of opportunity allows the fire department to determine the cost of what they CANNOT do because they're busy doing something else. For example, if the fire department provides full-service EMS with transportation and this service is very busy (e.g., 10+ calls per day per company) there is an opportunity cost for the other things these firefighters could otherwise be doing if they were not so busy providing EMS services. In other words, if the firefighters were not providing EMS (or providing a scaled-down version of EMS) what else could they be doing? What is the cost of NOT providing the alternative service? That is opportunity cost – the cost of trading off one thing for another. Using the vacation home example, the opportunity costs are all the other things you could have done with the money you invested into your vacation home. It also includes all the other things you could have been doing with your time while you spent it at your vacation home.

The bottom line is, governance and funding levels are rarely determined by the fire department's administration. The elected officials are the ones charged with

the responsibility for both. However, this does not preclude the fire department from advocating for the best governance model and appropriate levels of funding. This advocacy begins by having good working relations with the elected officials, educating them on the fire department's needs, educating them on the needs and costs and working with them collaboratively to provide the best model and funding that meets the needs of your community.

Question 18: How can we be assured that the processes, procedures, and protocols utilized in managing our fire department reflect current "best practice?" Where are we getting our information?

Let's break this question down into two fundamental issues. We'll tackle the issue of where information comes from first. Then we'll take a brief look at best practice.

Information or data can hurt you or help you. It's often where it comes from and in the application of the data. Two concerns come to mind; is the information from a reputable source and is the information accurate and based upon the current environment?

We'll start with determining a reputable and reliable source. This is perhaps the easier part of the question, the more complex issue is; Is the information, though from a reputable source, the type of data that should be applied to our organization? We often overlook the second element of data application; is it applicable to us? We've seen many organizations trying to force fit standards, meaning they've taken standards, policy and procedures that were established for a different style organization and applied them to theirs. Essentially, they found that not all standards were created for blanket or comprehensive application and were rudely awakened when they weren't compliant with the adopted standard. Think of the analogy of trying to force a square peg into a round hole.

In our opinion, the adoption of standards, policy and procedure is a local choice, based upon local criteria such as organizational model, the economic and political environment and local expectations of service.

Identifying comparable organizations is one place to begin when seeking a reliable and reputable source. When seeking comparable organizations, keep in mind that you MUST compare apples to apples. For example, it makes no sense for the smaller rural fire department to seek comparable data from a large

urbanized organization. It's not that the information is not useful, because it can be if applied in a prudent manner. However, the data being reviewed should be examined with a question, is it practical and realistic for us to adopt this information (policy, procedure) for our use? What are the implications if we do apply this information to our agency?

For example, it wouldn't be wise to apply the response metrics of the large urban department, which can place 16-response personnel on-scene in six minutes to structure fires in comparison to the smaller, rural department that doesn't have the response capacity of the larger organization. So if we want to compare apples to apples, where do we look for that comparable agency? A first stop is through the *Center for Public Safety Excellence* (CPSE) which identifies agencies that have successfully completed their Accreditation program. The accreditation process identifies those departments that have evaluated their services through a demanding self-analysis of their organization. In this manner, using comparable departments from the CPSE, which have undergone the accreditation process, provide for reliable, accurate and comparable data.

Part two of our answer involves data. Is the information accurate and based upon the current environment? Collecting data can be tricky. We first need to begin with the end in mind. In other words, what are we attempting to demonstrate (prove, support, disprove, etc)? We use a four-step process to collect our data.

1. Clarify your goal. Again, why are we collecting the data? For example, what problem are you trying to understand or solve by collecting this data? Be specific and focus upon a single issue. Don't try to gain insight of a systemic (organizational) problem by collecting only one data point. For example, if your goal is to reduce response times, it's best to collect data from various data points, not just one. There's much more to response and response times than the one measure of time (of how long it takes us to arrive on-scene).
2. Develop measurement definitions and procedures. Here, we need to be very clear as to what we are measuring, how it is to be measured, and who is to measure it. Define the sampling period; how long are we collecting data. Specifics on exactly what is to be measured, as well as defining limitations or parameters to the collection. For example, if you want to know the differences in your daytime and nighttime response times, first define "response time" then determine the periods of time you want to look at and will you be collecting data from all responses or just a certain type. Finally, agree on an overall measurement period of time; 5-years, 10-years, etc.

3. Begin data collection. Once the data requirements have been identified and we know that the data exists, i.e. is available, now is the time to begin assembling the information. Data from existing records is best collected most efficiently by department personnel. The people who handle the records on a day-to-day basis are acquainted with the data, know where to get it, and can help separate and interpret the information. Using knowledgeable department personnel to perform the time demanding work of data collection can also free those analyzing the data for involvement in other projects simultaneously.
4. Verify and evaluate data. A frequent look at the information collected is essential to ensure we're still measuring the data in the same way that was initially identified. It's important not to lose sight of what you're trying to show; stay on track. Evaluating the information should be done objectively, leaving out the emotional response of subjectivity.

Keep in mind, not all agencies measure and track their performance the same, or they may "data mine" (maintain a statistical data base) diffently than your organization. It will be important to recognize these differences. Even though many progressive departments track their performance and benchmark themselves in a standardized manner, we aren't all the same.

Times have changed, it's not the fireground of your grandfather, is a commonly heard statement referring to the need to stay abreast of current thought and technologies which affect our service.

When we speak to "best practice", we're referring to policy, procedure or practice that is based upon current technologies and philosophies that are available to the fire service. As our above statement refers, those progressive departments with best practices have adopted their operational guidelines based upon both the current environment *and* predicting future trends. A word of caution for the faint of heart leader, the adoption of practices which reflect current and anticipated influences may be often seen as a heretic move, especially when the practice questions long-held beliefs. Often the move to a best practice which reflects current and anticipated factors can be unpopular within the organization.

When looking for best practices, take the time to research what some of the hot topics are in the fire service. For example, recent Underwriter Laboratories (UL) and the National Institute of Standards and Technology (NIST) have provided us with new data suggesting changes in the traditional structure fire growth and

behavior models. This scientific data suggests that we consider changes to the way we approach fireground tactics. For reference, videos can easily be found on YouTube using the search terms "*NIST fire behavior modeling video*" or "*UL fire modeling video."*

In previous installments of the "20-Tough Question" series, we've spoken to the use of National Fire Protection Association (NFPA) standards, as well as those of the Insurance Service Office (ISO) as two organizations that provide guidance for community fire protection. Recommendations from both serve as indicators of what are considered industry standards. These standards or recommended practices have been vetted and provide good information when developing a best practice. Keep in mind, just because the NFPA and ISO suggest industry standards, that doesn't mean that you cannot develop your own practice based upon local conditions. One caveat to ponder, if you develop your standard locally, not adopting national industry standards, you have the potential of your local guidelines being questioned. A question to anticipate is, why didn't you use NFPA ***as your standard? The use of valid data collection methodology will help greatly in defending your local standard. As we've stated, take a careful look at the intent and implications for the national standard before adopting it locally.

The goal of every fire department is to provide the very best service for its community. The adoption of industry best practice(s) based upon researched and validated data is one measure of a professional organization.

Question 19: Fire and EMS are dangerous occupations and generate significant internal and external litigation. How should our fire and EMS system evaluate and mitigate both safety and legal risks associated with providing these services?

This is truly a very complex question. As we've done in previous articles, let's break this question down into its fundamental issues. To start, let's tackle the issue of how your agency should evaluate and mitigate risk in your organization. In other words, how can you reduce the chance of legal action due to action, or lack of action regarding workplace safety? What are the legal ramifications of failure-to-act?

Essentially, this question comes down to managing organizational risk. Risk management is a strong staple of the private industry in their effort to reduce

insurance costs associated with property damage and injury claims, reducing worker's compensation claims and promoting a safe workplace for their employees. However, risk management concerns of the private sector differ little from those of the public sector.

The interchangeable use of the term "risk" is often applied in ways that have different meanings. Our definition of risk is rather simple, risk and its management involves predicting the likehood of a harmful event and putting in place mechanisms, to avoid these detrimental events from occurring. For our brief discussion, we'll leave out the concepts of probability and consequence as to predict loss and significance. Risk management comprises the entire process of identification and evaluation of risks as well as the identification, selection, and implementation of measures that may reduce the impact or occurrence of a harmful event. A common term applied to managing risk in the workplace in the private sector is loss control.

Many in the fire service generally associate risk management within the context of the fireground or field operations. For the most part, the fire service has done an admirable job in reducing risk to its first responders in these settings. Though managing risk on the fireground is important, it truly accounts for only one view of managing risk for the entire organization. Risk management is global; it's comprehensive, touching upon the many facets of organization management. Risk management from the global perspective addresses employment status, respectful and drug free workplace, discriminatory behavior, workers compensation, compliance with mandated laws, etc.

The responsibility of the fire chief to safeguard the assets of the organization are equally applicable to an emergency response agency as to the private sector company. The concept of managing community risk through preplanning, response, mitigation and recovery can be applied to areas of concern identified above.

Risk management incorporates a full range of measures that may be used to limit, reduce or eliminate the probability that an undesirable outcome will occur. And as we've stated, managing organizational risk is not unique to fire departments and is considered by most to be a dynamic and continual effort to reduce or eliminate undesirable events. Any system for managing risk must provide for three fundamental steps that include the identification of risk, evaluation of the "consequence" or potential magnitude of the undesirable event and control measures; how to reduce or eliminate the loss.

Many loss control experts use as a starting point the following categories of technology, process and people when attempting to control a potential loss or liability. Before we delve into this concept, let's briefly look at the term loss and loss control.

Loss control is one component of risk management. The goal of loss control is as stated; to limit or eliminate the consequences associated with a loss. Losses can be subdivided into these general areas.

- Property loss involves those physical assets of the agency such as vehicles, equipment, facilities, etc.
- Personnel loss is injury, illness or death to a member of the organization.
- Lost time loss entails business down time.
- Liability losses are acts or omissions which result in legal action, civil or criminal, such as a lawsuit against the organization.

In one way or another, any of these losses can devastate the organization in terms of cost, productivity, morale and stature.

Following the identification of a particular risk and evaluating the probability and consequence of its occurrence, the use of technology, process, and people as control measures helps risk managers identify strategies to reduce the likelihood of occurrence. These are also sometimes referred to as engineering, administrative and personnel controls. Let's look at each and then apply them to a known risk such as vehicle accidents.

Technology (engineering) controls refer to mechanisms that are used to control the hazard, often using technology as its base. For example, we use passive and active restraint technology as controls in reducing the risk of injury from vehicle accidents. The vehicle design incorporates the restraint design into the vehicle. Through testing and experience we have determined this is an effective or correct control measure and that if utilized, will reduce injury and death to occupants during vehicle crashes.

Process (administrative) controls involve the management of the risk through written and practiced guidelines. Frequent audits to ensure compliance and workability are important to address shortcomings in individual application of work rules. Personal protective equipment is also considered a process control in that through work rules we require the use of seat belts to be worn in moving vehicles.

Technology	Process	People
Adequate/Design	Monitoring/Audit	Training
Correct Application	Guidelines/SOP	Assignment
Utilization	PPE	Awareness

People (personnel) controls are dependent upon initial and on-going education and training of those performing the task. Practical experience tells us that of the three control areas (technology, process, and people), modifying behaviors through education and training is often the most complex and challenging. Correctly choosing people for the assignment is vital since all of us don't share or are proficient with the same skill set(s). Increasing awareness through personnel meetings, stating expectations and offering education is a proven strategy for successful risk reduction. In our safe driving example, assessing skills related to driving larger apparatus as well as having a defined, comprehensive and documented driver education and qualification program is a good first step in reducing future litigation and liability. These actions coupled with safe driving guidelines, continuing driver education and annual driver re-qualification requirements enhance your risk management program.

Two other risk control areas include the elimination of the problematic area that may increase the risk potential and by substitution. Substitution requires that we find a comparable replacement for the identified risk area. In our example, perhaps we eliminate certain individuals from driving large apparatus due to poor eyesight or other validated medical condition or eliminate certain driving practices. Substitution may involve finding an alternative to sending a large apparatus to certain events types where a smaller utility type vehicle would suffice (and reduce risk).

National consensus standard setting organizations such as the National Fire Protection Association (NFPA) offer guidelines on adopting a risk management plan for fire agencies. Standards such as NFPA 1250 *Recommended Practice in Fire & Emergency Service Organization Risk Management (2010)* or NFPA 1500, *Standard on Fire Department Occupational Safety & Health* program offer insight into developing and managing an effective risk management program.

Managing community risk is our mission. The mission of the fire department is also to manage the internal or organizational risks associated with accomplishing our primary calling. When we efficiently mange our internal exposures, we become more effective to those we serve.

Question 20: Emergency services represent a large percentage of our community's budget. How do we show the taxpayers we are getting the best value for the dollars we spend?

This, our final question, should have been our first question as it succinctly wraps-up the essence of this series: How should we, as fire service leaders, demonstrate the value of our services? What we've addressed throughout this series is times have changed and many fire departments do not have the funding or support that we once had. We are now required to justify our programs, services and budget expenditures more than perhaps we've been used to.

In our view, as the economy recovers, things are not likely to return to "normal" and a different leadership mindset is required. The progressive thinking fire service leader who has developed strong relationships and used metrics to drive decisions have found less surprise and experienced less heartburn over the new challenges we face. Managers who did not cultivate strong relationships and led by the seats of their pants are likely to face a challenging future. For the underprepared leader, this change is not just another bump-in-the-road. Rather, it is going to be a long-term struggle.

Throughout this series, we have emphasized the importance of metrics in providing quality data to justify our agenda and to frame the challenges or successes that we have experienced while serving our communities. Because we have made the justification for metrics throughout this series we won't on their use or value here. Here, we will address key areas that progressive leaders can focus on to demonstrate community value. Let's at the term "value" through two different lenses, neither of which are directly tied to fiscal needs. First, let's look at value from the perspective of those we serve – our citizens and our communities.

The importance of building relationships through community engagement cannot be overstated. "It takes a village to raise a child" is a popular proverb with a clear message: the whole community has an essential role to play in the growth and development of its young people. In our world, the same could be said, that without strong community support, the growth and backing of our fire departments will suffer. When leaders don't understand this, community involvement may be regarded as a minor nuisance and is ineffectively addressed or there may be a lack of knowledge as to how to engage the community. Either way, the result can be disastrous, and the progression of the fire department can

suffer. Sharing your vision with the public means being able to effectively convey and share your plan in order to garner public support. An informed and engaged community can greatly enhance your department's future success. Having an enlightened, involved and loyal citizenry often will turn the tide of if policy makers are indecisive.

Getting out and engaging the community can be accomplished in many ways. We have observed departments engage their communities through many diverse forums. A few examples follow. Keep in mind this is not an exhaustive list.

Annual open house events, which showcase the department, are very popular. Many departments hold open house events during October in celebration of fire prevention month. Some departments hold open house events throughout the year to focus on seasonal safety messages or highlight new activities. Neighborhood fire stations can take advantage of gaining citizen support through the same concept on a smaller scale. Some also take advantage of highlighting their agency during less formal settings such as hosting quarterly breakfast or coffee with the firefighter events. These events are win/win ventures; the community gets to see where their tax monies are spent, and the members get to interact with customers in a non-emergency setting.

Involvement in community groups is also an excellent way to get your story told and increase visibility for your organization. It can be valuable to join forces with other public safety providers in your community – police and EMS. Service organizations (e.g., Kiwanis, Rotary, etc.) can offer a valuable access to key community leaders as well. The audience you connect with through service organizations may offer you a different perspective on governance, management and long-range planning because many of their members are the most successful business leaders in your community.

Building community support can be even more effective when you invest the time to build relationship with people one-on-one. This is much more effective than the reliance on technology forums to express your message. If you want the community to become involved in your group or organization, make the effort to reach out to them. Building relationships pays dividends in gaining allies and generating support for your department. A little bit of camaraderie goes a long way.

Our second view on worth is through the lens of local government "transparency." Recently, the concept of transparency or open government has

become not only the mantra of our stakeholders, but also a mainstream practice in many communities. Transparency and open government refer to the business practice of making available and providing information about government services to those in our community. Government leaders are taking note of the request to deliver information in a way that demonstrates accountability in local government, providing the citizen with a window to how and why public policy decisions are made, explains our operations and provides reassurance that tax monies are spent wisely. Accountability builds trust and confidence in government.

Open government and its data and processes means the information is free to access, use and reuse and is available via different forums. Today, most of us are connected through various technologies. Many of these technologies allow for real-time data posting, ease of access, timely results, ease of use, simplified data search and facilitates data and information revisions.

The posting of government spending and budget allocations, for example, allow citizens to fully understand the issues and conclusions. Many fire departments have adopted the open government concept and have shown that government can achieve transparency, as well as, facilitate participation and collaboration by reducing barriers to information transfer from government to citizen; successfully.

As an example, let's say your department would like to add a fourth fire station (you currently have three). Using technology, we develop through dynamic GIS mapping visual displays of information and data which drive our desire for adding an additional fire station. Visually depiction of data will often provide the needed context for citizens, so they gain perspective and understanding. Mapping can show workload comparison, response and travel time data, current fire stations comparisons, staffing patterns, and how the station would impact where people work, live and play. Data can be displayed in real-time, anticipated conditions and from an historical point of view. Visual depiction of community development in the proposed station area could be overlaid with call dispersion data, again from current, future and historical perspectives. The accessibility of mapping in this case also allows for the citizens to share comments, concerns and ask questions.

Bringing our metrics, ideas and issues forward to reveal our decision-making process helps deliver the needed transparency that is expected by our customers. The key idea to grasp is the importance of maintaining quality date collection and making it readily available to those who pay the bills.

The citizen rapport and trust created by a transparent government can provide leverage for those initiatives that may be contentious issues. Citizen support and confidence in the fire department is enhanced when the customer is involved and informed in our processes.

When our economy recovers, things won't return to the "normal" of years gone-by. The mission of leading the fire department through these turbulent times will require a different set of leadership focus and adaptive skills to create sustainable organizations. We've enjoyed sharing our experiences in this series examining the 20-tough questions and preparing you for leading through our "new" normal environment.

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