Municipal Technical Advisory Service
INSTITUTE for PUBLIC SERVICE

Published on *MTAS* (https://www.mtas.tennessee.edu) August 05, 2020

Fire

Dear Reader:

The following document was created from the MTAS website (mtas.tennessee.edu). This website is maintained daily by MTAS staff and seeks to represent the most current information regarding issues relative to Tennessee municipal government.

We hope this information will be useful to you; reference to it will assist you with many of the questions that will arise in your tenure with municipal government. However, the *Tennessee Code Annotated* and other relevant laws or regulations should always be consulted before any action is taken based upon the contents of this document.

Please feel free to contact us if you have questions or comments regarding this information or any other MTAS website material.

Sincerely,

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Reference Number: MTAS-234

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Ambulance Service

Reference Number: MTAS-244

Based on Tennessee Code Annotated (T.C.A.) §§ 7-61-101–104, a city or county may provide ambulance service as a governmental activity or may regulate this service through license, franchise, or contract for services to be provided by private operators or nonprofit general welfare corporations such service provided by private operators or non-profit, general-welfare corporations. No county may provide, license, franchise, or contract for ambulance service within a city or in another county without approval from the city's governing body, and the same restriction applies to cities. Counties and/or cities may establish interlocal agreements in order to provide ambulance services for another entity.

State regulation of emergency medical service agencies and licensing of emergency medical personnel is provided in the Emergency Medical Services Act of 1983 and rules promugated by emergency medical services board. There are five levels of emergency medical care provider certification in Tennessee: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), Paramedic, and Critical Care Paramedic.

The complete Rules of the Tennessee Department of Health, Bureau of Health Licensure and Regulation, Division of Emergency Medical Services concerning the provision of emergency medical services by ambulance and first responder agencies may be found at https://www.tn.gov/health/health-program-areas/health-professional-boards/ems-board/ems-board/ambulance-service.html [1].

Annual Reports

Reference Number: MTAS-1143

How an Annual Report Will Benefit Your Fire Department

As the Fire Chief or member of your fire department, you know what you do day in and day out, but who else knows that?

A fire department is a valuable community asset providing emergency and non-emergency essential services to residents, businesses and visitors. Regardless of the size of the community, many people will never need the emergency services the fire department provides. This is especially true in a large city, where the percent of people using the emergency services is very small. As an example, consider a city with a population of about 40,000 people where the fire department provides fire, emergency medical, rescue and technical rescue emergency services. The fire department made about 6,000 calls in 2017. Some of those calls were to non-residents, and some were to the same resident on multiple occasions, but for this example, assume that all calls were to residential homes, with one person at each home and all responses were unique (never responded to the same home more than once). In this scenario, the fire department touched 15.0 percent of the population. Those 15.0 percent are aware somewhat of what you do, but what does the other 85.0 percent of the population know, and how do you tell them what you do? You tell them with your annual report.

Technically, an annual report is a comprehensive report on the fire department's activities from the preceding year. The annual report provides information to elected officials, residents, businesses and other interested people about the fire department's activities and accomplishments. The annual report is a way to market your department and to share the department's capabilities without being boastful.

Annual Report Components

Reference Number:

MTAS-1144

A fire department annual report can be as simple or as detailed as the department's leadership desires. Small departments may decide to include a list of responses and significant accomplishments, while larger departments may include many more details about the fire department and its performance from the previous year. Remember, this is a major way you communicate with your external customers. Items that may be part of a fire department annual report include:

- Cover/Title Page
- Introductory letter from the fire chief
- Department Mission statement
- Department Values statement
- Department Vision statement
- Goals and objectives
- Performance measures
- Organizational chart
- Community demographics
- ISO Rating and what the rating means to the community
- Budget
    - Current fiscal year breakdown
    - Previous fiscal year actual
    - Grants applied for and grants received
    - Cost-per-call or other cost-per-unit measure
    - Revenue sources and percent of revenue from each source
- List of accomplishments
- Incident responses from the preceding year
    - Summary of all responses
    - Fires by type, fires by fixed property use, etc.
    - Incidents by time of day, day of week, district, etc.
    - Dollar loss by type of fire, day of week, property type, etc.
    - Value of all property at risk and amount of property saved
    - False alarm analysis
    - Historical trends
    - Rolling five-year analysis of all types of responses
    - Number of personnel responding by type of fire, hours worked, etc.
    - Response time by quarter and overall annual– average and by percentile
    - Response time breakdown by component (ring time, call processing time, turnout time, travel time) by quarter and overall annual
    - List of high dollar saved incidents with a synopsis of the incident.
    - List of high dollar loss incidents with a synopsis of the incident
    - Other data reports as determined by local needs

- Community Risk Reduction activities
    - List of public education programs and number citizens touched.
    - Code enforcement activities
    - Pre-fire planning activities, number of pre-plans, hours invested
    - Fire inspections by inspectors and company personnel
    - Number of fire code violations found and corrected
    - Average number of days to achieve code compliance
    - Fire department attendance at public events
    - Fire department fire protection and EMS standbys at special events
    - Citizen's fire academy program activities
    - CPR, CERT and other community preparedness programs the department is part of
- Fire investigation activities
    - Number of incendiary and suspicious fires
    - Number of arson cases prosecuted
    - Fires by cause
    - Fires by location of origin
    - Number of fires where the cause was determined
- Training activities
    - Total number of training hours for the department and the average for each firefighter
    - Number of training drills
    - Subjects covered and hours of training by subject
    - New recruit training programs
    - Certifications achieved
    - Technical courses completed
- Personnel roster (do not include personal contact information)
    - Rank
    - Position
    - Level of firefighter certification
    - Level of EMS certification
    - Years of service
    - Awards and recognitions
    - Promotions
    - Retirements
- Apparatus roster
    - List by type and age
    - List new acquisitions
    - List annual cost for fuel, maintenance, and repairs
    - Cost per mile or hour to operate

- Facilities (fire stations) roster
    - Address of each station
    - Description of primary response (first-due) area - a map is best
    - List of apparatus assigned to each station
    - List of maintenance and repairs
    - Annual cost to operate the station(s)
- History of the fire department

Use tables, charts and graphs to present numbers and data so it is easy to understand. Compare statistics with different years, for example the number of structure fires, to show trends, especially if the trend shows improvement and is the result of Community Risk Reduction efforts by the fire department.

The department should organize the report in a format that best presents and promotes the department's contributions to the community. One example of a format is to organize the report by major headings.

- **Fire Suppression** – response to all types of fires
- **Emergency Medical Services** – responses providing basic and advanced life support to the ill and injured
- **Special Operations and Rescue Techniques (SORT)** – unique and extraordinary rescue operations, such as confined space rescue, swift water rescue and high angle rescue
- **Hazardous Materials Response (Hazmat)** – control and mitigation of spills of dangerous and hazardous materials, including home or business pesticide spills and spills arising from transportation accidents
- **Community Risk Reduction** – tours, talks, press releases and other activities to promote public awareness of fire safety, including visits to schools, Fire Prevention Week activities, smoke detector programs and fire department displays and promotions at public events
- **Fire Inspections** – commercial fire code compliance inspections, pre-fire planning inspections and activities, sprinkler system installation inspections, plan reviews, fire hydrant flow tests and residential inspections
- **Fire Investigations** – cause and origin investigations of every fire, participation in a county or combined jurisdiction arson task force
- **Other Services** – fire hydrant maintenance, assistance to other city departments, community services (blood pressure checks, health fairs, CPR training, CERT classes, etc.), mutual aid and automatic aid to other fire departments; work with community groups, service on local committees and civic organizations
- **Fire Department Infrastructure** – maintenance and repairs on tools and equipment, technical services such as annual fit testing, refilling of compressed air cylinders and maintain the fire department's inventory

Use pictures throughout the report to highlight fire department personnel at work on fire or emergency scenes and involved in community activities. Be careful when using photos of incident scenes, especially EMS calls, to protect the privacy of patients and victims. Screen the photos carefully as the department should not use photos that show improper fire ground procedures, techniques, or safety violations.

Getting Started

Reference Number: MTAS-1145

You have decided to create your first annual report, so how do you begin. First, review the data that you have available and then decide what you want to include in the annual report. Some departments may use database programs such as Firehouse, Emergency Reporting, or New World, and those programs can produce graphs and charts for inclusion in the report. Smaller departments may not have such a computer database program, but if they report to TFIRS, they can use a free web resource called the

Summary Output Reports Tool (SORT) to produce graphs for inclusion in the report (see the resources section for more information). http://www.nfirs.fema.gov/ [2]

Next, decide on the layout. MTAS has examples of several Tennessee fire department annual reports on Knowledgebase (see the resources section for more information), or search the internet for fire department annual report to find examples. The report's design should include ample use of white space (i.e., do not crowd a page with too much information) and be organized in a logical manner. Include a cover/title page with the fire department logo or a photo showing the fire department in action. For larger reports, include page numbers and a table of contents. Have several people in the department proof the report, and then send the report to someone outside of the fire department. Ask that person to review the report from an outsider's perspective and make changes accordingly. As a final review, have someone with a good command of grammar and punctuation review the report for spelling, punctuation and grammatical errors.

Produce enough hard copies of the report to distribute within the fire department and to elected officials and community leaders. Place a copy in the local library. For the widest distribution, produce an Adobe pdf format copy, and place that on your fire department or city website for download.

Report Summary and Resources

Reference Number: MTAS-1146

A fire department's annual report is an excellent tool for a fire department to use to tell its story to the community and to build community support for its efforts and needs. The report should inform and educate the community about the role the fire department plays in community safety. Department members will take pride in the annual report, knowing that they contributed to the accomplishments of the department and that they helped make a difference in the community.

Resources

Departments reporting to TFIRS can use the free web-based tools available from the United States Fire Administration. Go to http://nfirs.fema.gov/ [3] and click on the link titled "Web-based tools", then click the link titled "Summary Output Reports Tool" to access your department's data. Registration is required to access the data. For information on this resource, and to get a registration and login, contact TFIRS coordinator, at (615) 532-5753, Monday through Friday, 7:00 a.m. – 3:30 p.m. CST..

Compensation and Employee Status of Volunteer Firefighters

Reference Number: MTAS-1421

Compensation for volunteer firefighters is a complex issue. The Fair Labor Standards Act (FLSA) addresses the issue of compensation for volunteers. Different federal agencies and the courts have issued rules and opinions on whether a volunteer firefighter is a volunteer or an employee, and on whether any compensation or remuneration the volunteer firefighter receives for services provided is subject to withholding for income tax, social security or Medicare. Municipalities also face the question of whether their policies and procedures apply to volunteer firefighters. This publication will answer several questions:

- What is the definition of a volunteer?
- What types of compensation may a municipality provide to a volunteer without jeopardizing the person's volunteer status?
- What constitutes a "nominal fee" under FLSA?
- Is volunteer compensation subject to IRS withholding rules and regulations?
- What options are available to a municipality for compensating volunteer firefighters?
- How should the municipality report volunteer compensation to the IRS, on a W-2 or a 1099?
- Are volunteer firefighters subject to the rules and regulations of a municipality?

Definition of Volunteers

Reference Number: MTAS-1422

Section 3(e)(4)(A) of FLSA and 29 CFR §§ 553.101 and 553.103 state that individuals are volunteers and not employees of a public agency when they meet the following criteria:

- Perform hours of service for civic, charitable or humanitarian reasons without promise, expectation, or receipt of compensation for the services rendered. Volunteers can receive no compensation or be paid expenses, reasonable benefits or a nominal fee to perform such services (§ 553.101(a));
- Offer their services freely and without any pressure or coercion, direct or implied, from the employer (§ 553.101(c));
- Are not employed by the same public agency to perform the same services as those for which they propose to volunteer (§ 553.101(d)). For example, a park's department worker can serve as a volunteer firefighter for the same agency (§ 553.103(c)).

Compensation for Services Provided

Reference Number: MTAS-1423

29 CFR § 553.106(a), Payment of Expenses, Benefits, or Fees, states that, "Volunteers may be paid expenses, reasonable benefits, a nominal fee, or any combination thereof, for their service without losing their status as volunteers." It is important to remember that anything resembling an hourly rate or minimum wage jeopardizes the person's status as a volunteer. Examples of the types of compensation permitted include:

- Payment of the volunteer's tuition to a firefighting course.
- Reimbursement for expenses incidental to fire protection training.
- Reimbursement for "approximate out-of-pocket expenses incurred incidental to answering a call."
- Reimbursement for the cost of replacing clothing or equipment consumed or damaged in responding to a call.
- An annual party given to recognize the volunteer firefighters.

- A uniform and related equipment may be furnished free of charge.
- The volunteer may be included in a retirement or relief fund, worker's compensation plan, or life or health insurance program.
- A “nominal sum.”

There are two different issues concerning compensation: the application of FLSA, and Internal Revenue Service (IRS) rules and regulations. FLSA says that volunteers can receive a “nominal fee,” but the law itself does not define what a nominal fee is. However, § 553.106(e) states that a fee is not nominal if it is:

- a substitute for compensation; or
- tied to productivity.

A municipality must establish a nominal fee that reflects the sacrifice of the volunteer. Again, anything resembling an hourly rate or minimum wage is not a nominal fee and jeopardizes the person’s status as a volunteer. The following quote is from 29 CFR § 553.106(e):

Individuals do not lose their volunteer status if they receive a nominal fee from a public agency. A nominal fee is not a substitute for compensation and must not be tied to productivity. However, this does not preclude the payment of a nominal amount on a “per call” or similar basis to volunteer firefighters. The following factors will be among those examined in determining whether a given amount is nominal: The distance traveled and the time and effort expended by the volunteer; whether the volunteer has agreed to be available around-the-clock or only during certain specified time periods; and whether the volunteer provides services as needed or throughout the year. An individual who volunteers to provide periodic services on a year-round basis may receive a nominal monthly or annual stipend or fee without losing volunteer status.

Section 553.106(e) is notable regarding providing a nominal per shift fee for volunteers who work a shift. On August 7, 2006, the Department of Labor (DOL) sent Wage and Hour Opinion Letter FLSA2006-28 to the International Association of Fire Chiefs (IAFC), stating that “nothing in the statutory language would directly preclude the payment of nominal per call or even per shift fees to volunteer firefighters as section 553.106(e) specifically provides that a nominal fee can be paid on a “per call” or similar basis for volunteer firefighters.”

As described below, the DOL has set a limit on nominal compensation, but the municipality determines what is reasonable and fair given local circumstances. 29 CFR § 553.106(f) states that the decision of whether the expenses, benefits, or fees would preclude an individual from qualifying as a volunteer under FLSA must be made by examining the total amount of payments in the context of the economic realities of a particular situation. The DOL stated, “Whether a specific amount is ‘nominal’ depends on the economic realities of the situation and that no guidelines on specific amounts applicable to all (or even most) possible situations can be provided.” The responsibility for setting an appropriate nominal fee rests with the municipality, and the DOL may consider a nominal fee unreasonable if the fee seems out of proportion to the volunteer’s service, even if the fee is less than what is described in Wage and Hour Opinion Letter FLSA2006-28.

The DOL clarified further the issue of a nominal fee in Wage and Hour Opinion Letter FLSA2006-28. The DOL considers any fee paid to a volunteer firefighter as nominal as long as the fee does not exceed 20 percent of what that public agency would otherwise pay to hire a full-time firefighter. The compensation may include being paid per call, insurance benefits, retirement benefits, etc. If the compensation is nominal, the volunteer firefighter is not subject to the wage and hour provisions of FLSA. FLSA provides no exemption for the volunteer firefighter being subject to withholding of taxes.

The IRS views compensation for volunteers from a different perspective. The ability of the employer to exercise direction and control, not the label (volunteer, reserve, etc.), determines whether an employer-employee relationship exists. Any worker receiving any compensation (no matter how small) for services performed who is subject to the will and direction of the employer is a common-law employee. A common-law employee is defined as an employee who performs services for an employer and the employer has the right to control what will be done and how it will be done, even if the employee has freedom of action. Under Section 3121 of the Internal Revenue Code, all employees are subject to social security and Medicare taxes unless there is a specific exception. Because volunteer firefighters serving a municipal fire department are subject to the will and direction of the employer (the municipality), they are considered common-law employees under IRS regulations and subject to withholding for income, social security, and Medicare taxes.

Under Internal Revenue Code section 3121(b)(7)(F)(iii), an exception is provided from social security and Medicare coverage for a worker “serving on a temporary basis in case of fire, storm, snow, earthquake, flood, or other similar emergency”. This exception applies only to workers who respond to unforeseen emergencies. For example, a municipality could employ temporary personnel to help recover from an ice storm or flood. The exception does not apply to workers, such as firefighters, who work for pay or volunteer on a recurring basis even if their work involves emergencies.

Taxable Earnings

Reference Number: MTAS-1424

Reimbursements to any worker, including firefighters, made under an accountable plan are not subject to tax and withholding. An accountable plan must require workers to substantiate business expenses, allow no reimbursement for unsubstantiated expenses, and require the employee to return any amounts reimbursed over documented expenses to the employer within a reasonable period. Any amounts reimbursed to employees that do not meet these conditions are considered wages subject to all the taxes discussed above. It does not matter whether the amount is labeled per call, per diem, or any other description: it is still taxable.

Options for Compensation

Reference Number: MTAS-1425

A municipality using volunteer firefighters has two options when it comes to compensation for volunteer firefighters.

Option 1:

The municipality should process any compensation (no matter how small) a volunteer firefighter receives through the municipality’s regular payroll system and issue the volunteer firefighter a W-2 at the end of the year. Compensation is defined as any money paid to the volunteer firefighter in the form of a per call stipend, per drill stipend, per diem allowance, monthly allowance for administrative services, etc. A person is an independent contractor if the payer (municipality) has the right to control or direct the result of the work only and not what is done and how it is done. Volunteer firefighters do not meet the definition of contractor, so reporting compensation on a 1099 form is not appropriate. It is important that the municipality classify volunteer firefighters properly. If the municipality improperly classifies a volunteer firefighter as an independent contractor, the municipality may be liable for employment taxes for that volunteer firefighter.

If the compensation is less than 20 percent of what a paid firefighter for the local area would make on an annual basis, the firefighter is considered a volunteer under FLSA. If the municipality pays the firefighter any type of hourly rate, or ties the compensation to the length of time worked or productivity, FLSA considers the person an employee and not volunteer. A part-time firefighter or full-time firefighter also cannot be a volunteer for the same agency, but can volunteer as a firefighter for a different agency.

Option 2:

Have true volunteers who serve without any compensation and establish an accountable plan whereby the volunteers are reimbursed for actual expenses allowed under IRS regulations. The plan must be in writing and include the requirement that the volunteers substantiate business expenses, allow no reimbursement for unsubstantiated expenses, and require that they return any amounts reimbursed over documented expense to the employer within a reasonable period. Under this plan, the volunteer firefighter is receiving reimbursement for expenses and is not receiving compensation for services, so the employer is not required to complete a W-2.

Application of Policies and Procedures

Reference Number: MTAS-1426

Whether or not a volunteer is considered an employee of the municipality depends on the situation and the applicable law. Volunteers are employees for some purposes, and only volunteers with no employment rights for other purposes.

Volunteers are not considered employees for purposes of the Little Hatch Act, or T.C.A. § 7-51-1501.

Volunteers are employees for purposes of the workers' compensation law and Government Tort Liability Act.

The Department of Labor considers volunteers to be volunteers only and not employees, so there is no hourly rate required or overtime liability for the municipality as long as the municipality follows DOL requirements for any compensation the municipality may provide.

When it comes to application of personnel policies, volunteers are considered employees as the city has the legal duty to enforce rules and keep the volunteers compliant with city policies. Because a volunteer firefighter working for a municipal fire department is a common-law employee, the municipality's personnel policies, rules, and regulations apply to the volunteer. The reason for this is that actions of volunteer employees can cause liability for the city, just as actions of regular employees can bring liability.

A municipality receiving fire services from an independently owned and operated volunteer fire department should have a written agreement with the fire department that includes how the volunteer firefighters will be supervised and whether they will follow any of the municipality's policies and procedures. If the volunteer firefighters will follow municipality policies and procedures, the written agreement should reference those specific policies, procedures, rules, and regulations.

Summary and References

Reference Number: MTAS-1427

Volunteer firefighters perform valuable emergency and essential services for their communities and are cost effective. The Fair Labor Standards Act includes provisions to recognize the public benefits of volunteers and prevent the manipulation of the law by employers seeking to avoid paying fair wages and overtime for work performed. Important points to remember include:

- Public employees may volunteer with their agency in a capacity that is different from what they are paid to do.
- Both FLSA and IRS rules and regulations apply to volunteers.
- Volunteers may receive a reasonable nominal fee for their service, and the municipality is responsible for determining the amount of the nominal fee.
- If volunteer firefighters receive compensation, the municipality must report the compensation using a W-2, not a 1099.
- Optionally, volunteers may serve under a valid accountable plan, which is not considered compensation by the IRS.
- The policies, rules, and regulations of the municipality apply to volunteers working for a municipally operated fire department.

It is important for a municipality to classify, supervise, and compensate volunteers appropriately. Failure to do so causes internal administrative and financial problems, discord with the volunteers, may result in fines or penalties, and may result in liability for back employment taxes.

References and Additional Information:

29 CFR Part 553, Fair Labor Standards Act Regulations, Application of the Fair Labor Standards Act to Employees of State and Local Government. Available at: https://www.gpo.gov/fdsys/pkg/CFR-2013-title29-vol3/pdf/CFR-2013-title29... [4]

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Stokes, Richard. The Fair Labor Standards Act: Revised and Updated. MTAS (2009).

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Estimating the Travel Time of Fire Apparatus

Reference Number: MTAS-1936

Travel time is one of the components of total response time for an incident. On most emergency incidents, fire apparatus respond from fixed locations (fire stations) rather than from somewhere within the response district, so the ability to predict travel time has value for planning and evaluating fire protection in a community, and for evaluating the ability to deliver needed fire flows using tankers in areas without sufficient fire hydrants.

ISO Evaluation of Travel Time

The ISO Fire Suppression Rating Schedule (FSRS) has always evaluated the distribution of fire resources through the community based on a fixed travel distance of 1.5 miles for an engine company and 2.5 miles for a ladder/service company. In the recently revised ISO FSRS, under Section 510A and 540, as an alternative to the fixed distance used in Section 560, ISO will credit the results of a systematic performance evaluation of travel time using "computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, each fire department meets the time constraints for initial arriving engine in accordance with the general criteria of in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments*."

The RAND Institute Travel Time Equation

Over forty years ago, the RAND Institute conducted research on the travel time of various types of fire apparatus. One of the results of this research was the determination that the average speed of a fire engine on an emergency response was 35 miles-per-hour (MPH) over average terrain, with average traffic and weather condition, and slowing for intersections. Another result was the equation commonly referred to as the Rand travel time equation. The equation that is used by ISO and many others is:

T = 0.65 + 1.7D

A more accurate way to write the equation is:

T = 0.65 + KD

The components of the travel time equation are:

T	travel time in the nearest 1/10 of a minute
0.65	an acceleration constant over the first 2,000 feet of travel
K	defined constant based on the average speed of a given apparatus over a 5 mile course
D	travel distance to nearest 1/10 of a mile

The values for K are shown in the following table. As mentioned above, the RAND studies determined that the average speed for a fire engine was 35 mph, so most people, and ISO, use the K value of 1.7 as a constant.

K Values	
Rate of Speed (mph)	**K value**
60	1.0
55	1.1

50	1.2
45	1.3
40	1.5
35	1.7
30	2.0
25	2.4
20	3.0

NFPA 1710 Travel Time and ISO

NFPA 1710 § 4.1.2.1(3) establishes a travel time of 240 seconds or less for the arrival of the first arriving engine company at a fire suppression incident. Using the equation T = 0.65 + 1.7D, where D equals 1.5 miles, ISO determined that the travel time for the first arriving engine is 192 seconds (3.2 minutes). As mentioned above, in Sections 510A and 540 of the FSRS, ISO will consider an alternative to the 1.5 miles travel distance with demonstrated proof that the first company can arrive on the scene within 240 seconds or less travel time on 90% of responses. Using the RAND equation, 240 seconds is equal to about 1.97 miles, a potential 26% improvement in the size of the response district. The key to using the alternative evaluation method for deployment analysis is having accurate data.

Practical Uses of the Equation

However, not all fire apparatus is equal is size, weight, acceleration, response speed, and maneuverability. For example, a tanker may be slower than an engine, and a large ladder truck may be slower than an engine. The RAND studies used the Fire Department of New York as the model for the study, so response territory that is markedly different from an urban city can affect travel time. Still, the K value of 1.7 has proven very reliable over time, but a fire official can use a different K value for his or her community if needed.

To determine the appropriate K value for a community or a specific piece of apparatus, conduct a field study where the apparatus travels a distance of five (5) miles at normal (i.e. non-emergency) driving speeds. Measure how long it takes the apparatus to travel that distance, determine the average speed in miles-per-hour, and refer to the table above and select the appropriate K value.

Fire officials can use the equation when making decision about where to locate, or relocate, a fire station, and to verify response time data from computer aided dispatch (CAD) systems. ISO does not measure or use actual response times of individual communities as most departments lack reliable data, so the fire official can use the equation to verify the accuracy of local data.

Summary

Travel time is an important component of total response time. Travel time can be calculated using a valid equation, and the equation customized for specific apparatus or terrain, and the results used as a planning tool by community leaders. ISO uses the RAND travel time equation when estimating the travel time of fire apparatus. A fire official can use the equation to determine the potential size of the response area for a fire station based upon the ability of the first arriving unit to arrive in 240 seconds or less on 90% of responses. Using the equation is safer and less costly that having fire apparatus respond throughout the community with lights and siren.

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Hickey, H. E. (2002). Fire Suppression Rating Handbook. Louisville, KY: Chicago Spectrum Press.

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Fire Department Accreditation

Reference Number: MTAS-294

Fire department leaders across the nation are recognizing the importance of leading their departments through Fire Department Accreditation. Across the United States, there are 259 (Year 2018) accredited fire departments; this represents an increase of 42 departments since August 2015. There are a total of five Tennessee fire departments included in this prestigious number: Alcoa, Brentwood, Bristol, Kingsport, and Maryville. This is also an increase of one department since August 2015.

Accreditation is a way to measure the effectiveness and efficiency of a fire department by determining community risks and fire safety needs, accurately evaluating the organization's performance against a consensus standard of excellence, and providing a method for continuous improvement. Measuring professionalism and service delivery of fire and emergency services is a new concept for most cities.

Every day, fire chiefs, city managers and local elected officials make critical decisions about fire protection and emergency medical services for their communities. Now more than ever, there is constant pressure to do more with the same resources and in some cases less resources. Most city managers are hard-pressed to justify increasing expenditures unless they can be attributed directly to improved or expanded service delivery. There are a number of methods and a variety of techniques to measure fire service performance. Everyone agrees that the process should allow citizens, elected and appointed officials, and fire service personnel to see the success.

Commission on Fire Accreditation International

Reference Number: MTAS-356

The Commission on Fire Accreditation International (CFAI) provides an assessment tool to determine when a fire department has achieved an appropriate level of professional performance and efficiency. The CFAI has been providing this service since 1988 when it was created by the International Association of Fire Chiefs (IAFC) and the International City/County Managers Association (ICMA). In 1996, the CFAI became a trust organization in cooperation with the IAFC and ICMA, and in 2001, the CFAI incorporated to create a unique standalone organization. The cooperation among all three organizations remains excellent. Members of the IAFC and ICMA serve on the board of directors of the Center for Public Safety Excellence, Inc., the CFAI and the Commission on Professional Credentialing Excellence (CPCE). The CFAI is the result of a decade of hard work by many fire service leaders and local government officials. The success of this program depends upon the support of the two founding organizations as well as a strong board of directors.

The center's board of directors is composed of the following representatives:

- Two IAFC representatives
- Two ICMA representatives
- One IAFF representative
- Four-at-large representatives from fire service and stakeholders

The commission is composed of the following representatives:

- Agency head representing a fire department serving a population of greater than 250,000;
- Agency head representing a fire department serving a population of 100,000 to 249,999;
- Agency head representing a fire department serving a population of 25,000 to 99,999;
- Agency head representing a fire department serving a population of up to 24,999;
- International Fire Service representative;
- Consensus standards representative;
- City manager representative;
- Labor representative;
- Insurance industry representative;

- Federal fire service representative;
- Industry representative.

These board members provide a broad spectrum of representation that allows for continuous improvement and increased professionalism within the CFAI itself. The most recent change for the CFAI came in March 2006 with the unveiling of a new corporate name and logo. The new name, Center for Public Safety Excellence, Inc., was intended to better describe what the organization does in relation to fire department accreditation and fire chief credentialing as well as new programs in virtual reality training. As for the fire department accreditation section of the corporation, the name remained Commission on Fire Accreditation International.

The mission of the CFAI is to “assist the fire and emergency service agencies throughout the world in achieving excellence through self-assessment and accreditation in order to provide continuous quality improvement and the enhancement of service delivery to their communities." [1] The accreditation program provides an in-depth process of self-assessment for fire departments, granting accreditation to organizations that successfully complete the assessment process and an on-site evaluation by their peers.

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[1] Commission on Fire Accreditation International, “An Improvement Model Through Self-Assessment” 2006

For more information on Agency Accreditation, contact:

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Accreditation Benefits

Reference Number: MTAS-357

Benefits of Fire Department Accreditation

So why would a fire department want to conduct an evaluation of its fire service program? According to the CFAI, there are so major reasons to earn accreditation:

- Raise the profile of your agency with your community
- Emphasize your agency’s dedication to excellence to your stakeholders
- Establish an agency-wide culture of continuous improvement
- Assist with communicating your leadership’s philosophies
- Build positive relationships with your labor groups
- Offer independent verification and validation of your agency’s operations
- Provide tangible data and information for your elected officials

These are all proactive reasons with a purpose to improve, but the primary goal of a self-assessment process is to answer three basic questions:

- Is the organization effective?
- Are the goals, objectives, and mission of the organization being achieved?
- What are the reasons for the success of the organization?

CFAI further describes the benefits of an accreditation program as:The promotion of excellence within the fire and emergency services:

- Assure colleagues and the public that they have definite missions and objectives that are appropriate for the jurisdictions they serve
- Provide a detailed evaluation of the services they provide to the community

- Identify areas of strength and weakness within the department
- Create methods or systems for addressing deficiencies while building organizational success
- Encourage professional growth for both the department and its personnel
- Provide a forum for the communication of organizational priorities
- Foster national recognition by colleagues and the public
- Create a mechanism for developing strategic and program action plans
- Fostering pride in the organization from department members, community leaders and citizens

These benefits range from abstract concepts to practical, day-to-day improvements. However, improvement will not occur unless the organization applies the findings from the self-assessment to local planning and implementation activities. The willingness to allow for improvement and accept change is another challenge the department must accept.

Self-assessment focuses on whether the organization is meeting goals that are commensurate with its responsibility. In today's world of government where the focus is on reinventing, re-engineering, rethinking and quality management, a department must continue to ask itself if there is value added by the actions it is taking within the organization. This process assists the fire service by asking questions to determine if the fire department is effective in meeting the needs of its community.

Accreditation Model

Reference Number: MTAS-358

A task force consisting of a group of highly qualified and dedicated professionals developed the accreditation model. These chief fire officers, trainers, city and county administrators, and academic professionals worked together to develop the self-assessment model, the basis for accreditation. The model provides a proven methodology to continually evaluate and improve services. The process helps organizations stay in touch with the communities they serve and meet the needs of their citizens.

Included in the accreditation model are the following 10 categories that fire departments use to evaluate their performance:

1. Governance and Administration
2. Assessment and Planning
3. Goals and Objectives
4. Financial Resources
5. Programs

    - Community Risk Reduction
    - Public Education
    - Fire Investigations
    - Domestic Preparedness
    - Fire Suppression
    - EMS
    - Technical Rescue
    - HazMat
    - Aviation Rescue and Firefighting
    - Marine and Shipboard Rescue and Firefighting
    - Wildland Firefighting

6. Physical Resources
7. Human Resources
8. Training and Competency

9. Essential Resources
10. External Systems Relationship

Within each category are criteria that measure or index a service or practice so that a judgment can be made. Within each criterion are performance indicators that define the desired level of ability to demonstrate a particular task as specified in the accreditation model. A total of 244 performance indicators are evaluated in preparation for the accreditation with 77 of these being core competencies that cannot be failed.

The Accreditation model includes a comprehensive research and information collection guide with checklists, exhibits, benchmarks, references, and activities broken down by category. Several appendices address additional topics including defining the elements of response time, creating standards of response coverage, and developing master or strategic plans.

Accreditation Process

Reference Number: MTAS-359

The accreditation process includes four major levels: Becoming a Registered Agency, Becoming an Applicant Agency, Becoming an Accreditation Candidate, and Becoming an Accredited Department. These levels allow a department to move through the CFAI process and achieve accreditation. The CFAI encourages departments to join the CFAI network as registered agencies even if they do not intend to pursue accreditation in the short term.

The process begins by applying for "Registered Agency" status and paying an application fee of $570.00. Registered agency status is valid for up to three years and includes manuals, information and access to the CFAI accreditation program. During this stage, the fire department must also assign an accreditation manager who is the fire department’s point of contact and who must attend the complete CFAI workshop series for the department to progress to the next step.

Once the accreditation manager and others are trained and oriented to the process, the department may proceed to "Applicant Agency" status. This requires an applicant agency fee that is based on the population served by the department. If the department transitions to applicant agency within one-year of becoming a registered agency, the $570.00 applicant agency fee will be applied to the registered agency fee. This one-time fee, unless there is a lapse in status, fee ranging from $4,900 to $13,600 based on entity's population. Applicant agency status is valid for up to 18 months for career departments and up to 24 months for fire departments that are 90 percent or more volunteer.

The entire self-assessment process can take from one to three years of dedicated work. After a long self-assessment and planning process, the department will enter "Candidate Agency" status, and the commission will send a peer assessment team of three to five assessment team members from outside the state to conduct an on-site assessment. This on-site assessment includes a review of water supply systems, fire safety inspections, firefighter training records, dispatching procedures, financial planning, apparatus maintenance and many other operational topics. There are no fees associated with this part of the process although the requesting fire department is responsible for the travel expenses of the peer assessment team. The budget associated with this travel is approximately $6,000 for the team to travel to your department as well as approximately $1,500 for the team leader to travel to the commission’s accreditation hearing. The department should also budget dollars so that the fire chief, accreditation manager, and other members of the accreditation team can attend the accreditation hearing.

After almost a week of peer review, the peer assessment team will compile a report to CFAI either recommending accreditation or recommending that additional work be conducted before accreditation. If accredited, the fire department will be presented with the certification by the commission at a semi-annual CFAI meeting and will join the elite group of accredited fire departments.

Fire department accreditation is valid for five years. Within 45 days of the anniversary date of accreditation, the department must submit an annual compliance report with its yearly maintenance fee (1/5th the current application fee). On the fifth anniversary of the award of accreditation, the department submits the application for re-accreditation. The department will begins the process beginning at the submit a revised copy of the self-assessment to the CFAI and go through another on-site peer assessment process. The agency is then brought to the commission for reaffirmation of accreditation.

This might seem like a lot of work and a significant financial obligation; although, after completing the accreditation process, securing a comprehensive self-assessment management document, and making improvements within the department, most will agree the time and money are well spent, and the fire department is more efficient and effective in its operations.

Accreditation and ISO Rating

Reference Number: MTAS-360

Inevitably, the question will arise about whether accreditation will help lower the community's ISO rating. Data collected by Dennis Gage of ISO seems to indicate that it will. CFAI provides the following information:

The Insurance Services Office, Inc. (ISO) is the agency that collects data and analyzes the capability of community fire suppression services. This evaluation is based on criteria such as fire alarms (how well the department receives alarms and dispatches its resources), the number of engine companies (their distribution, etc.), and water supply (whether the community has a sufficient water supply, etc.). Essentially, ISO is classifying a community's ability to fight fire.

The CFAI, on the other hand, provides a comprehensive system of fire and emergency service evaluation that can help local governments determine their risks and fire safety needs, evaluate the performance of the organizations involved, and provide a method for continuous improvement.

This presents a correlation between the ISO community assessment and the CAFI self-assessment. In fact, ISO conducted research to determine if the self-assessment helped improve the ISO rating. According to a report released by Dennis Gage of ISO in May 2006, there were 1,114 accredited agencies although ISO has established a classification on only 92 of these agencies. The remaining are military installations or are found in a state where there is an independent rating bureau. Of the 92 accredited agencies with an ISO classification, the following is a breakdown by classification:

Classification	Number in Class	Percent of Total
1	84	31.1%
2	84	31.1%
3	23	11.7%
4	9	3.3%
Not Reported	7	2.7%
Department of Defense	63	24.3%
Total	270	100%

Note that if you want to improve your ISO classification to a class five or better, accreditation is a good opportunity to do so. Conversations with ISO representatives indicate that it is possible that future versions of the ISO Fire Suppression Rating Schedule will provide some level of credit for accreditation.

Accreditation in Tennessee

Reference Number: MTAS-361

As previously stated, the Alcoa, Brentwood, Bristol, Kingsport, and Maryville Fire Departments are currently accredited. In addition to these municipal agencies, Naval Support Activity Mid-South (a DoD fire department) in Millington is an accreditated agency. Clarksville, Germantown, Johnson City, Murfreesboro, and Pigeon Forge are registered agencies. These fire departments have established the path for other fire departments to follow.

In May 2006, the Maryville Fire Department hosted the first CFAI training for fire accreditation class conducted in Tennessee. In the past, anyone from Tennessee who wanted to take the courses had to

travel outside the state. Each of the three courses are one day each and were offered for three consecutive days. Martel Thompson, a retired fire chief from Henderson, Nev., led the Maryville course. Students in the class came from as far away as Alaska, Illinois, Ohio and Georgia.

The first course is a one-day session about the self-assessment process and serves as an introduction to the accreditation program and its benefits. The focus is on determining how good your fire department is, how you measure it for credibility, and how you prove it. This class and process focus on measuring success rather than failure. One example is about how a fire service measured itself by determining the amount of fire loss in a given community. A better measurement in this case would be the amount of property saved rather than the amount lost.

Day two of the series is on the standards of coverage and covers the primary functions of eight strategic planning components: deployment, risk identification, service levels, distribution, concentration, reliability, performance, and overall evaluation. The assessment process requires the fire department to develop a standard of coverage document that analyzes response factors and to set a standard for the local community. This process alone provides a tremendous amount of valuable information to be used in the future growth of the city and fire department.

Day three of the series includes training on becoming a peer assessor. Peer assessors are a key element of accreditation and are the foundation for improvement. Anyone with experience can become a peer assessor after training. Peer assessors are not paid and actually perform an incredible amount of work during the peer assessment process. Peer assessors are not allowed to review fire departments within their own state, but they do assess fire departments of similar size and makeup to their own.

The Maryville classes had 35 attendees with most of them representing Tennessee fire departments. This was a great opportunity, and we hope to see future courses sponsored in Tennessee.

In summary, successful completion of the evaluation process will enhance training, quality of service, and information available to fire and emergency service agencies and personnel.

Self-assessment has many benefits. It allows agencies to accurately evaluate their departments and identify strengths and weaknesses. It provides them with a method to address deficiencies and encourages quality improvement through continuous self-assessment. There are many examples in which agencies were able to justify the need for additional equipment, work force, or services using the self-assessment process. Ultimately, self-assessment ensures that agencies are meeting the needs of their communities.

Many city mangers have already heard about this process through ICMA, and with additional information and courses being held in Tennessee, it is expected that there will be more Tennessee fire departments achieving registered agency status. The cost of the registration and courses may seem expensive, but the return on the investment will be incredible.

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Fire Retention Schedule

Reference Number: MTAS-1924

For retention schedule documents that apply to fire records, review our Records Rention Schedule materials, MTAS-687 [13].

Firefighter Training and Certification

Reference Number: MTAS-242

Commission on Firefighting Personnel Standards and Education

Tennessee Code Annotated (T.C.A.) §§ 4.24.101, *et seq.*, established the Commission on Firefighting Personnel Standards and Education under the Department of Commerce and Insurance. Comprising the commission of nine members, appointed by the governor (the commissioner of education is a non-voting, ex officio member), the commission makes recommendations to the governor and General Assembly on municipal firefighting issues and:

- certifies fire training instructors;
- certifies training and education programs prescribed by the commission;
- recommends and approves curricula for advanced courses and seminars in fire science, fire engineering, and training in institutions of higher learning or other state-supported schools;
- establishes classifications based on training and education for full-time, part-time, and/or volunteer firefighters who pass the certification examinations proctored by the commission;
- certifies individuals who are not currently firefighters but who complete an approved recruit training program; and
- administers the supplemental income bonus (educational incentive pay) provided for in the statute.

Various provisions of the statute elaborate on the commission's powers in the above areas. Participation in the commission's firefighter certification program is voluntary as T.C.A. § 4.24.108 states that nothing contained in this law shall be deemed to limit the powers, rights, duties and responsibilities of municipal or county governments.

Full-time paid firefighters who successfully complete 40 hours of in-service training (appropriate to their rank and the size and location of their fire departments) are eligible for educational incentive pay ($600 for 2018 training year). T.C.A. § 4.24.202(c) requires that firefighters serving in the military receive their incentives if the military service prevented them from attending in-service training.

Vanessa K. Free Act

Under the Vanessa K. Free Act, T.C.A. § 55.8.194, requires training for drivers of emergency vehicles, requires each person who drives an emergency vehicle in an official capacity shall be adequately trained to drive the emergency vehicle. Documentation by the agency providing training shall include:

- (A) Training in the operation of the vehicle in emergency and non-emergency situations
- (B) A review of all applicable laws pertaining to emergency vehicles
- (C) Training to respond to actions of non-emergency vehicles

Each emergency vehicle driver shall take not less than two hours of training annually, and each emergency vehicle driver shall take and pass a comprehensive examination pertaining to subdivisions (A)-(C) every year

This applies to all law enforcement personnel, firefighters, including volunteer firefighters, rescue personnel, including volunteer rescue personnel, and emergency services personnel.

Minimum Firefighter Training

T.C.A. § 4.24.112 established minimum training requirements for firefighters

- Requires that any full-time, part-time, or volunteer firefighter hired or accepted as a firefighter on or after July 1, 2009 complete a 16-hour class for firefighters before responding to a fire
- Requires that every firefighter complete a basic class and live burn class defined by the Tennessee Fire and Codes Enforcement Academy within 3 years of joining a fire department
- Provides exceptions for firefighters who already had 5 years of experience as of July 1, 2009
- Provides numerous exceptions by county

Even if a county is exempt from the training under the law, MTAS recommends that all firefighters take these classes regardless of an exemption as this is the minimum standard for firefighter training for the state.

The Fire Department Recognition Act, T.C.A. § 68.102.301 (passed in 2003), requires newly appointed fire chiefs to complete, within one year of their appointment, a 16-hour course taught through the Tennessee Fire and Codes Enforcement Academy. This law applies only to the chief of the fire

department, but the 16-hour class, called the Fire Chief Orientation class, is open to all fire department personnel if seats are available (newly appointed fire chiefs have priority).

Firefighter Minimum Training Law

Reference Number: MTAS-1420

What is the Firefighter Minimum Training Law?

This law was passed by the 2009 General Assembly and signed by the governor on June 25, 2009. The law took effect on July 1, 2009. T.C.A. Title 4, Chapter 24, Part 1, was amended by adding a new section, Section T.C.A. § 4-24-112. The law did three things: (1) established a 16-hour class that must be taken by anyone who enters the fire service before they can respond to any emergency, and (2) requires that every firefighter complete a basic firefighter class, as defined by the Tennessee Fire and Codes Academy, within three years of joining a fire department, and (3) provides exceptions for firefighters who already had five years of experience as of July 1, 2009.

Who does this law affect?

All full-time, part-time and volunteer firefighters in Tennessee.

Are there any exceptions?

Yes (1) Any firefighter who is certified by a medical doctor as medically or physically unable to complete the training requirements is exempt; however, the fire department may not allow such firefighters to engage in active firefighting operations and (2) any firefighter who is certified by the fire department's chief officer not to operate within an environment determined to be immediately dangerous to life and health (IDLH) is exempt from the "live firefighting" portion of the training referenced in subsection (a)(2).

What are the minimum training standards required by this law?

(1) The firefighter must previously have completed, or must complete after joining the fire department, a minimum of 16 hours of initial training developed by the Tennessee Fire Service and Codes Enforcement Academy in firefighting procedures and techniques, or complete equivalent training approved by the Tennessee Commission on Firefighting Personnel Standards and Education before being allowed to actively fight a fire, and (2) Within 36 months after hire or acceptance date as a firefighter, the firefighter must have completed, or must complete after joining the fire department, the "basic and live firefighting" course offered by the Tennessee Fire Service and Codes Enforcement Academy or an equivalent course. The law requires that the firefighter complete both the 16 hours of initial training and the 64-hour basic and 16-hour live firefighting course: the 64-hour course does not substitute for the 16 hours of initial training. A firefighter must take all three classes to comply with the law.

Possible Legal Implications for Fire Departments in Exempted Counties

Fire departments in counties that are exempt from the training requirements of this law should not rest on their exemption too easily. For an exemption from a general law to be valid, there must be a rational basis for the exemption (*Nolichuckey Sand Co. v. Huddleston*, 896 S.W.2d 782 (Tenn. App. 1994)). In other words, there must be a reason or a common thread linking the exempted counties that justifies treating them differently from all the other counties of the state. No such reason, common thread, or rational basis is evident here. If an exemption is challenged, therefore, there is a good likelihood that it would be ruled invalid. There is a severability clause in the new law saying that if a part of the law is ruled invalid, that part will be removed and the rest of the law will remain in effect. If a county’s exemption is ruled invalid and removed, the training requirements in the law would then apply in that county. Thus, there is a possibility that the law will be interpreted by the courts as applying statewide anyway, even with the attempted exemptions.

Another reason the training standards established in the new law could apply even in the exempt counties is that they might be interpreted in a tort liability suit as setting the standard against which conduct is measured even in those counties. Thus, even if the training requirement does not apply in those counties, the conduct of the firefighters in the county could be measured in a lawsuit using the presumed conduct, based upon expert testimony, of firefighters who had received the training. In many cases the conduct of the untrained firefighter would not measure up. Lack of training also could be used in a federal lawsuit based on deliberate indifference or failure to train when firefighter actions result in injuries to, or death of, a member of the public or other firefighters. Liability under federal law is not limited. Governing bodies and fire departments in the exempt counties should not ignore this law.

Additional Information

This training can be completed at the Tennessee Fire and Codes Enforcement Academy or through any equivalent course elsewhere. The Academy offers the curriculum for both the 16-hour class and the basic class on a DVD that is free from any staff member of the Academy.

The final version of the legislation also authorizes the local government to decide who will be responsible for the cost: the local government or the firefighter.

Several counties exempted themselves out of the legislation:

This section does not apply to the following counties unless the county legislative body adopts a resolution to apply such requirements: **Bradley, Campbell, Cannon, Cocke, Clay, Fentress, Giles, Greene, Hamblen, Hickman, Houston, Humphreys, Jackson, Johnson, Lawrence*, Lewis*, Loudon, McMinn*, Meigs, Morgan, Overton, Perry*, Pickett, Polk, Roane, Scott, Trousdale, Union, Unicoi, Washington.**

This section does not apply to the following counties unless the county legislative body adopts by a two-thirds vote a resolution to apply such requirements: **McMinn***.

This section does not apply to the following counties unless the county legislative body adopts by a two-thirds vote a resolution to opt into the statutory requirements: **Bledsoe, Cumberland, Lawrence*, Lewis*, Rhea.**

This act does not apply to the following counties: **Benton, Decatur, Hancock, Hawkins, Henderson, Henry, Jefferson, Lake, Obion, Perry*, Stewart, Weakley*.**

**Counties listed in more than one section of the bill.*

Fire departments in exempt counties can still provide the training even though they are not required to.

Use of Acquired Structures for Training

Reference Number: MTAS-1228

To be effective, firefighters need to train under conditions that approximate their work environment, which means they need live fire training. Police departments do not hand new recruits a bullet-resistant vest and a firearm and say, “Point this end at the bad guy,” and then send the police officer out on patrol. Police recruits undergo many hours of classroom instruction, range time and scenario-based training to become proficient in police techniques, and the knowledge and use of deadly force. However, the fire service sometimes takes the approach of “here are your turnouts; point this end of the nozzle at the fire” and then puts the firefighter on the fire engine to fight fire.

In the period between 1977 and 2009, the number of structure fires decreased by 53 percent. During this same period, the number of firefighter deaths due to traumatic injuries sustained fighting the fire increased from 1.8 deaths per 100,000 fires to 3.0 deaths per 100,000 fires. According to the National Fire Fighter Near-Miss Reporting system, for the period between January 2005 and December 2010, there were 89 live fire training near-miss incidents (where some type of unsafe practice occurred) and 28 of those incidents (31 percent) were in acquired structures compared with 17 incidents (16 percent) that occurred in dedicated burn buildings.

The number of fires is decreasing, but firefighter fatalities are increasing, so how do firefighters gain the knowledge and experience needed to be good, safe firefighters? The answer is controlled situation live fire training. Firefighters need to train in combat conditions, facing real fires, either of Class A materials or with environmentally friendly propane simulators. Firefighters need to feel the heat and experience disorientation and the loss of sight in hot, dark, smoke-filled environments. Live fire training provides real-time, real-world experiences that the classroom environment cannot replicate. Live fire training carries as much risk as any structure fire, but careful planning can mitigate some of the risk.

Some departments are fortunate to have a purpose-built structure (burn building) to use in live fire training, but many departments do not. The Tennessee Fire and Codes Enforcement Academy has an excellent live fire training facility, but many departments, especially volunteer departments, do not have the time required to travel to the academy or the money for meals and lodging, even though the cost of training at the academy is very reasonable. Many volunteers cannot take the time off from work required to participate in academy classes. To provide live fire training, one option for these departments is the use of acquired structures for training.

What is an Acquired Structure?

Reference Number: MTAS-1229

The 2018 edition of National Fire Protection Association (NFPA) Standard 1403, Standard on Live Fire Training Evolutions, defines an acquired structure as “A building or structure acquired by the authority having jurisdiction from a property owner for the purpose of conducting live fire training evolutions (§ 3.3.27.1).” This differentiates an acquired structure from a live fire training structure, which NFPA defines as “a structure specifically designed for conducting live fire training evolutions on a repetitive basis (§ 3.3.27.2).” NFPA recognizes that firefighters use other types of training props, and the 2018 edition defines “acquired prop” as “a piece of equipment such as an automobile that was not designed for burning but is used for live fire training evolutions (§ 3.3.1).”

Before 1986, when NFPA published the first edition of NFPA 1403, there was no consensus standard on live fire training. Before knowledge of environmental issues and a greater emphasis on firefighter safety increased, fire departments burned acquired structures with minimal concern for the smoke and toxic gasses released. They used flammable or combustible liquids such as gasoline or diesel fuel to ignite the fire, and started multiple fires at the same time rather than just one fire. Today, such practices are contrary to environmental sustainability, good safety practices, and common sense, which is why fire departments must follow industry standard guidelines to use an acquired structure for training in as safe a manner as possible. If a new recruit is going to panic during his or her first fire, it is better to have that happen in as controlled an environment as possible rather than on a working structure fire.

NFPA 1403 is a consensus standard created through the cooperation of many parties with an interest in the safe training of firefighters. As such, NFPA 1403 is the industry standard for live fire training, and a fire department that conducts training operations outside of the scope of the standard might expose the

department and department members to significant liability should a person be injured or killed if a court determines that NFPA 1403 is the standard against which live fire training conduct is measured.

Cost Versus Benefit

Reference Number: MTAS-1231

Using an acquired structure for live fire training requires careful planning and preparation. It requires a significant investment in time and labor, and possibly money, on the part of the fire department. The expense may be worth it as the benefit depends on how much time, effort, and money needs to go into preparing the structure for burning compared to how much actual training is possible given careful planning by the fire department training officer. The fire department should agree to burn an acquired structure for the department's benefit (training) — not for the benefit of the property owner (demolition).

Getting Started with a Structure

Reference Number: MTAS-1230

Preparation should start by making sure that the person who states that he owns the structure is the owner and has the authority to give the fire department permission to use the structure. The fire department and owner must discuss and agree on which party will be responsible for what, such as site preparation, removal of utilities, asbestos testing, permits, debris removal, etc., and sign an agreement formalizing these details. The fire insurance policy should be canceled so the owner does not claim the training fire as a loss.

Once legal ownership and authority to grant permission to use the structure is established, and before signing an agreement to use the property and/or structure for training, the fire department should conduct a visual inspection of the property and structure for safety and environmental liability. It is important to ensure that no hazardous environmental conditions are on or under the property, or in the structure. Check with local law enforcement to make sure the property was not involved in the production of methamphetamines or other illegal drugs, as chemical residues from such processes are hazardous. Check to see if the runoff water can be controlled and contained. If any environmental concerns are found and cannot be mitigated, it may be best to say, "Thank you, but we cannot use this structure because of environmental concerns," and move on.

Some structures are simply too unsafe to burn. If the structure is not safe, the fire department should say, "Thank you, but we cannot use this structure safely," and move on. If the structure is safe for live fire training, and there are no environmental concerns, the department should create a written training plan for the structure. The training officer must share the plan with all participants before any training takes place. Firefighters need to experience live fire training in as controlled an environment as possible and not be surprised by something unexpected.

An acquired structure intended for live fire training can provide many training opportunities before the first fire is ignited. Firefighters can review building construction, perform forcible entry, perform search and rescue drills, conduct ladder evolutions, advance hose lines, run mayday scenarios, practice Rapid Intervention Team (RIT) response, conduct bailout drills, practice technical rescue evolutions, practice ventilation techniques, and conduct other training opportunities to gain knowledge and skills. The training officer should create a plan that maximizes the benefit of the structure for training opportunities in addition to live fire training. Even if it is not possible to use the structure for live fire training, the structure can provide these and many other one-of-a-kind training opportunities. Before starting any non-fire training, the department must test the structure for asbestos and remove any asbestos products. In structures constructed with asbestos materials, likely exposure to asbestos will occur while breaching walls, conducting ventilation, etc.

Before starting live fire training, repair holes in walls, floors, etc. that existed before the fire department acquired the structure or are a result of the previously mentioned non-fire training evolutions. Abnormal fire spread, falls, etc. can result from any openings in the construction. For safety purposes, repair any holes (existing or made by the fire department) before conducting RIT, ventilation or other training in the structure.

Once the department has decided to use the structure for live fire training, contact the local air quality or pollution control authority for the area and ask if there are any requirements for preparing acquired structures for burning and if a permit is required. Some air pollution control/air quality authorities require removal of asphalt shingles, petroleum-based floor coverings, plastic plumbing pipe, synthetic furnishings, etc. before granting permission to burn. Removal of electrical wiring, electrical outlets, wall switches and cover plates may be required because those items are plastic.

The structure may have exterior siding, insulation, floor tiles or mastic that contains asbestos. Test the structure for asbestos and remove any asbestos found before burning the structure. Asbestos abatement should be required before demolition and haul-off, so the expense of testing and abatement may be a wash for the property owner. Any HVAC systems still in place need to have the Freon or other gas removed. Disconnect all utilities. Provide a reliable source of water that is sufficient to control the fire and protect any exposures if the entire structure is on fire at once. The fire department needs to know where the runoff water is going as it will contain chemicals and contaminants and may need to be collected or diverted from ponds and streams.

If the structure is safe to burn and the fire department desires to conduct live fire training, the city must be ready to assume liability. MTAS legal staff has opined that the liability rests with the city. MTAS does not have a sample liability release, but NFPA does have a sample release as part of its recommendations for live fire training in acquired structures. The NFPA sample release mentions demolition of the structure as the reason the fire department is burning the structure. Air quality is a real concern, and most jurisdictions allow firefighters to burn a building for training but not for demolition. Therefore, if you use the sample language in the NFPA checklist, substitute “training” in place of “demolition” and have your agency’s attorney approve the release.

The department needs to locate, provide, and ensure that an adequate and reliable water supply is available for training evolutions, the RIT team, safety lines, and to protect exposures. If the structure is in an area protected by fire hydrants, the department may need to lay supply lines across roadways or across property owned by others. The department must coordinate any road closures, provide traffic flow, and obtain permission to access other property before starting training.

The department needs to provide logistics for the training evolutions. Staging areas, control of scene access, parking, media access (the department should invite the media to a live fire training day), personal hygiene facilities, refreshments for staff and trainees, and rehab for the trainees should be available when they exit the live fire evolution. Provide sufficient air bottles, a cascade system on the scene, or an air re-supply shuttle to ensure no one runs out of breathing air. Inspect all self-contained breathing apparatus (SCBA) and personal protective equipment before the live burn. Do not use any personal protective equipment with physical damage or missing components. Notify adjacent property owners well before the live burn. Assure that all personnel operating in the Immediately Dangerous to Life and Health (IDLH) atmosphere have conducted SCBA face-piece fit testing in accordance with OSHA 1910.134.

The fire department must take responsibility for preparing the structure so the training is safe. Follow NFPA Standard 1403 guidelines as a nationally recognized best practice. Safety must, at all times, be the primary concern when making preparations and decisions. Establish and use the incident command system and a personnel accountability system. Have emergency medical personnel and an ambulance available on the training ground. Use Class A fuels only and keep fuel loads to the minimum amount to provide sufficient smoke, heat and fire conditions to accomplish the training evolution’s goals and objectives while avoiding flashover. Ignite only one fire at a time in the structure. Safety at all times is essential.

Acquired Structure Conclusion

Reference Number: MTAS-1235

Live fire training in an acquired structure is very valuable as it provides firefighters with some of the real life experience they need to be effective firefighters. Many communities do not have access to a training facility with a dedicated live fire building or smoke house, so using an acquired structure can provide a local opportunity to train under realistic conditions. If the building is not suitable for live fire training, other drills, such as search and rescue operations, ladder drills, ventilation drills, etc., are possible. If the building is suitable for live fire training, non-fire drills are still possible before the first live fire drill occurs. Depending upon the size of the structure, number of rooms, and fire control techniques, many

air mask drills in smoke conditions, individual fires, search and rescue scenarios, and fire attack scenarios can occur before the building becomes too unsafe to use for further interior attack practice. At that point, the department lets the entire building catch fire, and exterior hand line operation and master stream training takes place. Follow NFPA 1403 guidelines for live fire training evolutions. These are the nationally recognized consensus standards defining the minimum acceptable practice for live fire training. With proper preparation and planning, an acquired structure can provide firefighters with many different opportunities to train, practice and improve essential fire ground skills.

Unfortunately, the Insurance Services Office (ISO) does not recognize the use of an acquired structure for drill credit under Section 580A of the Fire Suppression Rating Schedule. ISO does recognize training conducted at an acquired structure as company training under Section 580B of the schedule.

Resources for Acquired Structures

Reference Number: MTAS-1236

Because of its importance to the fire service, NFPA allows free online access to the complete contents of NFPA 1403, Standard on Live Fire Training Evolutions. Registration is required to access the standard. For access, go to http://www.nfpa.org/codes-and-standards/all-codes-and-standards/list-of-codes-and-standards/detail?code=1403 [14].

For individual use, NFPA has licensed the checklist found in NFPA 1403. For more information on the checklist, contact NFPA directly. Obtain a copy of and become familiar with NFPA 1403 before conducting any live fire training evolutions.

The Tennessee Fire and Codes Enforcement Academy offers live fire training programs. For information on live fire and other training programs, contact the academy.

Tennessee Fire Service and Codes Enforcement Academy
2161 Unionville-Deason Road
Bell Buckle, Tennessee 37020
1-800-747-8868
(931) 294-4111

References

Fahy, Rita F. (2010). U.S. Fire Service Fatalities in Structure Fires, 1977-2009. Quincy, MA: NFPA

IAFC, ISFSI, NFPA. (2012). Live Fire Training Principles and Practices. Sudbury, MA: Jones and Bartlett Learning, LLC.

National Fire Fighter Near-Miss Reporting System. www.firefighternearmiss.com [15].

NFPA. (2012). NFPA 1403, Standard on Live Fire Training Evolutions. Quincy, MA: NFPA

Fire Service Resources

Reference Number: MTAS-2107

The Fire Chief Orientation class contained a module called Fire Service Resources. When the course curriculum was updated, the resources module was removed to provide time for other topics, as fire service resources was not a specifically required topic under state law. However, the information on fire service resources is very useful, and MTAS is making the information available via MTAS Online Resources (MORe) as a downloadable Adobe PDF file.

The document is organized by the following sections: professional associations, training and education, community risk reduction (CRR), wildland-urban interface (WUI) resources, residential sprinklers, human resources, operations, grant resources, purchasing and surplus property, and information and research. The document contains brief descriptions of the resources along with associated contact information and/or links to websites for additional information.

For questions on the information, to report broken links, to provide information on additional resources, etc., contact Fire Management Consultant Dennis Wolf at dennis.wolf@tennessee.edu [16].

FLSA Firefighter Definition

Reference Number: MTAS-1223

In 2001, the U.S. Congress passed Public Law 106-151 amending the Fair Labor Standards Act (FLSA) definition of an “employee in fire protection activities” to clear up any confusion that has existed when a firefighter was engaged in other related activities such as EMS response.

Under this definition, an employee engaged in fire protection activities can be “a firefighter, paramedic, emergency medical technician, rescue worker, ambulance personnel or hazardous materials worker.” 29 U.S.C. § 203(y).

This significantly altered what activities a firefighter can perform without violating the 20 percent rule. The 20 percent rule, simply stated, says that if firefighters work at functions not included in the FLSA definition of a firefighter, they lose their partial exemption from overtime allowed under the 207(k) provisions of the Fair Labor Standards Act.

In order for this definition to apply, the employee must meet both the following tests:

1. The employee must be trained in fire suppression and have the legal authority and responsibility to engage in fire suppression and must be employed by a fire department of a municipality, county, fire district, or state; and
2. The employee is engaged in the prevention,control and extinguishment of fires or response to emergency situations where life, property or the environment is at risk. *Id.*

If a local government employs firefighters who also run EMS calls, rescue calls or are on hazardous materials teams, and the firefighters meet both tests established by the amendment, then the 20 percent rule no longer applies to any of the functions specifically mentioned in the definition. The number of EMS runs or hours spent on rescue missions will not jeopardize the 207(k) status of a firefighter. It is very important that all fire department employees who are eligible to take advantage of the partial exemption from the overtime provisions of the FLSA meet both the tests.

This definition cleared up conflicting court opinions and the different tests that have been applied to each situation. In similar cases, the 4th and 8th U.S. Court of Appeals handed down totally opposite rulings on how to treat firefighters who engaged in EMS activities. The disagreement between the various courts resulted in several different tests being applied with regard to the partial exemption, leaving many public employers in considerable doubt as to how to apply the FLSA overtime guidelines to firefighters.

According to the U.S. Department of Labor (DOL), EMS workers who do not meet both tests established by this new law are not subject to the 207(k) exemption and are therefore considered 40-hour employees. It is important to remember that this law applies only to fire departments. The mere fact that an employee works for a local government and engages in fire protection does not exempt the employee from the overtime provisions in the FLSA. EMS workers who work for police departments, public works departments or other such units of a local government cannot qualify for the 207(k) partial overtime exemption.

Also, the 80/20 rule still applies to firefighters on non-exempt work. If firefighters engage in work that is not covered by this definition and more than 20 percent of their time is spent on non-exempt work, they will lose the partial exemption from overtime as allowed under section 207(k) of the Fair Labor Standards Act.

Local governments that employ firefighters should remember that future DOL interpretations of the new law and future case law may impact the interpretation of this law. Local governments should watch for an emerging case law on this issue. The DOL has a website resource for rulings and interpretations on FLSA at this address: http://www.dol.gov/whd/opinion/opinion.htm [17]. 29 U.S.C. § 207(k) can be found at http://uscode.house.gov/ [18] or, generally see http://www.law.cornell.edu/uscode/text/29 [19].

Interchanging SCBA Cylinders

Reference Number: MTAS-1920

Many composite self-contain breathing apparatus (SCBA) cylinders have a maximum service life of 15 years, and fire departments may be tempted to extend the service life of their air packs by replacing

expired cylinders with a generic cylinder or a cylinder of a different brand than their SCBA. Fire departments may also desire to increase the number of spare air cylinders on hand by using a generic brand cylinder or a brand that is different than their SCBA. While it is physically possible to use a different brand of compressed breathing air cylinders with a department's SCBA, this should be done only in emergency situations.

All brands of SCBA air packs and compressed breathing air cylinders use connectors that meet Compressed Gas Association (CGA) standards for the given working pressure of the SCBA, so it is physically possible to interchange air cylinders between SCBA brands. However, a department should refer to the warranty for its brand of SCBA as interchanging cylinders may void the warranty.

The National Institute for Occupational Safety and Health (NIOSH) certifies SCBAs as a complete unit, and the certification applies only if one uses the cylinders designed for use with that pack. While it is possible to use other brands or generic cylinders, when such cylinders are being used the SCBA is not considered to be NIOSH compliant, and NIOSH certification is required by law. Also, NFPA 1981, *Standard on Open-Circuit Self-Contained Breathing Apparatus (SCBA) for Emergency Services*, requires NIOSH certification, so NFPA does not support the interchange of cylinders.

OSHA regulations state the following, which does not allow routine interchangeability.

29 C.F.R. § 1910.134(i)(9)
The employer shall use only the respirator manufacturer's NIOSH-approved breathing-gas containers, marked and maintained in accordance with the Quality Assurance provisions of the NIOSH approval for the SCBA as issued in accordance with the NIOSH respirator-certification standard at 42 C.F.R. § pt. 84.

However, OSHA recognized that unforeseen situations and mutual aid situations occur, and OSHA has two sections in the regulations to address this. Section of 29 CFR 1910.156 applies to fire brigades, industrial fire departments and private or contractual type fire departments.

29 C.F.R. § 1910.120(q)(3)(x)
When deemed necessary for meeting the tasks at hand, approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus shall meet U.S. Department of Transportation and National Institute for Occupational Safety and Health criteria.

29 C.F.R. § 1910.156(f)(1)(iv)
Approved self-contained compressed air breathing apparatus may be used with approved cylinders from other approved self-contained compressed air breathing apparatus provided that such cylinders are of the same capacity and pressure rating. All compressed air cylinders used with self-contained breathing apparatus shall meet DOT and NIOSH criteria.

These rules recognize the possibility for mutual aid between different fire departments with different brand SCBA, and that a fire brigade or industrial fire department would interface with the local municipal fire department that responded to a fire in the plant or building, and since it is possible that the SCBAs could be from different manufacturers, this rule allowed the interchange of cylinders for the mutual aid response. It is obvious from these three rules that while OSHA does recognize that incidents will occur where the exchange of SCBA cylinders may be needed for safety, it is not OSHA's intent to encourage the regular and routine interchange of different brand SCBA cylinders, or the replacement of expired SCBA cylinders with a different brand cylinder, or the supplementing of the number of spare SCBA cylinders with other brand cylinders. OSHA addressed this issue in 1997 and updated their position in 2005 in this interpretive bulletin of the OSHA standards: https://www.osha.gov/pls/oshaweb/owadisp.show_document?p_table=INTERPRETATIONS&p_id=23479 [20]

In summary, while it is physically possible to interchange SCBA air cylinders, fire departments should use the manufacturer's cylinders with their SCBA, and interchange cylinders only when absolutely necessary, such as on a mutual aid response. This keeps the fire department in compliance with OSHA regulations and maintains the NIOSH certification on the SCBA. Even on a mutual aid call or in an emergency, interchanging air cylinders may void the warranty on the SCBA, and the SCBA is not considered NIOSH compliant while the other cylinder is attached.

Investigating Fires/Demolishing Buildings

Reference Number: MTAS-241

Tennessee Code Annotated (T.C.A.) § 68-102-111 requires the assistant to the commissioner of the department of commerce and insurance, usually the fire chief, to investigate the cause, origin, and circumstance of all fires resulting in property damage and determine cause if possible. Further, the assistant to the commissioner, fire chief, must report all fires to the Tennessee Fire Incident Reporting System (TFIRS) within 10 days of the date of a fire. The assistant to the commissioner, fire chief, does not have to have the fire's cause determined by this time, as some fires will still be under investigation, but the fire chief must report the facts of fire's occurrence.

A fire chief, fire marshal, or mayor of a city without a fire department shall be designated an assistant to the commissioner of insurance to investigate fires, and a report of each investigation as required using the state approved method. Such an assistant may order the demolition and removal of irreparable structures at the expense of those responsible for them. In cities with no fire marshal, a fire marshal from another local government may be an assistant to the state commissioner on behalf of that city.

Under T.C.A.§ 68-102-111, any assistant to the commissioner in the course of a fire investigation that finds that a building or other structure has been damaged so extensively that repair is not a feasible alternative, the assistant to the commissioner shall order the remains of the building or structure demolished, materials removed, and all dangerous conditions remedied.

TFIRS resources and information

How do you report to TFIRS? You have two free options.

You may use the NFIRS Data Entry Tool, which requires download and installation of an application on your computer. Or you may use the NFIRS Data Entry Browse Interface (DEBI), which is web-based and does not require download and installation. In either case, you must have an active user account to login. If you are not sure about your account status, contact the TFIRS Coordinator.

If you know you have an active account, you may download the Tool by going to www.nfirs.fema.gov/users [21] .

If you want to use DEBI, just go to www.nfirs.fema.gov/webtools [22] and click on the link Report Incidents (DEBI).

Can I use commercial software to report to TFIRS? Yes, but you must first export your data. Data is not automatically exported and uploaded to NFIRS. After exporting, upload the data using the NFIRS Bulk Import Utility(BIU). For additional information: https://www.nfirs.fema.gov/NFIRSWebTools/BulkImportUpload/welcome.do [23]

ISO Offers Free Services

Reference Number: MTAS-1141

The Insurance Services Office (ISO) Public Protection Classification (PPC™) program affects every fire department in Tennessee.

Many fire chiefs refer to their community's Public Protection Classification (PPC) grading as the department’s ISO rating, which is only partially true. The fire department represents 50 percent of the rating, as the resources in place for receiving and retransmitting fire alarms accounts for 10 percent, and the water supply accounts for the remaining 40 percent of the rating. ISO uses the Fire Suppression Rating Schedule (FSRS) to evaluate a community’s fire protection capabilities and establish the PPC grade for the community. The rating evaluates the capabilities of the communications center, fire department, water supply, and community risk reduction programs. ISO assigns PPCs from 1 to 10. Class 1 represents ideal public fire protection, and Class 10 indicates that the community’s fire-suppression program does not meet ISO’s minimum standards for fire protection. PPC grades are important because many insurance companies use the PPC Classification as a factor in setting the premiums for homeowner’s insurance policies. Research has shown that there is a direct relationship between a lower PPC grade and reduced fire losses. Fire chiefs should use the FSRS as a planning tool to assist them in developing a strategic plan for improving fire services and to justify and budget for improvements in fire protection.

The FSRS is a technical document containing information on how ISO evaluates a community's total fire protection capability and includes the evaluation of how fire alarms are received and retransmitted, the capabilities of the fire department, the water supply available, and community risk reduction programs. To use the FSRS properly, one must be familiar with many aspects of fire communications, fire protection and prevention, and water supply to understand and apply the document correctly. To assist fire chiefs in using the FSRS, ISO has a special website at http://www.isomitigation.com/ [24]. The site details several free services available to fire chiefs.

ISO has modernized and enhanced its Fire Suppression Rating Schedule (FSRS). ISO began applying the new schedule in Tennessee on July 1, 2013. See http://www.verisk.com/press-releases-verisk/2013/
iso-files-revisions-to-fire-suppression-rating-schedule-and-public-protection-classification-structure.html [25] . Fire chiefs and other qualified individuals may obtain a copy of the 2012 edition of the FSRS at https://www.isomitigation.com/fsrs/fire-suppression-rating-schedule-fsrs-overview.html [26].

ISO sells the FSRS as a printed document for $100.00. However, fire chiefs, chief building officials, and community chief administrative officials may request a single copy of the FSRS or of the Building Code Effectiveness Grading Schedule (BCEGS®) free of charge. The request for a free copy of either service must be in writing on fire department, building department, or the chief administrative officials' letterhead to ISO Customer Service at the address below.

Request for online access must include a name, address, daytime phone number and e-mail address. Find out how to get a copy of the document at this link: https://www.isomitigation.com/fsrs/obtaining-fsrs-and-bcegs-documents.html [27].

ISO
Customer Service
545 Washington Boulevard, 18-3
Jersey City, NJ 07310-1686

ISO offers customized PPC reports for communities. The PPC report includes a list of the needed fire flows for all the commercial occupancies ISO has on file for the community, as well as details of the latest ISO review of the community's PPC grading. This report is available at no charge to the community's fire chief or chief administrative official. Using this report can have immediate benefits for a community. For example, ISO does not include properties protected by automatic fire sprinkler systems when determining the basic fire flow for a community. However, ISO may list some properties protected by automatic fire sprinkler systems in your community as not having sprinklers because of a lack of documentation, such as the failure of the property owner to submit annual inspection reports. By contacting the owners of such properties and having the owners submit the proper documentation, a fire chief may see a reduction in the calculated basic fire flow for his community.

Community officials should submit requests for customized PPC reports in writing on official letterhead to the jurisdiction's ISO Regional Processing Center. To find the regional processing center for your community, visit the website https://www.isomitigation.com/about-us/iso-national-processing-centers/ [28]. For Tennessee, the office address is:

ISO
Community Hazard Mitigation Division
1000 Bishops Gate Blvd, Suite 300
Mt. Laurel, NJ 08054-4364

Telephone: 1-800-444-4554, select option 2
E-mail: PPC-Cust-Serv@iso.com [29]

Communities may invest a lot of money and resources in their fire department. The FSRS can help fire chiefs determine if this investment is paying the dividends it should. The FSRS can assist fire chiefs in strategic planning by determining if certain improvements in the community's fire protection plan will result in a lower PPC grade. There are many benefits to having a low PPC grade, and economic incentives for communities to improve their PPC grade. Home and business owners in the community may see a reduction in their insurance premiums. The most important of these benefits is improved fire protection resulting in reduced fire loss for the community, which translates into economic benefits and lives saved. This is important for fire chiefs, because public policy makers understand when investments in fire protection result in economic benefits for their community.

Lockdown Plans

Reference Number: MTAS-1929

Lockdown Plans Require Approval of the Fire Official

Many educational, mercantile, and business occupancy have established lockdown plans to address situations such as active shooters, police situations in the vicinity of the occupancy, an unwelcome individual on the property, etc. Ideally, the responsible parties (owners, managers, principals, directors, etc.) should develop these plans in conjunction with local police, fire, and EMS departments.

What is required by the 2012 International Fire Code is that lockdown plans must be approved by the fire official having jurisdiction where the occupancy is located. Most responsible parties of occupancies that develop lockdown plans are not aware of this requirement, and many fire officials may not be aware of it, either.

What is a lockdown?

The 2012 International Fire Code defines “lockdown” as, "An emergency situation, in other than a Group I-3 occupancy (Detention Center, Jail, Prison, Pre-Release Center), requiring that the occupants be sheltered and secured in place within a building when normal evacuation would put occupants at risk."

It is important to understand that lockdown plans are intended to supplement approved fire safety and evacuation plans. Lockdown plans are not stand alone to protect occupants in place of building evacuation where appropriate.

IFC Requirements for Lockdown Plans

The 2012 Edition of the International Fire Code (IFC) is the code adopted by the State of Tennessee. The following section is quoted from the 2012 Edition of the International Fire Code and addresses lockdown plans.

SECTION 404 – FIRE SAFETY AND EVACUATION PLANS

404.1 General.
Fire safety, evacuation and lockdown plans and associated drills shall comply with the requirements of Sections 404.2 through 404.5.1.

404.3.3 Lockdown plans.
Where facilities develop a lockdown plan, the lockdown plan shall be in accordance with Sections 404.3.3.1 through 404.3.3.3.

404.3.3.1 Lockdown plan contents.
Lockdown plans shall be approved by the fire code official and shall include the following:

- Initiation. The plan shall include instructions for reporting an emergency that requires a lock-down.
- Accountability. The plan shall include accountability procedures for staff to report the presence or absence of occupants.
- Recall. The plan shall include a prearranged signal for returning to normal activity.
- Communication and coordination. The plan shall include an approved means of two-way communication between a central location and each secured area.

404.3.3.2 Training frequency.
The training frequency shall be included in the lockdown plan. The lockdown drills shall not substitute for any of the fire and evacuation drills required in Section 405.2.

404.3.3.3 Lockdown notification.
The method of notifying building occupants of a lockdown shall be included in the plan. The method of notification shall be separate and distinct from the fire alarm signal.

Mutual Aid

Reference Number:

MTAS-293

Mutual Aid and Fire Protection Outside Cities

Mutual aid contracts are authorized under the Interlocal Cooperation Act. T.C.A. § 12-9-101, *et seq.* This act allows counties and cities to act jointly to provide services that each may provide separately, including fire service and law enforcement. (See also T.C.A. § 6-54-307, T.C.A. § 6-54-601–603.) An agreement made under the Interlocal Cooperation Act that creates an intergovernmental entity must be filed with the comptroller's office within 90 days of execution. Joint venture entities created under this act must file an annual statement with the comptroller indicating the parties, annual revenues and expenses, and other information. T.C.A. § 12-9-112.

An incorporated municipality is authorized to enter into mutual aid or fire protection assistance contracts with other cities, counties, private incorporated and industrial fire departments, utility districts that provide fire protection, metropolitan airport authorities that provide firefighting service, or "an organization of residents and property owners of unincorporated communities." A city may enter into individual contracts with non-city residents or provide the service without a contract. In either event, both the city's and county's legislative bodies must approve the arrangement. T.C.A. § 6-54-601–603.

Counties with a countywide fire district may mandate that all interlocal agreements contain performance- based criteria designed to assure timely response and effective service. T.C.A. § 5-17-101.

The Mutual Aid and Emergency and Disaster Assistance Agreement Act (MAEDAAA) of 2004 (T.C.A. § 58-8-101, *et seq.*), authorizes municipalities to assist other governmental entities in certain occurrences and emergencies when the requesting and responding parties do not have a mutual aid agreement. This law acts as a state-wide mutual aid agreement for participating entities and provides for reimbursement as required in the federal policy noted below.

Federal policy, specifically Response and Recovery Policy Number 9523.6 of the Federal Emergency Management Agency, requires municipalities, in their mutual aid agreements, to require cost reimbursement by the entity receiving assistance in all instances if the municipality is to be reimbursed for aid in a presidentially declared disaster. Municipalities and entities acting under the MAEDAAA of 2004 in a state of emergency are required to reimburse responding parties, or to be reimbursed if they are a responding party, in accordance with this federal policy.

Hazardous Material and Natural Disaster Calls Outside the City

Cities incorporated under the general law city manager-commission charter (T.C.A. § 6-18-101, *et seq.*) may allow their fire departments to answer hazardous materials and natural disaster calls, regardless of where the emergency exists. T.C.A. § 6-21-703.

Non-Profit Volunteer Fire Department Reporting Requirements

Reference Number: MTAS-2081

Public Chapter 210, Acts of 2015, was signed into law by Governor Haslam on April 20, 2015. It created T.C.A. § 68-102-309 which requires non-profit volunteer fire departments to file an annual financial report with the Comptroller of the Treasury and each local government entity from which the volunteer fire department receives appropriations. The legislation increases the transparency and accountability for non-profit volunteer fire departments so that local governments making appropriations to these entities, and the taxpayers of those local governments, know that the non-profit volunteer fire departments are using tax dollars appropriately.

The Comptroller's Office initiated the legislation. The required filing is a report covering the annual financial activity of cash receipts, disbursements, and balances based on a fiscal year that runs from July 1 of one year through June 30 of the next year (i.e. July 1, 2017 through June 30, 2018). Every non-profit volunteer fire department must file the report by December 31 of the reporting year with the Comptroller's Office and with each local government providing appropriations. Some fire departments operate on a January-December fiscal year, but the report is simple enough to allow the non-profit volunteer fire department to use monthly financial reports and bank statements to complete the form for the July-June fiscal period.

The report is not an audit. The report does not have to be completed by an accountant, so the expense of complying with the law is minimal.

The Comptroller's Office has ruled that the reporting requirement does not apply to volunteer fire departments operated by cities or counties regardless of whether they call themselves a volunteer fire department or whether their firefighters are volunteers. The reporting requirement only applies to non-profit volunteer fire departments whose financial activity is not accounted for in a municipal or county audit report. If the volunteer department is included in the municipal or county audit, they do not have to file the report.

Paramedic Can Serve as PLHCP

Reference Number: MTAS-2123

A Tennessee Paramedic Can Serve as the PLHCP for OSHA Respirator Medical Evaluation Questionnaire

Occupational Safety and Health Administration (OSHA) regulation 29 CFR 1910.134 requires that employers involved in working in atmospheres that expose workers to respiratory hazards have a written respiratory protection program. The employer shall provide respirators, training, and medical evaluations at no cost to the employee (29 CFR 1910.134(c)(4)). Before any employee may use any form of respiratory protection, the employee must have a medical evaluation. Appendix C to Section 1910.134 contains the OSHA Respirator Medical Evaluation Questionnaire. This questionnaire is mandatory for any employee who may be exposed to a respiratory hazard and who may be required to use any form of respiratory protection. The requirements for administration of the medical evaluations and the proper use and dissemination of the information obtained from the evaluations and questionnaires is as follows:

- The employer must identify a physician or other licensed health care professional (PLHCP) to perform all medical evaluations using the OSHA Respirator Medical Evaluation Questionnaire (Mandatory), or a medical examination that obtains the same information (29 CFR 1910.134(e)(2)(i)).
- The medical evaluation must obtain the information requested in Sections 1 and 2, Part A of Appendix C. The questions in Part B of Appendix C may be added at the discretion of the health care professional (29 CFR 1910.134(e)(2)(ii)).
- The employer must ensure that a follow-up medical examination is provided for any employee who gives a positive response to any question among questions 1 through 8 in Part A Section 2, of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination. The employer must provide the employee with an opportunity to discuss the questionnaire and examination results with the PLHCP (29 CFR 1910.134(e)(3)(i)).
- The medical questionnaire and examinations must be administered confidentially during the employee's normal working hours or at a time and place convenient to the employee and in a manner that ensures that he or she understands its content. The employer must not review the employee's responses, and the questionnaire must be provided directly to the PLHCP (29 CFR 1910.134(e)(4)(i)).
- The PLHCP must provide a written copy of the recommendation to the employee and the employer.

Tennessee Paramedics Can Serve as the PLHCP

The OSHA regulation defines a physician or other licensed health care professional (PLHCP) as "an individual whose legally permitted scope of practice (i.e., license, registration, or certification) allows him or her to independently provide, or be delegated the responsibility to provide, some or all of the health care services required by paragraph (e) of this section" (29 CFR 1910.134(b)).

The employer must provide the PLHCP with a copy of the written respiratory protection program and a copy of the section 1910.134 (29 CFR 1910.134(e)(5)(iii)).

OSHA Respiratory Protection Standard 1910.134 requires that any person who will use a respirator undergo a medical evaluation before they are fit tested and allowed to use a respirator. The medical evaluation consists of two parts. The first part is a written medical questionnaire that must be performed (i.e. administered and evaluated) by a physician or other licensed health care provider (PLHCP). The employer gives the employee a copy of the questionnaire to complete. The employee completes the questionnaire and sends or takes it to a PLHCP for evaluation. The PLHCP evaluates

the questionnaire and determines if the person is fit to wear and use a respirator. If certain questions are answered “yes,” (these are questions 1 through 8 in Part A, Section 2) the PLHCP evaluating the questionnaire refers the candidate to someone who can conduct a physical examination.

In November 2016, Dr. Joe Holley, Medical Director for the State of Tennessee, ruled that the scope of practice of a Tennessee licensed paramedic allows the paramedic to evaluate the first part (questions 1 through 8 in Part A, Section 2) of the medical questionnaire. If the paramedic evaluating the medical questionnaire determines that the candidate is not qualified (a positive answer to any of the eight questions in this section), or if the paramedic is not sure if the candidate is qualified, then the paramedic, as the initial PLHCP, must refer the candidate to another PLHCP who is qualified to perform a physical examination.

As a result of Dr. Holley’s determination, a city, town, or fire department can use a paramedic for the initial screening, which may be more cost effective that using a physician or other licensed health care professional. The paramedic may not share the actual answers to the questionnaire with the employer, but must provide the employer with the following information:

1. any limitations on respirator use related to the medical condition of the employee, or relating to the workplace conditions in which the respirator will be used, including whether or not the employee is medically able to use the respirator;
2. the need, if any, for the employee to have follow-up medical evaluations; and
3. a statement that the PLHCP has provided the employee with a copy of the PLHCP's written recommendation.

If the initial evaluation indicates the need for further screening, the employer shall ensure that a follow-up medical examination is provided for an employee who gives a positive response to any question among questions 1 through 8 in Section 2, Part A of Appendix C, or whose initial medical examination demonstrates the need for a follow-up medical examination (29 CFR 1910.134(e)(3)(i)). The follow-up medical examination must include any medical tests, consultations, or diagnostic procedures that the PLHCP deems necessary to make a final determination (29 CFR 1910.134(e)(3)(ii)).

The actual questionnaires and exam results should not be shared with the employer or the public, so the paramedic acting as the PLHCP should maintain the records in order to ensure the confidentiality required by 29 CFR 1910.134(e)(4)(i).

The employer should maintain the recommendation that the PLHCP sends to the employer following the evaluation of the medical questionnaire.

Patient Protection and Affordable Care Act and Part-time Firefighters

Reference Number: MTAS-1779

The Patient Protection and Affordable Care Act (PPACA or the Act), more commonly called the Affordable Care Act (hereinafter referred to as the Act), became law on March 23, 2010. The act is the most significant change in the American health care system since the passage of Medicare and Medicaid in 1965, and the greatest effect of the act is health insurance reform. The act requires certain employers to offer health care benefits to part-time employees, and this requirement may affect cities and fire departments using part-time firefighters. The focus of this section is on how the act affects cities and fire departments employing part-time firefighters and volunteer firefighters.

PPACA for Public Safety Employees

Reference Number: MTAS-1781

The Patient Protection and Affordable Care Act (PPACA) applies to all public, private, and non-profit employers. On Monday, February 10, 2014, the Internal Revenue Service (IRS) finalized rules clarifying that volunteers in a government or tax-exempt organization are exempt from the Patient Protection and

Affordable Care Act (PPACA). This exception is beneficial for the volunteer fire service and for combination fire departments, too.

Hours worked by a volunteer who does not receive (and is not entitled to receive) compensation in exchange for the performance of services are not treated as hours of service for the purposes of the PPACA. The final regulations provide that hours of service do not include hours worked as a "bona fide volunteer." Bona fide volunteers include any volunteer who is an employee of a government entity or an organization described in section 501(c) that is exempt from taxation under section 501(a) whose only compensation from that entity or organization is in the form of (i) reimbursement for (or reasonable allowance for) reasonable expenses incurred in the performance of services by volunteers, or (ii) reasonable benefits (including length of service awards), and nominal fees, customarily paid by similar entities in connection with the performance of services by volunteers. The 20 percent rule for nominal fees still applies (see the MORe page [30] on volunteer compensation for additional information on allowable compensation for volunteers).

The definition of volunteer is broad enough to include volunteer firefighters, EMS personnel, CERT participants, Fire Corp participants, and similar members of a fire or emergency services department who volunteer their services. Part-time employees (those who receive an hourly rate) are not considered to be volunteers.

The published rules for Shared Responsibility for Employers Regarding Health Coverage [31] are available from the Federal Register Website.

The PPACA does not *require* cities to offer health insurance to employees. However, the city will be penalized if there are at least 50 full-time equivalents (FTEs) as defined by the PPACA and the employer does not offer at least minimum credible coverage or if coverage is not affordable as defined by PPACA.

Penalties only apply if an employer has the equivalent of 50 FTEs, including part time and seasonal. Those employers would be penalized if they did not offer coverage that meets the minimum standards as defined by PPACA. There are several ways to determine how part-time employees are counted, and this is done using a "look back" period.

Under the look-back/stability period safe harbor method, an employer determines each employee's full-time status by looking back at a defined period of not less than three but not more than twelve consecutive calendar months, as chosen by the employer (the measurement period), to determine whether during the measurement period the employee averaged at least 30 hours of service per week. If the employee were determined to be a full-time employee during the measurement period, then the employee would be treated as a full-time employee during a subsequent "stability period," regardless of the employee's number of hours of service during the stability period, so long as he or she remained an employee.

Using the look-back period is voluntary. If an employer chooses not to use a look-back period, the employer simply looks at each employee's actual hours each month and if they worked 30 or more hours they should have been offered coverage. It may be advantageous for a municipality with a workforce that is largely full-time and/or works very predictable hours to use the "count as you go" approach.

For more information on how an employer must define and calculate number of FTEs go to the IRS website at http://www.irs.gov/pub/irs-drop/n-12-58.pdf [32] for IRS Notice 2012-58, *Determining Full-Time Employees for Purposes of Shared Responsibility for Employers Regarding Health Coverage (§ 4980H)*.

A "large employer" is defined as an employer with more than 50 full-time equivalent employees during the preceding calendar year. Both full-time and part-time employees are included in the calculation:

- Full-time employees are defined as those working 30 or more hours per week;
- Full-time *excludes* seasonal employees who work less than 120 days during the year;
- Part-time employees are employees that works less than 30 hours per week and this includes volunteers; or
- Part-time employees' hours as a group are included in the calculation.

Hours worked by part-time employees are included by, on a monthly basis, dividing their total number of monthly hours worked by 120.

For example, an employer with 35 full-time employees (30+ hours per week) also has 20 part-time employees who all work 24 hours per week (so each employee who works 24 hours per week, works a total of 96 hours per month). These hours worked by these part-time employees are the equivalent of having 16 full-time employees, calculated as follows (note: 120 hours of service in a calendar month is the monthly equivalent of 30 hours of service per week):

- 20 employees x 96 hours per month per employee = 1,920 hours worked
- 1920/120 = the equivalent of 16 "full-time" (30+ hours a week) employees

The 35 full-time employees, plus the 16 full-time equivalent employees, equals 51 full-time equivalent employees, so this employer would be considered a large employer under the PPACA.

PPACA Penalties

Reference Number: MTAS-1782

Cities with less than 50 employees meet the definition of a small business under the Patient Protection and Affordable Care Act (PPACA) and must notify workers of their health care options under state health exchanges. Employers with less than 50 FTE are exempt from the employer coverage requirements and applicable penalties under the act.

Regardless of whether a large employer offers coverage, it will only be potentially liable for a penalty beginning in January 2015 if at least one of its full-time employees obtains coverage through a health care exchange and qualifies for either a premium credit or a cost share reduction. To qualify for premium credits in an exchange, the employee must meet certain eligibility requirements, including that the employee's required contribution for self-only health coverage (through the employer) exceeds 9.5 percent of the employees' household income, or if the plan offered by the employer pays for less than 60 percent of covered expenses.

While hours worked by volunteers do not count toward the 50 full-time employee threshold, hours worked by part-time employees do count.

Employers are not required to offer coverage to ANY employee, but if the employer meets the definition of a large employer and does not meet minimum requirements of the PPACA, the employer will be penalized.

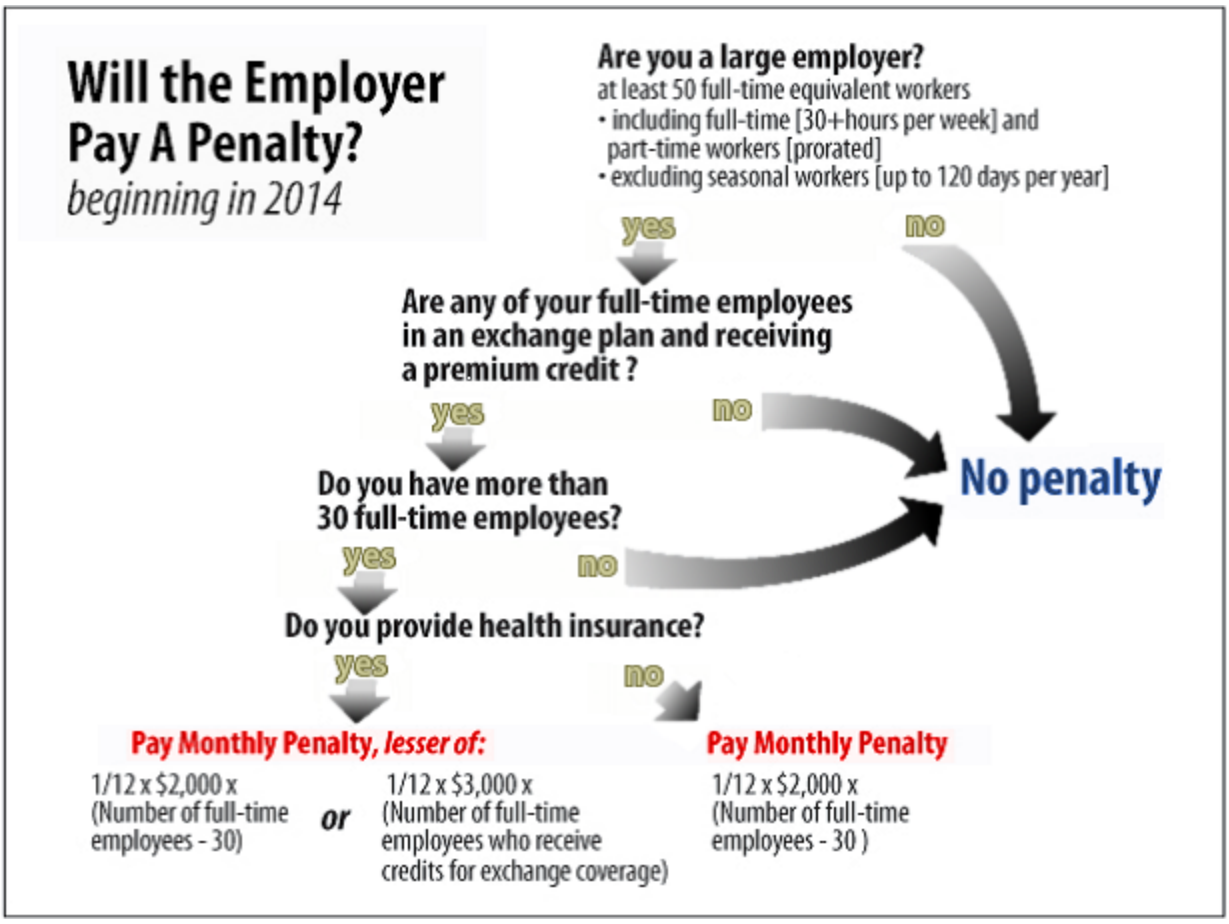
If a part-time employee obtains health insurance through an exchange, that will not trigger a penalty against their employer unless it is a large employer, and coverage was considered unaffordable.

If an employer does not offer insurance, but a full-time employee obtains insurance through a health care exchange, the penalty calculation against the employer is $2,000 per year multiplied by the number of full-time employees, excluding the first 30.

If an employer offers insurance, but full-time employees enter the exchange, the penalty is the lesser of (1) $3,000 annually for each employee entering the exchange, or (2) the penalty calculated for employers not offering insurance at all ($2,000 per year x the number of full-time employees, excluding the first 30).

Penalties are based on the number of full-time employees – not FTEs. FTEs are used only to determine if the employer qualifies as a large employer for the purposes of the PPACA.

The following chart from the Congressional Research Service (see references [33]) shows how to determine if an employer will pay a penalty starting in January 2015. On July 17, 2013, Congress passed legislation delaying until January 2015 the employer requirements, employer penalties, and related reporting requirements specified under the PPACA.



PPACA Summary and References

Reference Number: MTAS-1783

This is just a brief overview of this very complex issue, and does not address all factors involved in the calculation of the “large” employer threshold or the possible imposition of penalties.

For cities staffing a fire department with part-time employees, any part-time firefighter who works more than 30 hours per week is a full-time employee for the purpose of the Patient Protection and Affordable Care act.

Fire departments may use part-time employees without having to offer them health care benefits as long as the part-time employees do not work more than 30 hours per week. This may involve hiring additional part-time firefighters and working them on a rotating system to keep the hours worked per firefighter to less than 30 per week.

Volunteers are not subject to the PPACA. Cities may continue to use volunteers and paid-on-call firefighters as described above, and those personnel are not considered employees for FLSA or for the PPACA.

Fire department administrators are encouraged to consult with their agency’s human resources department for more information on the PPACA and its applicability to fire department staffing.

References:

Bianchi, Alden J. 2010. The “Employer Responsibilities” Requirement of The Patient Protection and Affordable Care act: A View from the Weeds. http://www.mintz.com/newsletter/2010/Advisories/0321-0410-NAT-HCR/web.html [34]

Bianchi, Alden J. 2011. Treasury/IRS Propose Safe Harbor under Affordable Care act's Employer Responsibility Rule for Determining "Household Income." http://www.mintz.com/newsletter/2011/Advisories/1405-1011-NAT-ELB/web.htm [35]

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Mulvey, Janemarie. 2013. *Potential Employer Penalties Under the Patient Protection and Affordable Care Act (ACA)*. http://www.fas.org/sgp/crs/misc/R41159.pdf [37]

Protecting Public Water Systems

Reference Number: MTAS-1893

The Fire Service's Role in Protecting Public Water Systems

Clean, safe, drinking water is something we take for granted, and every fire department needs to follow industry standard best practices to protect the water system and be aware of practices that threaten our public drinking water. Ensuring our water is safe is everyone's responsibility, including the fire department.

The public water system that supplies our drinking water is the same system firefighters use to supply water for firefighting efforts. Fire departments routinely connect apparatus to fire hydrants and thereby use public drinking water for firefighting. Fire departments serving areas with a public water supply usually refill the water tank on the fire apparatus using a fire hydrant or an outlet at a fire station that is connected to the public water system.

Significant efforts by the Federal government, the Tennessee Department of Environment and Conservation (TDEC), and others have improved water quality in public water systems. Most of this work has been a result of federal and state laws that have been enacted insuring the public water is safe to drink. Congress passed the first legislation regulating drinking water at the national level in 1974. The Safe Drinking Water Act provided the basis for national requirements on water quality standards and water supply operation. Tennessee uses this model to set state regulations concerning public water systems. The two biggest areas of concern for protecting the water system are been cross connections and backpressure contamination.

Cross-Connections

Reference Number: MTAS-1894

A cross-connection is an actual or *potential* connection between a potable (safe to drink) water supply and a non-potable (unsafe to drink) source, where it is possible for a contaminant to enter the drinking water supply.

In the residential setting, a cross connection is a direct link between a household water line and a contaminated source such as a garden hose, toilet tank, laundry tub, swimming pool, lawn sprinkler system, etc. The most common contaminants, such as pesticides, sewage, and detergents, can enter the public drinking water system through cross connections in home water lines. Most household cross connections are created by hoses. Under certain conditions, the flow in household water lines can reverse and siphon contaminants into the water supply. For example, using a garden hose to spray pesticides is normally harmless, but if the city's water supply is interrupted during the spraying, the potential for contamination exists. If water main pressure is reduced due to a water main break or nearby firefighting operations, a back siphonage effect is created. This can draw pesticide from the sprayer through the garden hose into the household water lines and possibly the water main. The contamination may be localized (the home), or spread through the water mains to other areas.

The public water system can also be contaminated by an effect called backpressure. Backpressure results when the water supply is connected to a system under high pressure such as a hot water boiler for home heating or a portable pressure washer. Since the pressure in these devices is higher than the normal home water supply, water can sometimes be forced backwards. Contaminants in these systems, such as cleaners or soaps in a pressure washer, can enter and contaminate the public drinking water supply.

In the fire department setting, cross-connections occur when a garden hose or fire hose is submerged into the water tank when filling a fire truck, when pulling the residual pressure too low on a fire hydrant, and even when a fire engine is being filled directly from a fire hydrant. An on-board foam system, such as a CAFS system, can introduce firefighting chemicals into the water system. These are only a few examples, and many more exist. As in the residential setting, a fire department created cross-connection or backpressure problem can contaminate the public water system.

Regulations on Fire Hydrants

Reference Number: MTAS-1895

Tennessee Water Regulations

Tennessee Department of Environment and Conservation (TDEC) regulations affect the way any fire department uses fire hydrants connected to a public water system. The current TDEC regulations took effect on January 1, 2006 and follow the 1996 Amendments to the Safe Drinking Water Act. TDEC regulations emphasize the protection of the public water supply and the prevention of introducing pollutants and contaminants into water systems.

The original rules in Tennessee were adopted in June 1974, and have changed at least four times over the past 43 years. On October 29, 2005, TDEC adopted state water regulations requiring all communities having or installing water systems to protect the system against contamination and to identify fire hydrants connected to the system. These rules are from the Tennessee Department of Environment and Conservation, Bureau of Environment – Division of Water Supply. The Rules and Regulations are issued under the authority of Public Acts of 1983, Chapter 324 where the Division of Water Supply is responsible for the supervision of all public water systems.

The purpose of these Rules and Regulations is to provide guidelines for the interpretation of T.C.A. § 68-221-701 *et seq.* and to set out the procedures to be followed by the department in carrying out the State's primary enforcement responsibility under the Federal Safe Drinking Water Act.

The rules apply to all public water supply systems that provide water for human consumption through pipes or other constructed conveyances, if such system has at least 15 service connections or regularly serves an average of at least 25 individuals daily at least 60 days out of the year.

According to the revised rule Paragraph (18) of Rule 0400-45-1-.17 Operations and Maintenance is amended in its entirety and substituting the following so that as amended the paragraph shall read:

(18) All community water systems planning to or having installed hydrants must protect the system from contamination. All water mains designed for fire protection must be six inches or larger and be able to provide 500 gallons per minute with 20 pounds per square inch residual pressure. Fire Hydrants shall not be installed on water mains less than six inches in diameter or on water mains that cannot produce 500 gpm at 20-psi residual pressure unless the tops are painted red. Out of service hydrants shall have tops painted black or covered with a black shroud or tape.

Existing Class C hydrants (hydrants unable to deliver a flow of 500 gpm at a residual pressure of 20 psi) shall have their tops painted red by January 1, 2008.

The water system must provide notification by certified mail at least once every five years beginning January 1, 2008, to each fire department that has reason to utilize the hydrants, that hydrants with tops painted red (Class C Hydrants) cannot be connected directly to a pumper fire truck. Fire Departments may be allowed to fill booster tanks on any fire apparatus from an available hydrant by using the water system's available pressure only (fire pumps shall not be engaged during refill operations from a Class C hydrant).

The complete list of TDEC rules is available online at the Tennessee Secretary of State's website at https://publications.tnsosfiles.com/rules/0400/0400-45/0400-45.htm [38]

A Matter of Public Health

Reference Number: MTAS-1896

So what does the fire department do: let the house burn down, or risk contaminating the water system? Either way, it is a matter of public health.

These are very good questions and should be decided before responding to a house on fire. A coordinated effort between the fire department and water utility is essential in protecting public health in these situations. In many cases, this cooperation has not always existed between the two departments. Issues related to locating fire hydrants have caused problems in many communities for years. One problem is locating fire hydrants strategic to fire department operations. The fire department's view is typically not the same as the water utility's view, especially in allowing for water system flushing. Who has the authority for properly locating fire hydrants? Different jurisdictions have different interpretations of this question. The answer should be that the fire department and water utility work together on these issues.

As required by Rule 0400-45-1-.17(18), the water purveyor must, at least once every five years, notify by certified mail every fire department served by that water system that certain fire hydrants cannot be used for firefighting. Most fire chiefs would say that this is pretty strong language but in the event of an emergency, decisions to use or not to use fire hydrants must be made. Who will assume the liability at the time of a fire where a fire hydrant is available but the fire department is not allowed to use it? Who will assume the liability if the water system becomes contaminated? Water officials can be held personally liable for allowing the system to become contaminated. Many fire service leaders believe the restriction on using Class C fire hydrants is too unreasonable especially in the event of a possible rescue of a trapped victim.

Can people actually get sick from the fire department connecting to a Class C fire hydrant? Will this actually contaminate the water system? According to several recognized articles by the Federal Environmental Protection Agency, there have been documented cases where water contamination occurred due to something that a fire department did or did not do. This way of contamination is quite difficult to pinpoint although a backpressure situation can occur anytime fire apparatus is connected to almost any fire hydrant.

In most cases where waterborne disease outbreaks have occurred, they have resulted in nausea, diarrhea, and cramps, however it is possible in some cases to result in very serious illness and even death. Experts believe that most waterborne disease outbreaks are not recognized, so in truth, there may have been many times more than what is reported. According to the American Water Works Association (AWWA), "Cross-connection contamination can provide an opportunity for large amounts of biological material to enter the distribution system. These events generally result in noticeable change in water quality, including turbidity, increased content of solids, and undesirable tastes and odors." However, in a report released by TDEC entitled "Tennessee Rural Water Needs Report" it states that only a very small percentage (less than 1%) of the domestic water used in a typical household is for drinking purposes. Therefore, if contamination does occur, there is a small chance that people will be adversely affected.

Fire officials have stated that fire departments seldom connect hard suction hose to fire hydrants, and therefore the possibility of causing a backpressure in a water system is minimal. Most fire departments use a soft vinyl hose to connect the pumper to the fire hydrant rather than the rigid hard rubber hose that was common many years ago. Unlike the hard suction hose, the vinyl hose will collapse as the residual pressure is dropped. Occasionally there could be a need for hard suction hose on a large fire but most fire departments do not carry hard suction hose any more. The exception to this is in rural areas where drafting from ponds or other surface sources is necessary or in tanker shuttle operations where a fire engine is used to draft from a dump tank. Regardless, using hard suction hose is a last resort operation for most fire departments.

The response to the observation that hard suction hose is seldom used is that it is still possible for the fire department, regardless of the type of suction hose used, to reduce the water pressure in the water mains to a point that results in back siphonage. The civil engineering definition of back siphonage is, "The flowing back of used, contaminated, or polluted water from a plumbing fixture or vessel into the pipe which feeds it; caused by reduced pressure in the pipe." The possibility of back siphonage and potential contamination negates the argument that fire departments seldom use hard suction hose.

Deficient Fire Flows

Reference Number: MTAS-1897

Why Communities Have Deficient Fire Flows

A community that discovers it has areas with deficient fire flows may wonder how that happened, and wonder why the water system and fire hydrants were installed while being inadequate for the community's fire protection needs. The reasons are many, but the most common reason a community has deficient fire flows is poor planning.

Water mains of four inches in diameter are adequate for supplying water for domestic use, such as for drinking, cooking, bathing, etc. In many rural areas, four-inch mains were installed to allow for the development of homes. However, a four-inch water main is incapable of supplying enough water to fight a fire. In addition, TDEC regulations require water mains of six inches or larger for the installation of fire hydrants. It is possible that developers, planners, builders, and others who are not aware of the need for adequate fire flows did not consult with the local fire department during the planning and design phase of a project. This is a key reason why it is critical that the fire department be involved in the review of proposed residential and commercial developments in a community.

Another reason is that needed fire flows are not always available during the design phase of a water system project. Many other factors also determine actual flows and water main sizes to certain areas. Fire hydrants are also used to flush public water systems and many hydrants have been installed for this sole purpose. Nevertheless, inadequate and unmarked fire hydrants provide a false sense of security to the fire department and property owners.

Correcting Deficient Fire Flows

Reference Number: MTAS-1898

TDEC Rule 0400-45-1-.17(18) provides a fire chief with justification to request improvements in the water system. The regulation does not prevent the fire department from using a deficient fire hydrant (for example to fill tanks), but it does prevent the fire department from using a deficient fire hydrant with the fire apparatus pump engaged, which may result in inadequate fire flows and a poor outcome in firefighting operations (i.e. increased property loss). Once the fire department has identified at-risk areas with deficient water supplies for firefighting, the fire department should request of the water department, and any other departments, agencies, or entities that would be involved in decision-making and funding, a plan to upgrade the water system to provide adequate water for the protection of life and property. An inadequate water supply for fire protection makes it difficult for a community to get a good ISO rating for affordable property insurance rates.

The TDEC regulation provides fire departments with a way to identify hydrants with deficient fire flows so that the fire department does not use the deficient fire hydrant if another hydrant with adequate fire flows is within a usable distance of the fire. The regulation requires that deficient fire hydrants be marked with a red top to denote that the fire hydrant flows less than 500 gallons per minute, thus identifying the hydrant as a deficient fire hydrant for responding firefighters.

Once areas of a community with deficient fire flows are identified, the fire department and water utility should use a cooperative approach to create and implement a plan of corrective action. The common goal for both the fire and water department should be to protect the water system and public health while delivering adequate fire flows to the entire community. Improving the water system can be costly, requiring engineering studies and design work, which takes time. In addition, the utility must find funding sources for the improvements. Therefore, correcting deficient flows will take time, but the sooner everyone develops and approves a plan, the sooner the community will enjoy the benefits of an adequate water supply for fire protection purposes.

Improving the water system, installing larger water mains, replacing older/smaller water mains, and installing fire hydrants is expensive. Smaller communities may be eligible for community development block grants (CDBG) to provide financial assistance in improving the water system for fire protection purposes. This is the link for the CDBG program in Tennessee for more information on these grants: https://www.tn.gov/ecd/community-development-block-grant/cdbg.html [39]

Identifying and Marking Deficient Fire Hydrants

Reference Number: MTAS-1899

For the purposes of marking fire hydrants, a deficient fire hydrant is a fire hydrant that cannot provide a fire flow of at least 500 gpm at 20 psi residual pressure. Deficient fire hydrants (Class C hydrants) must be properly marked and identified. The public also needs to be educated in this area. A typical homeowner who sees a fire hydrant near their home, or a business owner who sees a hydrant near his business, may not realize that the fire hydrant cannot provide enough water to extinguish a fire in the home or business. In addition to giving the homeowner or business owner a false sense of security, inadequate fire flows result in higher property insurance premiums. Most insurance requirements state that adequate water flows must be available within 1,000 feet of structures to get full credit for fire hydrants.

Where fire hydrants are properly marked, most fire departments only connect to a Class C hydrant as a last resort. The fire department needs a reliable water source and according to the Insurance Services Office (ISO) on community water systems, a minimum of 500 gpm is needed to fight a basic residential structure fire. Actually, depending on the distances between structures, the needed fire flow is much higher. ISO also does not recognize hydrants on water mains less than six inches in diameter. Therefore, connecting into a red top hydrant does not supply basic needed fire flows and is only done as a last resort. However, ISO will recognize a fire hydrant in a rural setting as a suction point where tanker shuttles are necessary as long as the hydrant can deliver a minimum flow of 250 gpm at a residual pressure of 20 psi for two hours.

Marking All Fire Hydrants

Reference Number: MTAS-1900

To fight a fire effectively, firefighters must be able to determine hydrant flows immediately upon arrival. Fire hydrants should be immediately recognizable to firefighting forces as well as to the public.

Fire hydrants should be color coded to NFPA Standard 291, *Recommended Practice for Fire Flow Testing and Marking of Hydrants*, 2019 Edition. Color-coded fire hydrants provide an immediate visual indication of available hydrant flow. Without color-coding, firefighters cannot know the flow potential of a hydrant, especially if the firefighters are responding to a mutual aid call.

The hydrant barrel should be chrome yellow unless the jurisdiction has adopted another color for their hydrants (NFPA 291 § 5.2.1.1). Other highly visible colors used by communities include white, bright red, chrome silver, and lime-yellow. In jurisdictions where no standard color has been established, the most important aspect is consistency. Standard colors should be adopted which, preferably, are the same throughout the region.

Paint the top (bonnet) and nozzle caps (discharges) appropriate colors to indicate hydrant capacity (NFPA 291 § 5.2.1.2).

Fire hydrant bonnets and caps shall be coded as follows (NFPA 291 § 5.2.1.2):

COLOR	CLASS	AVAILABLE FLOW @ 20 psi residual
BLUE	AA	1500 GPM or more
GREEN	A	1000-1499 GPM
ORANGE	B	500-999 GPM
RED	C	Below 500 GPM

NFPA recommends using reflective-type paint for easy identification at night (NFPA 291 § 5.2.1.3).

NFPA also recognizes that there are often functional differences in service provided by municipal and private hydrant systems. Therefore, NFPA specifies that non-municipal hydrants be painted a color that

distinguishes them from municipal hydrants. Furthermore, violet has been established as the international color code for non-potable water. Therefore, hydrants supplied by non-potable sources should be painted violet (light purple).

The following body colors are recommended for fire hydrants:

Supply	Body Color
Municipal System:	Chrome Yellow
Private System:	Red
Non-Potable System:	Violet (Light Purple)

One of the biggest mistakes made in color-coding a hydrant is the failure to reduce the residual flow pressure to 20 psi. Many departments will color code the hydrant at whatever the flow was without taking time to chart or calculate the actual flow at 20 psi. This requires extra work but can mean the difference in color-coding in up to 50 percent of the hydrants in a given system.

NFPA 291 recommends stenciling the rated capacity of hgh volume hydrants on the top (NFPA 291 § 5.2.1.5).

Flow Test a Fire Hydrant

Reference Number: MTAS-1901

Many fire departments and water utilities do not know how to flow a fire hydrant properly. According to TDEC, there is no state regulation on how to flow a fire hydrant, but TDEC recognizes the American Water Works Association (AWWA) pamphlet # M-17 as the recognized standard for testing fire hydrants. Pamphlet M-17 is what both ISO and NFPA recognize as the approved method for flowing fire hydrants.

According to this standard, the proper way to test a hydrant and water main is to put a cap gauge on the test hydrant and take a static reading. Then proceed down stream to the next flow hydrant and back up stream to the closest flow hydrant and flow both at the same time. Use as many ports and sizes of discharges to make the largest drop in residual pressure. Record the pitot pressure at each flowing port and then record the residual pressure back at the test hydrant.

When the test is complete, five pieces of data will be used in determining the flow of the hydrant: the static pressure, the residual pressure, the flow (pitot) pressure, the size of the outlet flowing water, and the number of outlets open during the test. This information will be converted to gallons per minute by using a calculator or flow chart. The residual pressure will need to be charted to record the flow in gpm at 20 psi.

According to water experts, the multi-hydrant flow test method is the best and most accurate way to conduct a test. Doing single hydrant flow tests (i.e. where one hydrant is used to get the static, residual, and pitot pressures) is one reason so many communities seem to have so many red top hydrants. ISO will not recognize a single hydrant flow test.

MTAS has an Excel spreadsheet that one can use to calculate and document the results of fire hydrant flow tests. This resource is available on the MTAS website at this link: http://www.mtas.tennessee.edu/knowledgebase/fire-hydrant-flow-test-results-calculator [40].

MTAS has a model press release that a community can use to notify residents when fire hydrant flow testing is going to occur. This resource is available on the MTAS website at this link: http://www.mtas.tennessee.edu/knowledgebase/model-press-release-fire-hydrant-inspections-and-flow-testing [41].

MTAS has a model ordinance adopting by reference the NFPA fire hydrant color coding standards and establishing certain standards for fire flows and hydrants and use of some existing fire hydrants. This resource is available on the MTAS website at this link: http://www.mtas.tennessee.edu/knowledgebase/fire-hydrant-ordinance [42].

Protecting Public Water Systems Conclusion

Reference Number: MTAS-1902

We all drink from fire hydrants and share a common goal to protect the water system. When using fire hydrants, fire departments have a responsibility for keeping our drinking water as safe as possible. A coordinated effort between the fire department and water utility is essential in protecting public health. Communities should identify and mark fire hydrants in all areas,and especially in areas with deficient fire flows. Once these deficient areas are identified, every stakeholder should be involved in creating, funding, and implementing a plan of corrective action to provide adequate fire flows to protect life and property. For efficient firefighting operations, communities should mark all fire hydrants in the community according to NFPA Standard 291. Good planning is needed to ensure that the community has adequate fire flows for fire suppression operations. The water supply represent 40% of the community's Insurance Service Office (ISO) rating, and cooperation is essential to meet everyone’s interests, to provide the adequate fire flows needed to protect life and property, and to keep the community's drinking water supply safe.

Scope of Practice EMS Rule Overview

Reference Number: MTAS-1947

The scope of practice for Emergency Medical Services (EMS) in Tennessee recognizes four levels of EMS providers: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), and paramedic. The level of First Responder no longer exists and was replaced by the level of Emergency Medical Responder (EMR). The current continuing education requirements for recertification took effect January 1, 2015.

The complete list of the rules of the Tennessee Department of Emergency Medical Services may be found at this link: https://publications.tnsosfiles.com/rules/1200/1200-12/1200-12.htm [43].

Current EMS Service Levels in Tennessee

Reference Number: MTAS-1948

Emergency Medical Responder (EMR)
A person who has successfully completed the Emergency Medical Responder training course and has qualified by examinations to perform lifesaving interventions while awaiting additional EMS response and to assist higher level personnel at the scene and during transport, under medical direction. (Rule 1200-12-01-.04(1)(a)5).

Emergency Medical Technician (EMT)
A person who has successfully completed the Emergency Medical Technician training course, has qualified by examinations to perform pre-hospital emergency patient care, and provides basic emergency medical care, under medical direction, pre-hospital and during transportation for critical, emergent and non-emergent patients who access the emergency medical system. (Rule 1200-12-01-.04(1)(a)6).

Advanced Emergency Medical Technician (AEMT)
A person who has successfully completed the Advanced Emergency Medical Technician training course, has qualified by examinations to perform pre-hospital emergency patient care, and provides basic and limited advanced emergency medical care, under medical direction, pre-hospital and during transportation for critical, emergent,and non-emergent patients who access the emergency medical system. (Rule 1200-12-01-.04(1)(a)1).

Paramedic
A person who has successfully completed an accredited Paramedic Program at the certificate or associate degree level, has qualified by examinations to perform pre-hospital emergency patient care, and provides basic and advanced emergency medical care, under medical direction, pre-hospital and during transportation for critical, emergent and non-emergent patients who access the emergency medical system. (Rule 1200-12-01-.04(1)(a)8).

The scope of practice for each level is found in Rule 1200-12-01-.04(b) through 1200-12-01-.04(e). Renewal requirements as also found in Rule 1200-12-01-.04. Here is the link to the rules as published by the Tennessee Secretary of State: https://publications.tnsosfiles.com/rules/1200/1200-12/1200-12.htm [43]

Registry Check Law

Reference Number: MTAS-1953

As of October 1, 2010, Tennessee requires that an employer complete a background check before employing or contracting with any person who would be providing direct patient care. The relevant section from state law is quoted below.

Tennessee Code Annotated 63-1-149. Registry check.
(a) On and after October 1, 2010, before employing or contracting with any person who would be providing direct patient care, for whom a background check has not been completed, a health care professional licensed under any chapter of this title or title 68, chapters 24 and 140, shall initiate and perform a "registry check" which for the purposes of this section is defined as:

(1) A state-by-state look in any state in which the person has lived in the previous seven (7) years of the national sex offender public registry website coordinated by the United States department of justice, including, but not limited to, the sexual offender registry maintained by the Tennessee bureau of investigation pursuant to title 40, chapter 39, part 2; and

(2) Any adult abuse registry maintained for any state in which the person has lived in the previous seven (7) years; and

(3) The department of health's elder abuse registry established pursuant to title 68, chapter 11, part 10.

(b) Should an applicant be listed on any of the registries listed in subdivisions (a)(1)-(3), the health care professional shall not employ or contract with the person if the person would be providing direct patient care.

(c) A health care professional who complies with the requirements to perform registry checks under subsection (a), or relies on a documented representation provided by an entity with which the health care professional contracts that the person who will work in the office is not on any of these registries, shall not be subject to civil or criminal liability solely based upon the information provided through a registry check under this section. This immunity shall extend to a claim related to the professional's refusal to employ or contract with a person based on information obtained from a registry check.

(d) This section is not intended to apply to contracted, external staff who provide such services as cleaning services, maintenance of office or medical equipment or other services where direct patient contact is not intended.

(e) This section shall not apply to health care professionals licensed chapter 12 of this title.

(f) The department of health shall post no later than October 1, 2010, in a conspicuous location on its website as well as the website of each applicable licensing board a link to all potential databases the health care professional would be required to check pursuant to subsection (a). In addition, each applicable licensing board shall notify all of its licensees at least annually through board newsletters of their obligations under this section.

State Recognition-Fire Department

Reference Number: MTAS-240

State Recognition and Local Approval Required

Tennessee Code Annotated § 68-102-301, *et seq*., require state recognition before a firefighting organization may operate or raise funds as a fire department. The Tennessee State Fire Marshal's Office enforces this law and sets standards and qualifications for becoming and remaining a fire department. Certificates of recognition are valid for three years, after which the fire department must apply for a renewal. T.C.A. § 68-102-306 provides that no new fire department may be created or recognized without the approval of the local governing body. This law must not be confused with the

Firefighter minimum training law where some counties were exempted from the requirements; there are no exceptions and/or exemptions to this law. Any person violating the law is guilty of a Class C misdemeanor punishable by a fine only under T.C.A. § 68-102-307.

The rules for fire department recognition may be found at https://publications.tnsosfiles.com/rules/0780/0780-02/0780-02-20.20150824.pdf [44]

The application for Fire Department Recognition may be found at https://www.tn.gov/content/dam/tn/commerce/documents/fire_prevention/forms/Initial_FD_Recognition_-_IN-1479.pdf [45]

The application for Fire Department Recognition Renewal may be found at https://www.tn.gov/content/dam/tn/commerce/documents/fire_prevention/forms/FD_Recognition_Renewal_-_IN-1480.pdf [46]

The Value of Volunteer Firefighters

Reference Number: MTAS-2061

All municipalities are facing the same challenge, which is how to stretch tax dollars, grants, and other sources of funding to provide the best municipal services possible. This is a particularly tough challenge for smaller municipalities with limited sources of funding, and for non-profit volunteer or combination fire departments. Personnel costs account for 85 percent to 95 percent of the operating budget in cities with fully paid public safety departments. Even in combination fire departments, personnel costs represent a large portion of the budget. Fire chiefs, city staff, and elected officials should consider the value of volunteer firefighters as a way to stretch financial resources. For fire departments that already have volunteer firefighters, it is important to understand the value the volunteer represents to the organization—not only in terms of their service, but in their value in offsetting certain operating costs.

Independent Sector (http://www.independentsector.org/volunteer_time [47]) estimates the dollar value of volunteer time for 2019 at $27.20 per hour. The annual value of volunteer time has increased dramatically over the last three decades as the following chart illustrates.

History of the Dollar Value of a Volunteer Hour: 1980 - 2019

YEAR	$ VALUE	YEAR	$ VALUE	YEAR	$ VALUE
1980	$ 7.46	1994	$12.68	2008	$20.25
1981	$ 8.12	1995	$13.05	2009	$20.85
1982	$ 8.60	1996	$13.47	2010	$21.36
1983	$ 8.98	1997	$13.99	2011	$21.79
1984	$ 9.32	1998	$14.56	2012	$22.14
1985	$ 9.60	1999	$15.09	2013	$22.55
1986	$ 9.81	2000	$15.69	2014	$23.07
1987	$10.06	2001	$16.27	2015	$23.56
1988	$10.39	2002	$16.74	2016	$24.14
1989	$10.82	2003	$17.19	2017	$24.69
1990	$11.41	2004	$17.55	2018	$25.43
1991	$11.76	2005	$18.04	2019	$27.20
1992	$12.05	2006	$18.77		
1993	$12.35	2007	$19.51		

NOTE: Values starting in 1990 were adjusted to reflect a new data series released by the Bureau of Labor Statistics.

For example, if a fire department responds to 500 alarms a year, averages 10 volunteers per response, and each response averages one hour in length, there is a direct value of $136,000 per year to the community. There is additional value in the time spent in training, station and equipment maintenance, fire prevention and community risk reduction efforts, etc. that contributes to the successful operation of the fire department and the level of fire safety in the community. In addition, if the fire department has a volunteer shift staffing policy, volunteers riding out at the fire station on scheduled shifts receive the same credit as a paid firefighter does under the ISO Fire Suppression Rating Schedule. While $136,000 is a significant amount of money, it is significantly *less* than the cost of staffing 10 firefighters 24 hours a day, seven days a week, 365 days a year, which would be over one million dollars, which is difficult to justify for a department answering 500 calls a year.

Another benefit of knowing the value of a volunteer firefighter hour is in billing for fire department services. A large special event, for example, may have police, fire and EMS coverage to protect participants. The event host may have to pay for police coverage, usually has to pay for EMS coverage, but rarely pays for the volunteer fire coverage. This is a disservice to the volunteers, as the event could not occur without proper coverage, and the event host should pay for the services received that helped make the event possible.

It is a common misconception that “volunteer” equals “free,” and many volunteer fire departments do not receive the financial support they need to operate safely and effectively. While a volunteer fire department may not have the expense of hourly rates and benefits for personnel, the department does have significant operating costs in insurance, fuel, utilities, supplies, training, maintenance, equipment replacement, and capital expenses. Communities must know and recognize the value of volunteer firefighters in terms of the service provided. Volunteer fire departments must communicate the value of their services to the community on a regular basis, and especially when requesting funds from municipalities, counties, and the public.

Video Recording Devices in Fire Service

Reference Number: MTAS-1906

There are many brands and types of inexpensive, waterproof, and rugged video and digital cameras on the market with storage capacities exceeding 32 gigabytes and pixel resolutions ranging from a lower quality 640x480 to high definition 1280x720. Many firefighters have purchased such cameras and mounted them on their fire helmet. These “helmet cams” record images and sounds from all types of fire department activities including but limited to training exercises, EMS responses, vehicle extrications, and fires. One can search the Internet and find many examples of videos taken by a firefighter using a helmet cam of training exercises, emergency responses, and activities inside the fire station. Whether firefighters are using these helmet cams or other types of video, photographic, and/or audio recording devices, such as glasses and pocket recorders, with or without the permission of the fire chief or city administration, helmet cams and similar video, photographic, and audio recording devices pose a potential liability to the person using the camera, the fire department, and the municipality.

As an example, on July 6, 2013, Asiana Flight 214 crashed at San Francisco International Airport. A battalion chief’s helmet mounted video recording device filmed the fire department working at the crash site, including when a crash truck ran over a 16-year-old girl from the plane. The video and still images from the video were shown in both TV and print media, and the use of the camera raised privacy issues.

The use of video recording devices continues to be debated in the media, and some fire chiefs have banned the use of helmet cams and other recording devices (i.e. iPhones, etc.). Video and/or audio recordings and photographs have benefits for training and documentation, but they also raise issues such as privacy concerns, ownership of the recording or image, access to the material as a public record, and long-term storage requirements. Fire departments should consider the costs and benefits of video, audio, and photographic records and create a policy to manage their use. Furthermore, municipalities must develop administrative controls (policy) to consistently answer the questions of privacy, ownership, records retention, and etc.

Recordings are Public Records

Reference Number:

MTAS-1907

Fire departments have photographed and videoed fire training exercises and emergency responses for decades, and there is no doubt that photographs, videos, and audio files are useful tools for evaluating performance, training, and improving emergency response techniques and operations. Typically, in these instances, the photographer or videographer was a person who was there to record the event and was not involved in the emergency response or training exercise itself. The difference with a helmet cam or similar “person mounted” video recording device is that the person using the camera is most likely involved in the actual response and can perform duties and tasks without having to hold or think about using the camera. Since this person is involved in the emergency response, they are “right there” and the camera may record faces and sounds that would be missed by a bystander. Though not "person mounted," a cell phone or digital camera is very easy to use and is included when discussing the recording of fire department activities.

Tennessee Code Annotated § 10-7-503(a)(1)(A) states:

As used in this part and title 8, chapter 4, part 6, "public record or records" or "state record or records" means all documents, papers, letters, maps, books, photographs, microfilms, electronic data processing files and output, films, sound recordings or other material, regardless of physical form or characteristics, made or received pursuant to law or ordinance or in connection with the transaction of official business by any governmental agency.

Key Provisions for Recording Devices

Reference Number: MTAS-1908

There are two key provisions of this act concerning video and photographic recording devices. First, the audio/visual electronic data files produced by the camera are included in the definition of public record. Second, if a firefighter uses the video or photographic recording device while on duty or engaged in fire department activities, which includes activities inside the fire station, on the training ground, or on an emergency response, under Tennessee Code Annotated (T.C.A.) all such video and/or photographs would have been made “in connection with the transaction of official business.” Since the audio/visual file is a public record, the video or photograph is open to inspection under T.C.A. § 10-7-503(a)(2)(A). In addition, T.C.A. § 10-7-505(d) directs the courts to interpret the provisions of the Tennessee Public Records Act “broadly…so as to give the fullest possible public access to public records.” Finally, Tennessee courts have found that even in the face of serious countervailing considerations, unless there is an express exemption within the law, a record and/or information must be released.

The open records act is not limited to video and sound recorded by helmet cameras. There are eyeglasses that record video and sound, pocket recorders that record video and sound, cell phone cameras that record video, photographs, and sound, etc. No matter what device is used, any video, photograph, and sound recorded by fire department personnel “in connection with the transaction of official business” is subject to the Tennessee open records act. This being said, the firefighter's personal device with a public record on it could be confiscated as evidence for extended periods of time.

Potential Liability for Recording Devices

Reference Number: MTAS-1909

The potential liability for the use of a video recording device such as a helmet cam is significant, especially on emergency responses where a person may be injured and the camera may record information protected by HIPAA. Individuals should consider the potential liability, possible violation of privacy laws, and implications of making these “up close and personal” videos, as the mere existence of the video opens the door to public record requests under the Tennessee Public Records Act. Municipalities and fire departments must control what happens in the fire department and should adopt policies that regulate and/or prohibit the use of personally owned video and still photography cameras, including those on cell phones, and the use of these cameras on municipal property, in the fire station, on training exercises, and on emergency responses.

It is imperative that municipalities capture images and video of their staff serving diligently and professionally to build strong community relations. The entities must lead this effort by proactively capturing these images/videos, vetting the images/videos, and then pushing the images/videos act to the public rather than just taking what they get from whoever posts. Most images recorded as a public entity are public record but there are some images/videos that are not public record.

The following is an example enacted into state law May 2017. Chapter No. 255: HB0732/ SB0442-Certain body camera (BWC) footage made confidential-Effective May 2, 2017. Amends T.C.A. § 10-7-504 by making BWC footage taken of a minor, taken within a school that serves grades K-12, the interior of a facility licensed as a healthcare, rehabilitation or mental health facility, or the interior of a private residence that is not being investigated as a crime, confidential. Provides that this provision will be deleted on July 1, 2022.

Sample Video/Photo Recording Devices Standard Operating Policy

Reference Number: MTAS-1910

Purpose

This Standard Operating Procedure (SOP) provides guidelines for the prudent and consistent use of video, photographic, and audio recording devices such as, but not limited to, fire helmet cameras, pocket cameras, cell phone cameras, eyeglasses cameras, digital audio recorders, and similar recording devices by fire department personnel in connection with the transaction of official business or in the scope of employment. The purpose of this policy is to protect the confidentiality of fire department members, patients, and the public, the careers of fire department members, the reputation of the fire department, and the operations of the fire department.

Scope

This SOP discusses the benefits, operation, use, function, maintenance, permission, and consent aspects of the video, photographic, and audio recording devices. For the purpose of the policy, the term video recording devices is all inclusive of helmet-mounted cameras pocket video cameras, pen video cameras, eyeglasses cameras, cell phone cameras, digital audio recorders, and similar portable devices that record video, photographic, and/or sound files. The Fire Chief has the final authority to determine if a video recording device is subject to this policy.

Benefits

The benefits of a video recording device such as a helmet camera include documentation of events so the fire department may use the video and sound files for evaluation of current practices and procedures for efficiency and effectiveness, for determining if firefighter have mastered firefighting skills and evolution, for determining if fire personnel use all personal protective equipment as required, for training purposes, for fire investigation purposes, for documentation of events on fire and emergency scenes, for quality assurance/quality improvement review, and for “hot wash” critiques of the fire department’s operations on emergency responses. The fire department has a duty to weigh the potential benefits against the potential risk and liability should the files be misused.

Ownership of the Video, Photographic, and Sound Data Files

- Any video, photographic, and/or sound files gathered on scene of an incident, on the training ground, in and around the fire station, and in connection with the transaction of official business or in the scope of employment are and remain the property of the fire department.
- All video, photographic, and/or sound files gathered on scene of an incident, on the training ground, in and around the fire station, and connection with the transaction of official business or in the scope of employment are reviewable by the fire department administration and may be sequestered if they are likely to be used as evidence.
- Video, photographic, and/or sound files may not be distributed or shared in any manner without prior approval for the Fire Chief.
- Video, photographic, and/or sound files may not be posted, uploaded, emailed, distributed, or shared on such as but not limted to Facebook, YouTube, or etc.

Compliance with the Open Records Act
Any video, photographic, or audio recordings made in connection with the transaction of official business or in the scope of employment are public records under Tennessee Code Annotated § 10-7-503(a)(1)(A) with the exceptions identified under Tennessee Coe Annotated § 10.7.504(29)(u) Confidential Records Exception;. Retention of all images and recording files shall be governed by the department's records retention policy and the Tennessee Open Records Act.

Prior Approval Required Before Use
Prior approval from the Fire Chief is required before a fire department member may use any video, photographic, and/or digital audio recording device such as, but not limited to, a helmet camera.

Use of the Recording Device
If approved for use, the use of the video, photographic, and/or digital audio recording device shall not delay any fire suppression or rescue activities. If time permits, the video, photographic, and/or digital audio recording device may be used on responses except for Emergency Medical only calls and direct patient care.

Limited Use of the Recorded Images and Files
If approved for use, the use of the video, photographic, and/or digital audio recording files shall be limited to normal fire department and law enforcement investigations and documentation, trainig and public relatios, and not-for-profit use. Recorded images and files may not be used for profit, commercial use, nor to endorse any product or service.

HIPAA Compliance and Privacy Requirements
- The video, photographic, and/or digital audio recording device may not be used to video or record private medical information or records
- The video, photographic, and/or digital audio recording device may not be used to record direct patient care.
- The video, photographic, and/or digital audio recording device may be used on rescue incidents. If the video, photographic, and/or digital audio recording device inadvertently records a patient care event, the fire chief will have the final authority in the use or purpose of the video, photograph, or audio files.

Eavesdropping and Illegal Activities
The video, photographic, and/or digital audio recording device shall not be used for any illegal activities such as eavesdropping, listening to, or recording private conversations, or making secret or hidden photographs. Members found guilty of violating this policy will be terminated immediately.

Voluntary Consent to Use Video and Sound Files
An individual may give consent to use their name, photographic or audio/visual likeness, voice, and oral statements obtained in a video of a rescue, other emergency event, training exercise, etc. for use in training, education, or any other usage desired by the fire department. The consent shall be voluntary on the part of the individual. The individual must complete and sign the proper consent form. The person giving the consent must be over the age of 18: a minor may never consent to the use of their name and photographic likeness.

_____ Fire Department
Video, Photo, and Sound Files Usage Consent Form

I, _____ (print name) give consent to the _____ Fire Department to use my name, photographic and/or audio/visual likeness, voice, and oral statements in all forms and media in the video and sound files obtained on _____/_____/_____.for training, education, recruitment, uploading, downloading, and any other lawful purposes. This authorization is continuous and I can withdraw this authorization in writing at any time.

I understand and agree that I will not be compensated in any way for the use of my name and photographic or audio/visual likeness.

By signing this form, I waive and release the _____ Fire Department and his/her/its officers, agents, employees, and heirs from any claim or liability relating to the use of my name, likeness, identity, voice, photographic image, audio/visual image and oral or recorded statements.

I am an adult, 18 years or older, and I have read and understand this agreement and I freely and knowingly give my consent to the _____ Fire Department as described herein.

Name (print): _____

Address: _____

City: _____ State:_____ ZIP: _____

Phone: _____

Signature: _____

Date: _____

Fire department rep: _____

Date: _____

Water Needs of TN Fire Departments

Reference Number: MTAS-405

Tennessee fire departments are organized, equipped, staffed, and trained to minimize injuries, deaths, and loss of property from fires. Although some fires require chemicals for extinguishment, water is the universal agent for extinguishing fires. Many communities in Tennessee do not have sufficient quantities of water for effective firefighting service, and they lack adequate resources to obtain a needed supply. Small city and rural fire departments often spend much of their time locating an available source of water for fire extinguishment. “When assessing the water needs of a community, the water needs of the fire department are often not considered even though fire protection is the only municipal delivery service where improved capability can result in savings to taxpayers through reduced property insurance premiums.” [1] Deficient fire flows (defined as an insufficient amount of water needed to extinguish a fire in a given building) not only hamper firefighting operations, place civilians and firefighters at risk, and contribute to higher property losses from fire, they penalize the entire community in the form of higher property insurance premiums from a poorer ISO rating.

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[1] Public Technology, Inc. (PTI) Washington, D.C. Model for Fire Station Location. Fire Suppression Rating Schedule Handbook.

Inability to Provide Water for Fire Service

Reference Number: MTAS-406

Problems Confronting Local Government's Ability to Provide Water for Fire Service

1. There is a lack of resources to fund improvements to the water system, including fire hydrants.
Cities often are reluctant to increase the property tax rate, or increase water rates, to fund improvements in the water system that are needed to improve community fire protection, even though such improvements can lead to savings in homeowners’ insurance premiums. Elected officials should realize that the savings in insurance premiums can be used to pay for minimizing property loss, and to reduce the number of injuries and loss of life due to fires. The savings in homeowner insurance premiums usually offset the costs for fire service improvements.

2. Many water utility districts, both public and private, provide only potable water for consumption and do not provide water for fire service.

Although municipal governments in Tennessee are responsible for providing fire service, utility districts that struggle to provide water for consumption often think they are not responsible for fire service. Many utility districts are faced with the same lack of funds to finance improvements to the water storage and distribution system that would be beneficial to city fire service.

The typical response from many water utility managers is, “We are not in the fire protection business.” They may not, or do not, recognize that 40 percent of a community’s Insurance Service Organization (ISO) rating, which is used to set local property insurance rates, is based on the water utility system. Many water utility boards of directors are unaware what affect they can have on a community by providing good fire protection. The ISO rating for a community is based half on the fire department and almost half on the water service. If a water manager is doing the right things, he also must be concerned with fire protection. The water utility is not in the full-time fire protection business, but it is responsible for supply adequate fire flows to protect the properties that are at risk in the community. Fire departments must establish good working relationships with the water/utility system(s) that serve their fire protection area(s).

3. The water utility district is not materially linked to local planning.
A water utility district operating within a city, or the city’s urban growth area, is not required to comply with the city’s growth plans or the city’s subdivision regulations. A city cannot enforce its subdivision regulations within its urban growth area without permission from the county. Cities in Oregon and Washington, states with growth regulations similar to those in Tennessee, are authorized to require that utilities comply with local government planning regulations. Tennessee law does not require that utilities comply with a city’s local planning regulations or the 20-year growth plan required by Public Chapter 1101.

Many small-town mayors pose questions such as, “How can I require a public or private water utility district operating within my city and urban growth boundary to comply with the city’s subdivision regulations? How can my city provide water to the fire department to prevent the loss of property and life due to fires?” Invariably the answer is, regardless of any city police powers, subdivision regulations, county growth plans, or city land use plans, cities clearly lack the authority to direct a utility district to comply with its development regulations. Cities cannot require water utilities to install needed fire hydrants or replace substandard water mains, even if a developer or a city agrees to pay the cost.

Cities need to investigate innovative ways of providing fire service and innovative ways for funding those services, many of which are outlined in this report. Cities should not approve new development projects unless there is sufficient water available to provide the needed fire flows. The fire chief or fire official should have a seat at the review table when developers bring proposed developments to a community and asked for preliminary review and comments. An adequate water supply commensurate with the risk should be required as part of the approval process. Deficient water for fire protection should be grounds for rejection of the proposed development until an adequate water supply is available.

4. Local governments generally lack the authority to take over and upgrade water utilities operating within their political jurisdictions.
Although state law allows a city to take over a utility operating within its jurisdiction, federal law prevents such action if the utility has outstanding bond obligations for utility infrastructure within the area. Cities have been unsuccessful in getting needed federal law amendments that would allow them to take over the utility upon paying off the bond debt.

Importance of Water

Reference Number: MTAS-407

The fire department is one of every city’s greatest assets. Even though cities may allocate significant resources for fire equipment and facilities, they are confronted with the need for an adequate water supply and delivery system. The water supply and delivery system counts for 40 percent of the Insurance Service Organization grading system that determines, to a large extent, private and commercial property fire insurance premiums. All properties in a community have minimum needed fire flows, especially commercial and industrial occupancies, which range from 500 gallons-per-minute (gpm) to 3,500 gpm or more. A large factory or warehouse, for example, might have a needed fire flow of 5,000 gpm. If the water system is not capable of delivering the needed fire flow, the Insurance Services Office (ISO) considers that a deficient fire flow, which has a negative impact on the

community's Public Protection Classification (i.e ISO Rating) and corresponding property insurance rates.

“Water is our most precious resource. This is especially true when considering firefighting applications. When it comes down to it, water is the fire department’s ammunition. Despite all the equipment, training, and efficiency of the firefighting personnel, an adequate water supply for firefighting plays the most important role in our ability to protect life and property from fire.” [2]

Not having an adequate and readily available supply of water for fire service can result in the following:

- High fire insurance premiums
- Inefficient and ineffective fire service
- A detriment to business and economic development; and
- High property loss and greater potential for injury and loss of life.

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[2] Water Supplies for Commercial and Residential Fire Protection, Colorado Springs Fire Department.

Water System Regulations

Reference Number: MTAS-408

Water System Regulations that Affect Fire Service

Minimum requirements for fire service are 500 gallons of water per minute (gpm) and water flows at 20 pounds per square inch (psi) residual pressure. This requires a minimum six-inch water main (see TDEC Regulation 1200-0400-45-01-.17(18)) for lower residential requirements. A professional engineer licensed in the state of Tennessee should determine the community’s water system storage capacity. Water is stored in standpipes, elevated water tanks, reservoirs, and clear wells at treatment plants. Many small-city fire departments take water from nearby streams, portable storage tanks, distant hydrants, and large tanker fire trucks. Tennessee fire departments are required to track the water usage from fire hydrants. and report the amount of water used to the local utility company.

Tennessee public water system regulations require that all community water systems planning to, or having installed, fire hydrants must protect the distribution system from contamination. Fire hydrants shall not be installed on water mains less than six inches in diameter, or on water mains that cannot produce 500 gallons per minute at 20 psi residual pressure, unless the tops are painted red. Out-of-service hydrants shall have tops painted black or covered with a black shroud or tape. Existing Class C hydrants (hydrants unable to deliver a flow of 500 gallons per minute at a residual pressure of 20 psi) shall have their tops painted red.

As of January 1, 2008, the water system must provide notification by certified mail at least once every five years to each fire department, that may have reason to use its hydrants, that fire hydrants with tops painted red (Class C hydrants) cannot be connected directly to a pumper fire truck. Fire departments may be allowed to fill the booster tanks on any fire apparatus from an available hydrant by using only the water system’s available pressure. (Fire pumps shall not be engaged during refill operations from a Class C hydrant.) While these regulations protect the water distribution system from contamination, they also speak to the need for an improved water source for Tennessee’s rural fire departments.

Planning for Water

Reference Number: MTAS-409

Fire Service Planning for Water

Most municipal subdivision regulations require six-inch water mains capable of delivering at least 500 gpm at a residual pressure of 20 psi, and they require that hydrants be installed no more than 1,000 feet apart or 500 feet from residential structures. Desired fire hydrant spacing for residential areas is to have fire hydrants spaced on 500-foot centers. For commercial and industrial areas, fire hydrants should be on 300-foot centers. Some commercial and industrial occupancies with needed fire flows exceeding 3,500 gpm may need hydrants to be spaced much closer in order to provide enough hydrants to meet

the needed fire flow. With the use of GPS equipment, insurance companies now can more accurately determine the exact distance of a structure from a fire hydrant and charge the correct property insurance rate. Public and private water utility districts operating within a city and its urban growth area are not required to comply with municipal subdivision regulations that require the installation of fire hydrants. There often is a serious disconnect between municipal planning and the provision of water by utility districts and private utility companies. It is somewhat ironic that only the largest utility, usually the electric system or the telephone company, was required to participate in the development of the 20-year urban growth plan required by Public Chapter 1101, and utilities are not required to comply with the city's growth plan.

According to Kevin J. Lauer, UT County Technical Assistance Service fire consultant, water systems typically can be designed and installed for fire protection with an increase in total project cost of only 4 to 10 percent over a potable system only. This is another area that will pay huge dividends over the next 10 to 15 years. He goes on to say that water systems and community development planning is a complex subject that local governments cannot afford to ignore. It is vital, not only for safety and property conservation, but also for the continued economic growth of a region.

Many communities in Tennessee want a water supply with six-inch or larger, depending upon the needed fire flow, water mains and community-wide fire hydrants. They want improved fire service to save lives and property; however, they complain about the affordability of such improvements. The Environmental Protection Agency (EPA) bases its affordability determinations on the criterion that a household with the median (50th percentile) income should be able to pay 2.5 percent of its pre-tax income for water. The 2015 median family income in Tennessee was $57,830. At 2.5 percent this affordability measure indicates that customers should be able to pay up to $120.48 per month for water. The average monthly water bill in calendar year 2000 for Tennessee cities with populations of less than 5,000 was $17.46. Most households in Tennessee are paying approximately one-sixth of the EPA affordability index amount. While the author is not advocating a six-fold increase in water rates, many families are paying considerably more for cable television service than for water service.

Value of Residential Sprinkler Systems

Reference Number: MTAS-410

Reducing Costs

Studies by the Federal Emergency Management Agency's United States Fire Administration indicate that installing residential fire sprinkler systems could have saved thousands of lives, prevented a large portion of injuries, and eliminated hundreds of millions of dollars in property losses. "Automatic sprinkler systems were the first and still are the foremost forms of automatic fire suppression system used throughout the world. With over 100 years of operating history and a 95 percent plus success record, these systems represent one of the most readily available means for effective fire suppression for a wide range of different occupancies. The success story for automatic sprinkler system in confining, controlling, and extinguishing developing fires in structures has been a phenomenon." [3]

Using quick response sprinklers and approved piping, homes can be built or even retrofitted to include low-cost automatic sprinkler systems connected to the domestic water supply, lowering insurance rates by 5 to 15 percent. At present, the cost of a home sprinkler system is approximately $1 to $1.50 per square foot in new construction amounting to about 1 percent of total building cost. More than 270 communities [4] now have residential sprinkler laws. The use of residential sprinkler systems and smoke detectors remains the key to reducing the overall fire death toll, which amounts to 83 percent [5] of all fire deaths.

"A study based on 15 years of data from Scottsdale, Arizona, categorized fire damage in two types of homes — those with and those without sprinkler systems. Property loss due to a fire in a residential home with a sprinkler system was $2,166 compared to $45,019 in the home without a sprinkler system. A 12-year study of Prince George's County, Maryland, reported fire damage in the home with sprinkler system amounted to $3,429 and, without, $326,752." [6]

A residential sprinkler system can help communities with a deficient water system allow sub-division development where the needed fire flow would otherwise be inadequate. For example, a sub-division with homes no larger than 4,800 square feet, with between 11 and 20 feet of separation between homes, requires a minimum fire flow of 1,000 gpm. However, if all of the home in the sub-division were

protected by a properly installed, NFPA 13 code compliant residential sprinkler system, the needed fire flow would be the demand at the base of the rise, or 500 gpm, which ever is greater. If the water system was capable of supplying 500 gpm, but not 1,000 gpm, the residential sprinkler system would provide the level of fire safety needed.

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[3] Water Supply Systems and Evaluation Methods, Dr. Harry E. Hickey.

[4] Residential Fire Safety Institute.

[5] Ibid.

[6] Economic Analysis of Residential Fire Sprinkler Systems by Hayden Brown.

Fire Insurance Ratings (ISO)

Reference Number: MTAS-411

The ISO uses a grading system from 1 to 10 with 1 being the best and 10 representing a community without an effective fire service. Within this grading structure, a split class means that all properties within 1,000 feet of a water supply (usually a fire hydrant) are eligible for the first class (1-8).

Properties that are more than 1,000 feet from a water supply, but within five road miles of a fire station, are eligible for either a Class 9 alone or Class N/NX split classification, where the X signifies an area protected by a Class N fire department and the area lacks an adequate water supply. All properties more than five road miles from a fire station are Class 10. An example would be a 3/3X classification, where most of the properties are within 1,000 feet of a water supply and meet other fire standards (Class 3), and some of the community is more than 1,000 feet from a water supply but within five road miles of a fire station (Class 3X). The challenge to local government is to improve the fire service using the savings from an improved insurance rate classification.

The ISO rates community fire service in Tennessee. According to the Tennessee County Fire Handbook, “For areas without a public water supply system, the following flow rates must be achievable for a minimum of two hours:

ISO Rating	GPM
9	100
8	250
7	350
6	450

The flow, measured in gallons per minute (gpm), must be established within 15 minutes from the alarm time.” [7]

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[7] Tennessee County Fire Handbook, Kevin J. Lauer, County Technical Assistance Service.

Importance of Insurance Ratings

Reference Number: MTAS-412

In the following example, if a homeowner pays $1 per year for fire insurance in a Class 10 rating, then:

- Class 9 pays 93 cents, (a savings of 7 percent over a Class 10.)
- Class 8 pays 72 cents, (a savings of 28 percent over a Class 10.)
- Class 7 pays 68 cents, (a savings of 32 percent over a Class 10.)
- Class 6 pays 65 cents, (a savings of 35 percent over a Class 10)
- Class 5 pays 63 cents, (a savings of 37 percent over a Class 10.)

- Class 4 pays 60 cents, (a savings of 40 percent over a Class 10.)
- Class 3 pays 58 cents, (a savings of 42 percent over a Class 10.)
- Class 2 pays 55 cents, (a savings of 45 percent over a Class 10.)
- Class 1 pays 53 cents, (a savings of 47 percent over a Class 10.) [8]

This information is just a guideline, as the actual rates a property owner will pay depend upon the proprietary formula their insurance company uses for calculating property insurance premiums.

ISO Mitigation Online reports the following breakdown for Tennessee communities as of October 2019:

Grade	Number of Communities
1	5
2	33
3	61
4	115
5	257
6	187
7	49
8	6
8B	12
9	119
10	15
Total	860

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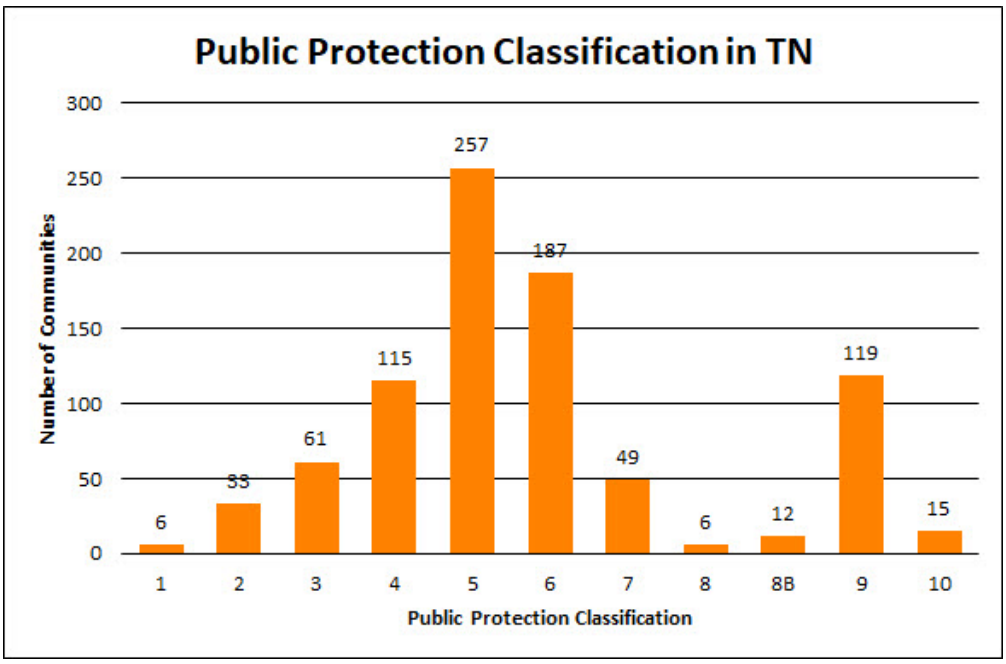
[8] www.isomitigation.com [48]

ISO Ratings of TN Fire Departments

Reference Number: MTAS-413



Of the 860 ISO-classified communities in Tennessee, 119, or 13.84 percent, are grade 9, as they meet only minimum standards.

The Tennessee ISO ratings are consistent with national ratings, as more than 18 percent of the fire districts in the United States have a Class 9 rating, which indicates the minimum recognized standard of fire protection.

While many Tennessee cities and utility districts with water systems have unaccounted-for water losses from 10 percent to as much as 50 percent, amounting to hundreds of thousands of gallons annually, the typical residential fire requires approximately 4,500 gallons for extinguishment, cleanup, and refilling tanks. Fire department usage is a mere drop in the bucket in comparison to water loss from leakage. A new Tennessee statute requires that cities report their unaccounted-for water losses annually. “The State of Arkansas addressed this problem in statutes indicating that nothing in this subchapter shall be construed to prevent county, municipal, or local water utilities or associations from contributing water free of charge for fire fighting and training activities to volunteer fire departments and districts. [9] The statute encourages a commitment to better fire service with the supply of water.

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[9] Arkansas Code Annotated 14-284-408. Contribution; funds; water.

ISO Rating Effect on Economic Development

Reference Number: MTAS-414

Fire Service Rating Effect on Commercial and Economic Development

Every small town and rural community in Tennessee is interested in promoting growth and commercial and economic development. They budget for economic development, participate in area development efforts, become Three-Star certified, subsidize new development, and support it in other ways. They want business and industry to locate in their communities for jobs and economic opportunities. A community that does not have adequate water for fire service is at a tremendous disadvantage over a community that does. The difference in commercial fire insurance premiums between a community with

adequate water for fire service and a community that does not have adequate water is significant, and in many instances may prevent industry from locating in the community. If two or more communities are competing to land a business, a community with a better ISO rating will have an advantage, as the business will pay lower annual property insurance premiums, which lowers the business's overhead costs.

Savings from Improved Fire Services

Reference Number: MTAS-415

Examples

A MTAS fire study for an East Tennessee city with a population of just over 4,000 with an ISO rating of Class 9 indicated that for a $100,000 home structure paying an annual fire insurance premium of $806, the annual savings per household where the ISO class was improved to Class 5 was $298. When multiplied by the estimated 1,477 homes inside the city, the annual savings to city dwellers amounted to $440,146. The cost of improving the water system was $695,470, 57 percent of the total $1,220,123 cost of improving fire service, including the water distribution system and installing hydrants. By using long-term debt and paying approximately$100 annually per household for fire service improvements, each household received savings of approximately $298 annually.

If a fire department improves its ISO rating, homeowners and businesses in the community often save money on their insurance premiums. If the savings are spent in the community, the extra cash can help the local economy. The U.S. Chamber of Commerce states that every dollar that stays in a community will turn over more than six or seven times. Using the above example, the $440,146 annual savings in insurance premiums minus the annual cost of $147,700 will generate an additional $292,446. When this turns over six times during the year it generates an additional $1,754,676 ($293,846 x 6) for the local economy. At the rate of 2.75 percent local sales tax, this savings generates $48,254 in additional tax revenue to the of improving the fire service and the water system. Much of this money currently is going to insurance companies outside the community. In this example, it clearly was in the local government’s interest to make the improvements with the projected savings. Cities in need of revenues for improving fire service may want to do a similar analysis.

“In 2000, the Rural Fire Protection Work Group, a committee appointed by Arkansas Governor Mike Huckabee, quantified the economic benefits of improved fire protection for that state. In its final report the work group estimated the statewide cost of projects to be about $150 million or $15 million a year for 10 years. Next, the work group projected the reduction in property insurance premiums when each of 839 rural fire departments has improved its Public Protection Classification (PPC) to Class 7. According to that analysis, the statewide savings would total more than $100 million per year. More than 425,000 homeowners would share the benefits, with an average savings of $235 per household. The Arkansas work group projected increased economic activity at more than $2 billion over a period of 13 years. According to the work group’s analysis, that economic activity would generate additional state and local sales tax revenue more than offsetting the cost of the improvements.” [10] These savings from approximately 700 fire departments in the state of Arkansas are consistent with the savings of the East Tennessee city cited previously. Perhaps a similar approach would work in Tennessee.

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[10] www.iso.com. [49]

Fire Resource Conservation and Development

Reference Number: MTAS-416

Councils (RC&Ds) in East Texas have begun a pilot project that will turn over to the state of Texas a model to improve rural volunteer fire department (VFD) fire suppression and to provide VFDs with training in homeland protection. The key, long-term measure of success will be that insurance ratings for many volunteer fire departments will be lowered, and, as a result, substantial savings will be returned to rural homeowners. The impact of a successful project in just 10 years could potentially be millions of dollars saved in reduced insurance premiums, which will boost local economies. In the short term, during the pilot project, 50 counties and their volunteer fire departments will:

- Prepare county master plans for improved fire protection;
- Train local volunteers in ways to lower their ISO rating; and
- Provide training in key areas of homeland security and emergency management.

The pilot project is modeled after a very successful statewide project in Arkansas. In just six years, that project improved the fire suppression capability of hundreds of volunteer fire departments and realized $25 million dollars in annual savings for rural counties when homeowner insurance rates dropped because of the improved ISO ratings.

The above examples demonstrate that there are substantial insurance cost savings from improving a community's fire service. Often the problem is that the government agency, the fire department, has the expense, and the homeowners receive the insurance savings from their insurance premiums. Many homeowners are not willing to return any savings realized from a reduction in insurance premiums to pay for needed fire service improvements. They do not want their property taxes increased to pay for the savings. Another funding mechanism is needed to capture these savings for the benefit of the fire service as well as the homeowner.

Could insurance companies enter into agreements with local governments to provide upfront the costs of needed fire service improvements, with the insurance company, the fire department, and the homeowner sharing in the savings? Could a government fund be established to contract with local governments for improving fire service with the fund and the fire department sharing in the savings? With a 3-to-1 return on investment from improved fire service, there are many potential ways to recover the insurance savings for the benefit of the fire department, the homeowner, and the finance organization. Tennessee cities have not sought optional and innovative ways to capture the insurance rate savings for the benefit of the fire departments and the homeowner.

Recommendations for Small Municipal Fire Departments

Reference Number: MTAS-417

Small municipal fire departments using volunteers are important to Tennessee cities. There are 723 recognized fire departments in Tennessee. Most of them are small fire departments struggling with water supply issues. Many small-city fire departments lack an adequate supply of water and the necessary funding to provide for needed supplies, equipment, and facilities. Improving a city's fire service rating can lead to homeowner insurance savings, and it can provide a mechanism to fund needed improvements in the fire service. Residential sprinkler systems can reduce the loss of life and property. Growth issues affecting a city's ability to provide an adequate level of fire service to its community need to be adequately addressed.

MTAS recommends that cities look for innovative methods to improve the water supply required for fire service such as:

- Develop and participate in model programs that pay for fire service improvements from reduced fire insurance rates, similar to the Texas model program outlined herein;
- Seek changes in federal laws that prevent a city from taking over a utility inside the city where the utility has outstanding bond obligations. Cities should be allowed to pay off the bonds and acquire the utility;
- Support changes in the state's growth laws requiring utility districts operating within a city, or its urban growth area, to comply with the city's subdivision regulations. This would give cities the ability to provide needed water for fire service; and
- Include utilities in the county/city 20-year growth plan.

Links:
[1] http://share.tn.gov/sos/rules/1200/1200-12/1200-12.htm
[2] http://www.nfirs.fema.gov/
[3] http://nfirs.fema.gov/
[4] https://www.gpo.gov/fdsys/pkg/CFR-2013-title29-vol3/pdf/CFR-2013-title29-vol3-part553.pdf

[5] http://www.irs.gov/pub/irs-pdf/p15a.pdf
[6] http://www.irs.gov/pub/irs-pdf/p15b.pdf
[7] http://www.irs.gov/
[8] http://www.dol.gov/whd/opinion/FLSA/2006/2006_08_07_28_FLSA.htm
[9] http://www.dol.gov/whd/opinion/FLSA/2005/2005_11_10_51_FLSA.htm
[10] https://firechief.iso.com/FCWWeb/mitigation/ppc/3000/ppc3015.jsp
[11] mailto:kristow@cpse.org
[12] http://www.cpse.org/
[13] https://www.mtas.tennessee.edu/reference/fire-records
[14] http://www.nfpa.org/codes-and-standards/all-codes-and-standards/
list-of-codes-and-standards/detail?code=1403
[15] http://www.firefighternearmiss.com
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[17] http://www.dol.gov/whd/opinion/opinion.htm
[18] http://uscode.house.gov/
[19] http://www.law.cornell.edu/uscode/text/29
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[26] https://www.isomitigation.com/fsrs/fire-suppression-rating-schedule-fsrs-overview.html
[27] https://www.isomitigation.com/fsrs/obtaining-fsrs-and-bcegs-documents.html
[28] https://www.isomitigation.com/about-us/iso-national-processing-centers/
[29] mailto:PPC-Cust-Serv@iso.com
[30] https://www.mtas.tennessee.edu/reference/
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[31] https://www.federalregister.gov/articles/2014/02/12/2014-03082/
shared-responsibility-for-employers-regarding-health-coverage
[32] http://www.irs.gov/pub/irs-drop/n-12-58.pdf
[33] https://www.mtas.tennessee.edu/reference/ppaca-summary-and-references
[34] http://www.mintz.com/newsletter/2010/Advisories/0321-0410-NAT-HCR/web.html
[35] http://www.mintz.com/newsletter/2011/Advisories/1405-1011-NAT-ELB/web.htm
[36] http://www.kff.org/health-reform/fact-sheet/
explaining-health-reform-how-will-the-affordable-care-act-affect-small-businesses-and-their-employees/
[37] http://www.fas.org/sgp/crs/misc/R41159.pdf
[38] https://publications.tnsosfiles.com/rules/0400/0400-45/0400-45.htm
[39] https://www.tn.gov/ecd/community-development-block-grant/cdbg.html
[40] http://www.mtas.tennessee.edu/knowledgebase/fire-hydrant-flow-test-results-calculator
[41] http://www.mtas.tennessee.edu/knowledgebase/
model-press-release-fire-hydrant-inspections-and-flow-testing
[42] http://www.mtas.tennessee.edu/knowledgebase/fire-hydrant-ordinance
[43] https://publications.tnsosfiles.com/rules/1200/1200-12/1200-12.htm
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FD_Recognition_Renewal_-_IN-1480.pdf
[47] http://www.independentsector.org/volunteer_time
[48] http://www.isomitigation.com
[49] http://www.iso.com/