Operational and Administrative Analysis
Oneonta Fire Department
Oneonta, NY

November 2015

FIRE/EMS OPERATIONS

CENTER FOR PUBLIC SAFETY MANAGEMENT

CPSM

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Exclusive Provider of Public Safety Technical Assistance for the
International City/County Management Association

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International City/County Management Association (ICMA)

The International City/County Management Association (ICMA) is a 100-year-old, nonprofit professional association of local government administrators and managers, with approximately 9,000 members spanning thirty-two countries.

Since its inception in 1914, ICMA has been dedicated to assisting local governments in providing services to their citizens in an efficient and effective manner. Our work spans all of the activities of local government — parks, libraries, recreation, public works, economic development, code enforcement, Brownfields, public safety, etc.

ICMA advances the knowledge of local government best practices across a wide range of platforms including publications, research, training, and technical assistance. Its work includes both domestic and international activities in partnership with local, state, and federal governments as well as private foundations. For example, it is involved in a major library research project funded by the Bill and Melinda Gates Foundation and is providing community policing training in Panama working with the U.S. State Department. It has personnel in Afghanistan assisting with building wastewater treatment plants and has had teams in Central America providing training in disaster relief working with SOUTHCOM.

The **ICMA *Center for Public Safety Management (*ICMA/CPSM*)*** was one of four Centers within the Information and Assistance Division of ICMA providing support to local governments in the areas of police, fire, EMS, emergency management, and homeland security. In addition to providing technical assistance in these areas we also represent local governments at the federal level and are involved in numerous projects with the Department of Justice and the Department of Homeland Security. In each of these Centers, ICMA has selected to partner with nationally recognized individuals or companies to provide services that ICMA has previously provided directly. Doing so will provide a higher level of services, greater flexibility, and reduced costs in meeting members' needs as ICMA will be expanding the services that it can offer to local governments. For example, The Center for Productivity Management (CPM) is now working exclusively with SAS, one of the world's leaders in data management and analysis. And the Center for Strategic Management (CSM) is now partnering with nationally recognized experts and academics in local government management and finance.

Center for Public Safety Management, LLC (CPSM) is now the exclusive provider of public safety technical assistance for ICMA. CPSM provides training and research for the Association's members and represents ICMA in its dealings with the federal government and other public safety professional associations such as CALEA. The Center for Public Safety Management, LLC maintains the same team of individuals performing the same level of service that it has for the past seven years for ICMA.

CPSM's local government technical assistance experience includes workload and deployment analysis using our unique methodology and subject matter experts to examine department organizational structure and culture, identify workload and staffing needs, and identify and disseminate industry best practices. We have conducted more than 200 such studies in 36 states and 155 communities ranging in size from 8,000 population (Boone, Iowa) to 800,000 population (Indianapolis, Ind.).

Thomas Wieczorek is the Director of the Center for Public Safety Management. Leonard Matarese serves as the Director of Research & Program Development. Dr. Dov Chelst is the Director of Quantitative Analysis.

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Section 1. Executive Summary

The Center for Public Safety Management, LLC (CPSM) was retained in November 2014 by the city of Oneonta to complete an abridged analysis of the city's fire department fleet. On the basis of that review the city chose CPSM to conduct a comprehensive analysis of its fire department operations, including its deployment practices, workload, organization structure, training, performance measures, prevention activities, and interactions with mutual aid partners and contract entities. Specifically, CPSM was tasked with providing recommendations and alternatives regarding the city's fire department operations, staffing levels, financial efficiencies, and alternative modes of operation.

During the study, CPSM analyzed performance data provided by the Oneonta Fire Department (OFD) and also examined firsthand its operations. Fire departments tend to deploy resources utilizing traditional approaches, which are rarely reviewed. To begin the review, project staff asked the city for certain documents, data, and information. The project staff used this information/data to familiarize themselves with the department's structure, assets, and operations. The provided information was also used in conjunction with information collected during an on-site visit to examine the existing performance of the department, and to compare that performance to national benchmarks. These benchmarks have been developed by organizations such as the National Fire Protection Association (NFPA), Center for Public Safety Excellence, Inc., (CPSE), and the ICMA Center for Performance Measurement.

Project staff conducted a site visit on June 8-10, 2015, for the purpose of observing fire department and agency-connected supportive operations, interviewing key department staff, and reviewing preliminary data and operations. Telephone conference calls as well as e-mail exchanges were conducted between CPSM project management staff, the city, and the OFD so that CPSM staff could affirm the project scope, and elicit further discussion regarding this operational analysis.

OFD provides a professional service with regard to fire and EMS service delivery. The department personnel with whom CPSM interacted are truly interested in serving the city and the town of Oneonta to the best of their abilities. One outstanding issue facing OFD is the limited number of units operational and the significant call load that is generated throughout its service area and upon request of its mutual aid partners. This workload is not, however, insurmountable and CPSM will provide a series of observations and recommendations that we believe can enable OFD to become ***more efficient*** and ***smarter*** in the management of its emergency and nonemergency responsibilities.

Recommendations

The OFD provides excellent service to its citizens, visitors to the area, and local businesses. The department is respected in the community and by city leadership. ***OFD is extremely cost-effective***. Its service to the town of Oneonta under an intermunicipal agreement and its delivery of EMS transport combine to generate substantial revenues that offset nearly two-thirds of the cost of

operating the fire department. This level of self-support is not often seen in our evaluations and is very commendable.

Thirty-four recommendations are listed below and in the applicable sections within this report. The recommendations are based on best practices derived from the NFPA, CPSM, ICMA, the U.S. Fire Administration, the International Association of Emergency Managers (IAEM), and the Federal Emergency Management Agency (FEMA).

These recommendations are listed in the order in which they appear in the report.

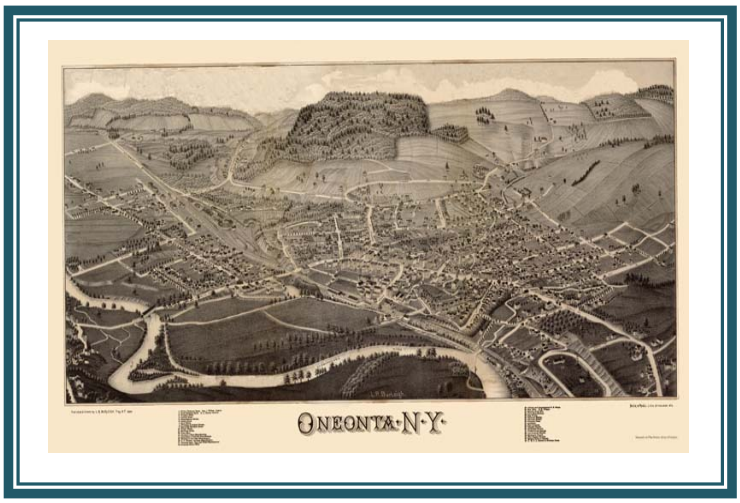
1. OFD should consider the use of part-time EMS personnel to handle EMS response and transports during weekdays between 9:00 a.m. and 6:00 p.m.
2. Oneonta should consider the creation of a second ranked supervisory position, possibly a lieutenant, and assign one lieutenant on each of the four shifts.
3. Oneonta should take those steps necessary to remove future fire chiefs from under civil service and place this employee under a managerial employment agreement working under the direction of the city manager.
4. Oneonta should attempt to negotiate an increase in the firefighter workweek from 42 hours to 50 hours and implement a three-platoon staffing system.
5. Oneonta should revise the current language in the CBA in Article X: Overtime Pay to exclude from the calculation of overtime eligibility any leave time utilized by an employee during a specific workweek.
6. OFD should conduct a formal fire risk analysis that concentrates on the city's downtown areas, high-rise structures, A.O. Fox Hospital, and manufacturing and institutional occupancies.
7. OFD should consider the modification of Department SOP # 11 so that the recall of off-duty personnel occurs when there are two simultaneous calls in progress, rather than a single call that is anticipated to last more than five to seven minutes.
8. OFD should build its training regimens and tactical strategies around an exterior or transitional attack when the fire scenario and the number of responding personnel warrant this approach.
9. OFD should reevaluate the quality assurance review processes currently in place for its fire incident reporting, particularly for the estimates of fire loss.
10. OFD should evaluate unit on-scene time for calls that do not result in a transport, with a goal of reducing this time and returning units back into service more rapidly.
11. The city should maintain its current relationship with the town of Oneonta Fire District and the Town of Oneonta in providing fire and emergency medical services under these intermunicipal agreements.

12. The city should establish a formal oversight process that enables the fire district, through its duly appointed representatives, to provide realistic input into the costs and service delivery model provided under the fire contract between the city and the district.
13. The city and the fire district should work to simplify the funding formula for the fire services contract and move to a multiyear agreement that is built upon a new base rate with annual cost of living adjustments.
14. OFD should assign a liaison to the Oneonta Fire District to serve as the official point of contact between the district and OFD regarding the fire contract.
15. The city and the fire district should jointly develop a strategic plan for fire and emergency services that charts the future design and performance measures for service delivery.
16. OFD should work closely with the Otsego 911 Dispatch Center to improve the center's call-screening efforts and identify those nonemergency and public assist calls that should not receive an emergency response.
17. OFD should expand the use of Cooperstown Medical Transport to provide backup EMS assistance when OFD units are unavailable.
18. OFD should work with Otsego County dispatch personnel to identify ways to reduce dispatch handling times. CPSM believes it is realistic to achieve a dispatch handling time at the 90th percentile that is within a two-minute time frame.
19. OFD should undertake a concerted effort to develop a comprehensive set of measures to monitor its system performance and system outcomes. The process of developing these measures should utilize input from OFD members, the community, the mayor and city council, the fire district, and city administration.
20. The OFD should revise its current prefire planning process and require in-service engine companies to conduct site visits into commercial, industrial, institutional and other high- and medium-hazard occupancies both within the city and town of Oneonta, for the purpose of familiarizing crews with these occupancies and developing tactical strategies in the event of a fire or emergency in these buildings.
21. Oneonta should consider the pursuit of fire accreditation through the Center for Public Safety Excellence (CPSE).
22. The Oneonta Fire Department should have a greater role and sign-off responsibilities in the review and approval of all high- and medium-hazard occupancies and all structures with on-site annunciation or fire protection systems.
23. The city of Oneonta should maintain the residential fire sprinkler requirements when adopting the 2015 ICC International Fire Code.
24. OFD should institute an in-service company inspection program in conjunction with the Oneonta Code Enforcement Office and which places fire department units into all critical occupancies for the purpose of conducting company inspections involving exit lighting, egress, storage, and the operational readiness of fire protection/notification systems.

25. OFD should institute a two-hour minimum daily training requirement for all line personnel for each 24-hour shift worked.
26. In contract negotiations with the fire union, the city should pursue a change in Article IX, Section 5B in order to eliminate overtime pay for EMS recertification training hours that are not done on-duty.
27. OFD should institute an annual physical fitness evaluation process for all emergency response personnel, including chief officers.
28. The city should expand the inclusion of other key city officials in both the emergency operations plan (EOP) and the city emergency operations center (EOC), specifically the chief of police, code enforcement officer, finance director, and public works director.
29. Oneonta should revisit the designation of the EOC in its main fire station and should consider an alternate site that can better accommodate a full EOC operation.
30. Oneonta should develop a training plan that includes annual tabletop exercises and a full-scale exercise every other year so that city management can become more familiar with the emergency management plan, their EOC responsibilities, and municipal operations during a disaster scenario.
31. The city should undertake a continuity of operations planning (COOP) effort for all major municipal functions and city facilities.
32. Oneonta should request monthly performance reporting from the Otsego County 911 Center regarding alarm handling times for OFD response units.
33. OFD and the Otsego County 911 Center should put into place methods to link their incident report numbering systems and should synchronize their time clocks.
34. OFD and the Otsego 911 Center need to build improved quality control systems into their dispatching, reporting, and review of EMS transport activities.

Section 2. Scope of Project

The scope of this project was to provide an independent review of the Oneonta Fire Department (OFD) so that city officials, including its fire officials, can derive benefit from an outside evaluation of the city's fire and EMS delivery system. This project is the second phase of an abridged analysis of the OFD Fire Apparatus study that was completed in December 2014 and which appears in full as an Appendix to this report. This second phase of the study provides a comprehensive analysis of the Oneonta Fire Department, including its organizational structure, workload, staffing, deployment, training, fire prevention, emergency communications (911), and its planning and public education efforts. City officials often attempt to understand if their fire/rescue department can provide services more efficiently, and commission these types of studies to measure a department against industry best practices. In this analysis CPSM provides recommendations where appropriate, and offers input on a strategic direction for the department's future.



Key areas evaluated during this study included:

- Fire department response times (using data from the county's computer-aided dispatch system and the city's Firehouse records management system).
- Deployment strategies and staffing.
- Fire and EMS unit workloads.
- OFD support functions (training, fire prevention/code enforcement/911 dispatch).
- Essential OFD facilities, equipment, and resources.
- Service responsibilities and interaction with the town of Oneonta
- Budget and financial management.

Section 3. Organization and Management

Governance and Administration

Located on the banks of the Susquehanna River, not far from its headwaters in the rolling hills of the Allegheny Plateau, Oneonta is the largest community in Otsego County. Oneonta is located along Interstate 88 at the intersection of U.S. Highway 28, approximately 60 miles northeast of Binghamton and 77 miles southwest of Albany. The city and this area of upstate New York are a blend of colonial America with a rich cultural connection to their Native American past. The word Oneonta is believed to have an Iroquois derivation, meaning a "place of open rocks" or a "place of many hills."

The municipal boundaries of Oneonta encompass 4.36 square miles of area and according to the U.S. Census Bureau,[1] the city of Oneonta had an estimated population in 2013 of 13,946. The city's official 2010 U.S. Census population was 13,901. The city is surrounded by the town of Oneonta, a separate municipal and political jurisdiction. Under an intermunicipal agreement between the city of Oneonta and the town of Oneonta Fire District, OFD provides fire services to a portion of the town, excluding those areas served by the West Oneonta Fire Protection District. In addition, the City maintains an intermunicipal agreement with the Town of Oneonta to provide EMS services. The Town encompasses an area of 33.6 square miles and an estimated population of 5,229 residents.

Oneonta is home to the State University of New York at Oneonta and Hartwick College, both of which occupy substantial campuses and related infrastructure and buildings, both within the corporate boundaries of the city and the town. A.O. Fox Memorial Hospital is the primary local medical resource and is located within the city as well.

Oneonta operates under a council/manager form of government. This form of government attempts to combine the political leadership of elected officials in the form of the Oneonta Common Council with the managerial experience of an appointed city administrator. The city of Oneonta is transitioning from a "strong mayor" form of government and moved to the council/manager form of government in 2012. The city manager had held his position for less than one year and resigned his position during the course of our analysis. Oneonta is attempting to establish itself and this new governmental structure; however, this transition continues to evolve.

The city charter is the basic law under which the city operates. The mayor is the formal representative for the city of Oneonta and is elected at-large, on a partisan ballot, to a four-year term. The mayor presides over the council meetings. Decisions on taxes, assessments, and ordinances require a concurring majority vote of the complete council. All other transactions require only a quorum or simple majority be present. The mayor votes only when it is necessary, in order to break a tie vote. The mayor also maintains, to a limited extent his role as a strong mayor in that he has veto power over legislative actions. The Oneonta Common Council is composed of eight

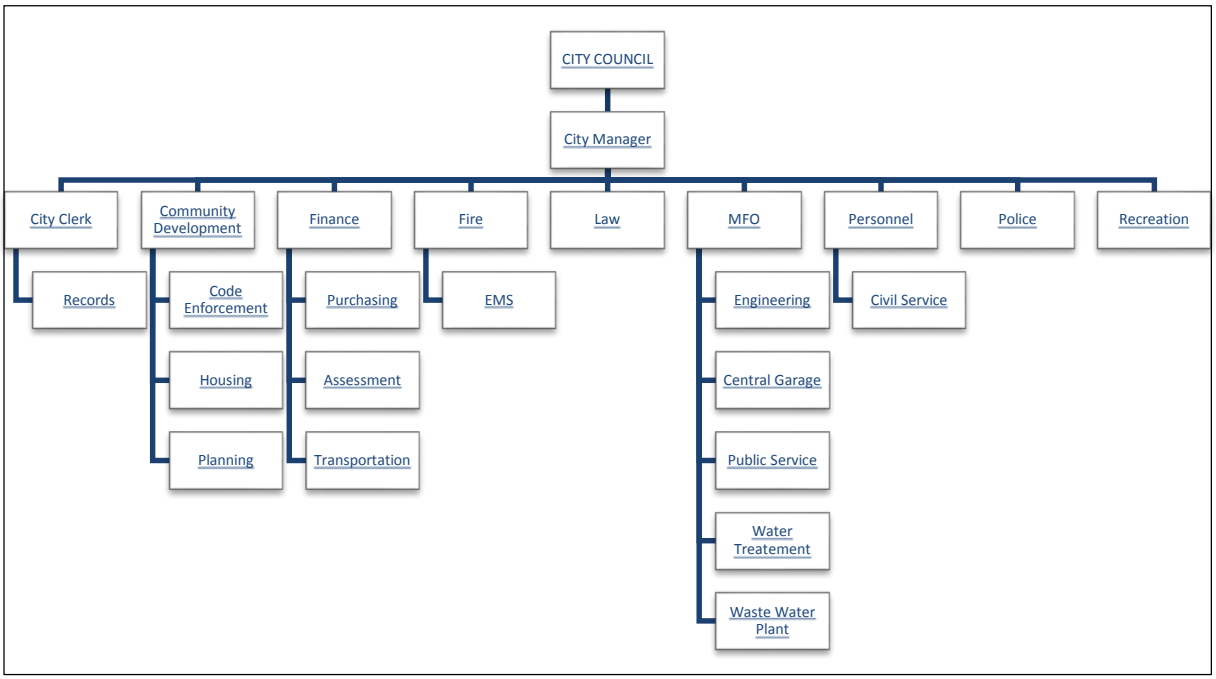
[1] http://quickfacts.census.gov/qfd/states/36/3654881.html

council members, each elected to four-year terms on a nonpartisan ballot. One council member is elected from each of the eight wards in the city. New ward boundaries went into effect on June 1, 2014. In November of 2015 six new council members and a new mayor were selected.

The city manager is responsible for the business, financial, and property transactions of the city, as well as preparation of the annual budget, appointment and supervision of personnel, enforcement of city ordinances, and the organization and general management of city departments. As chief administrator, the city manager has no vote in the council, but may take part in discussions of matters coming before the legislative body.

Oneonta is typical of many cities and towns across the United States in that it operates its own public works, community development, parks and recreation, and the internal functions of finance and human resources. Oneonta, as with most cities in New York State, is bound by civil service guidelines and personnel rules that affect all full-time permanent employees. The ability of the city manager to hire and fire city employees, particularly city department heads, is impacted considerably by civil service guidelines. Oneonta operates a separate police and fire department. Figure 2-1 illustrates the organizational chart for the city.

FIGURE 2-1: City of Oneonta Table of Organization

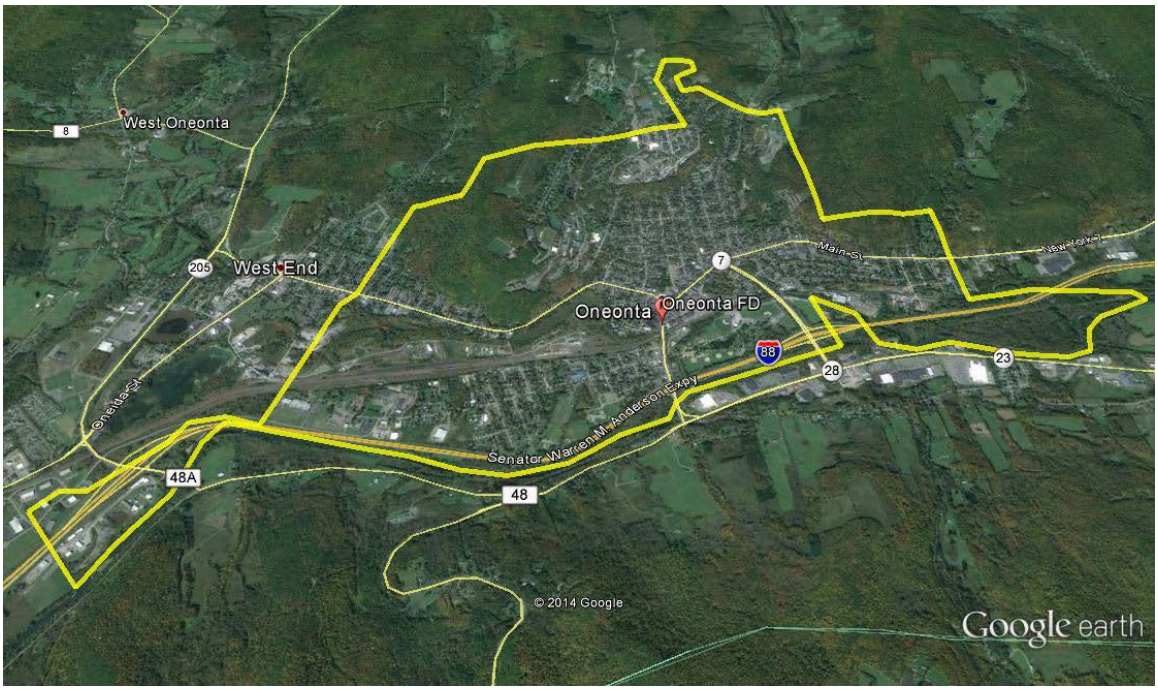


Oneonta Fire Department

The Oneonta Fire Department provides fire and emergency medical services (EMS) to both the city and town of Oneonta from its single fire station located at 81 Main Street (see Figure 2-2). The OFD employs twenty-six full time employees, of which twenty-four are assigned to field operations and

two serve in senior management capacities (fire chief and assistant fire chief). There is also one part-time employee who provides administrative support and also serves as one of the on-call firefighters. OFD utilizes seven on-call/part-time combat firefighters to supplement its on-duty staffing and for emergency call-back during larger events.

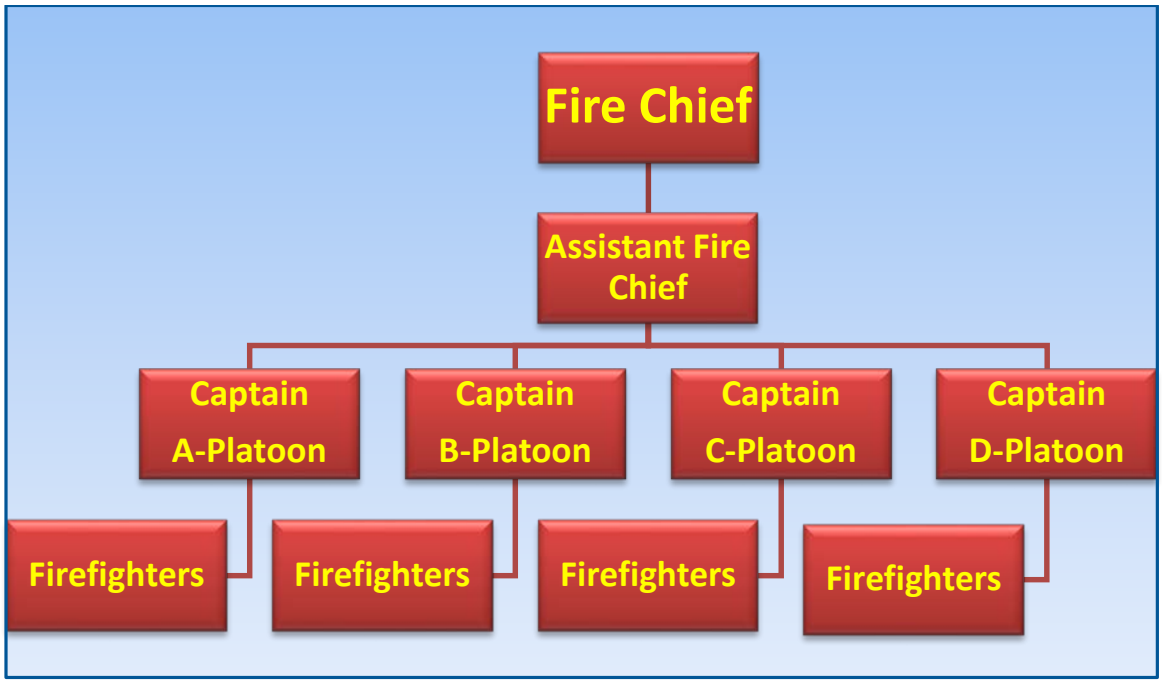
FIGURE 2-2: OFD Fire Station Location and Municipal Boundaries



The OFD operates with a traditional fire department organizational structure (see Figure 2-3). The department is led by the fire chief, who also serves as the city's emergency management coordinator. One assistant fire chief manages the day-to-day operations and assists the fire chief with various administrative and emergency response duties. Operationally, the OFD has four platoons, each led by a captain. Each shift has five firefighter positions for a total of six operational personnel assigned to each shift. All line personnel are certified as emergency medical service providers to either the basic life support (BLS) or advanced life support (ALS) levels. All new hires must attain advanced life support certification within four years of their hire date.

Operational shift personnel work 24-hours on and 72-hours off, for an average workweek of forty-two hours. The minimum staffing each day is six, which means the department operates with a constant staffing model; thus, when an operational vacancy occurs as a result of scheduled or unscheduled leave (sick leave, vacation, holiday leave, termination, etc.), that vacancy is filled either by utilizing the call-back of an off-duty person (utilizing overtime), or through the use of a part-time employee. In either case, OFD has adopted a six-person minimum staffing level and on-duty personnel strength typically never drops below this level.

FIGURE 2-3: OFD Organizational Structure



Our evaluation of the current staffing model utilized by OFD is that it is very appropriate given the service area, the scope of duties, and overall call volume. Though overtime expenditures, which will discussed later in this chapter, are averaging $300,000 annually, CPSM believes that this level of expenditure is justified given the current work schedule and the range of responsibilities managed by OFD. We do, however, believe that the current use of part-time/temporary employees can be managed more effectively and with a carefully designed schedule, may result in a reduction of overtime costs. The ability to maintain a ready force of part-time employees who are fully certified as fire fighters and EMTs can be difficult. Part-time employees must meet all the same requirements as full-time firefighters and EMTs. Due to these requirements, OFD has had difficulties maintaining sufficient numbers of part-time personnel to regularly supplement staffing levels and provide coverage for daily absences.

CPSM believes the OFD should consider the option of hiring part-time EMTs and paramedics. We believe these employees should work during the peak periods of operations (usually 9:00 a.m. to 6:00 p.m.) for nine-hour shifts. CPSM also recommend that these part-time employees only work weekdays. Monday through Friday. As purely EMS personnel, not trained or certified as firefighters, they would work exclusively on call activity involving EMS responses and EMS transports. CPSM believes that employing six part-time personnel, working upwards of a collective 27 hours each week, will reduce considerably the need to recall off-duty 24-hour full-time personnel. Additionally, having a third EMS response unit operational during the highest demand periods will expand the capacity of the organization to handle its EMS responsibilities. This will also free up fire units from handling routine transports and keep them available for initial response to EMS and other

emergency calls. CPSM also believes that the interest in such employment will be very high in the Oneonta area and there will be adequate numbers of qualified personnel to staff this personnel complement on a regular basis.

Recommendation: OFD should consider the use of part-time EMS personnel to handle EMS response and transports during weekdays between 9:00 a.m. and 6:00 p.m.

The presence of two universities in the Oneonta area can provide a ready pool of prospective candidates. With the necessary EMS certifications they may be very suitable for part-time employment. In addition, this pool of part-time employees may produce future candidates for full-time firefighter/EMT/paramedic positions as they become available. Employing six part-time employees, working approximately 1400 hours annually (27 hours times 52 weeks = 1400 hours), and paid at an hourly rate between $12 and $15 per hour, will cost an estimated $110,000 annually. The city has budgeted $94,000 in 2015 for its part-time staff, but actual expenditures for part-time employees has averaged less than $40,000 annually in recent years.

The deployment of personnel and apparatus is a very dynamic process. At the direction of the on-duty captain, employees are deployed on the basis of the nature of a call, its location, and the estimated duration of the response. OFD typically staffs responding units (engines, ladders, and ambulances) with three personnel each. Under normal conditions two staffed apparatus are operational at all times. The on-duty captain is responsible for making personnel assignments to the various apparatus and will change this deployment on the basis of the request. In addition to the on-duty captain, OFD utilizes a ***crew leader*** to serve as an interim supervisor in the absence of the captain. The crew leader serves as a supervisor and is responsible for both on-scene and administrative functions in the absence of the captain. Crew leaders are frequently utilized in the OFD system for both the coverage for the on-duty captain and during recalls. Because OFD typically operates with two separate emergency response apparatus and these units are frequently operating independently, CPSM sees the value of the crew leader position and believes that this position should be a fire officer who is permanently assigned within the OFD organizational structure.

Recommendation: Oneonta should consider the creation of a second ranked supervisory position, possibly a lieutenant, and assign one lieutenant on each of the four shifts.

We recommend that this newly created officer take the place of the crew leader. However we do not believe that this should be an additional position, as each shift can continue to operate with six personnel as follows;

- 1 captain.
- 1 lieutenant.
- 4 firefighters.

We propose that this be a position gained via promotion, and selected through a competitive process that requires supervisory and fire officer training for eligibility. In a competitive process

these positions would be filled on the basis of merit and would not automatically go to the existing crew leaders or be based solely on seniority or prior experience as a crew leader. The creation of a new officer's position may also benefit the organization in establishing a more robust promotional process that adds additional training requirements, formal college education, and the utilization of a full assessment center process in making selections. It is possible that the implementation of a new promotional selection process that includes enhanced prerequisites would be resisted by the fire labor union. Creating this position and process would normally necessitate agreement through collective bargaining and civil service approval. However, because creating a new position will provide opportunities for promotional and career advancement, CPSM believes that the reception of these added criteria may be more welcomed. We would recommend the development of a promotional process for these positions that includes the following;

- Minimum educational requirement of an Associate's Degree from an accredited college or university.
- Passing of an annual fitness assessment (Modified CPAT).
- Completion of ICS Coursework (ICS 100, 200, 300, 400).
- Demonstrated competencies in operating a computer and utilizing the Firehouse records management system.
- Competitive scoring in an assessment center process.

In addition, CPSM believes that this position should be a prerequisite for any future promotions to captain and assistant chief. Over time, all officers and chief officers will have come through this process and high-level knowledge and concepts will have been institutionalized within the system. We recommend that this officer be assigned to the vehicle running in tandem with the unit on which the Captain is operating; during the absence of the captain this new officer will step-up into this role. This will provide supervision on each vehicle and a career ladder for personnel development.

As mentioned earlier, the fire chief (and assistant fire chief) are protected under civil service in the state of New York. The civil service system is very rigid and cumbersome in both the selection of qualified candidates and the removal of employees due to poor job performance. CPSM believes that civil service has outlived its usefulness as it relates to the appointment of key municipal officials, particularly the fire chief. Today's government must be efficient and responsive to the needs of the community. The actions of government officials must be fully accountable and transparent. The days of political patronage and the wholesale discharge of government officials in the wake of political elections is not inherent in the council/manager form of government. The fire chief is a professional manager who must follow the direction of the city manager. The fire chief is a key leader in city government, and provides oversight, long-range planning, and financial management for the city's emergency services network.

The current civil service requirements for fire chief do not provide for the types of professional experience and formal training that are needed in managing a modern fire and EMS delivery system. Current requirements include only a high school diploma or GED and seven years fire

service experience, three of which must be in a supervisory capacity. The civil service test is limited to a multiple choice format and the state imposes strict guidelines on the selection process, with limited abilities for a municipality to modify the selection process or add additional training or prerequisite qualifications. The process makes it extremely difficult to make selections from candidates who reside outside the state of New York.

CPSM believes that the fire chief should work under the direct supervision of and at the pleasure of the city manager. In today's public sector employment arena, public employees are afforded considerable protection under law and public employment practices. The ability to remove an employee, including key public officials, must first withstand the scrutiny of those tests of fairness, the absence of bias and discrimination, and must be based on documented performance deficiencies.

> ***Recommendation: Oneonta should take those steps necessary to remove its future fire chiefs from civil service and place this employee under a managerial employment status working under the direction of the city manager.***

Our recommendation on the removal of the fire chief from civil service in not a reflection on the current fire chief nor is it a product of his working relationship with the past city manager. The effectiveness of the council/manager form of government is built upon professionalism, strong working relationships, and effective communications. For a city manager to be successful he or she must have a team composed of the city's key leadership and the fire chief must be part of this team. The fire chief must support the direction of the city manager and he or she must be a solid advocate of the manager's position once a course of action is decided upon. They must have regular and direct communication; if the city manager losses confidence in the fire chief, he or she should have the ability to replace the fire chief (or any department director) on the basis of their ineffectiveness to serve in this capacity. The fire chief/emergency manager must have the skill sets and professional credentials that are essential in carrying out the functions of government. Having the ability to test for these criteria, or add certain qualifications to fill a void, or provide the right fit in the organization is critical. Civil service limits this flexibility and makes government unable to adapt to present and future challenges of modern governance.

As discussed above, OFD line personnel work a 24/72 work schedule and a 42-hour workweek. Though this is a work schedule typically found in many communities in the areas surrounding Oneonta, it is not the most prevalent scheduling utilized by fire departments across the nation. In a 2012 *Data Report* compiled by ICMA, of the 84 agencies responding to the workweek question, only five agencies reported workweeks that were less than 48 hours.[2] The 42-hour workweek is inherently more expensive. It requires a four-platoon system as opposed to a three-platoon system. This necessitates four employees for each position versus three in a three-platoon system. In addition, average hourly wages are significantly higher when the total hours in a workweek are lower, which drives up overtime costs. For example, an employee making $50,000 annually on a 42-

[2] Comparative Performance Measurement-FY2011 Data Report, International City/County Management Association (ICMA), 2012.

hour workweek is paid $22.89/hr., while an employee on a 50-hour workweek is paid $19.23/hr. At the overtime rate (1.5 X hourly), the 42-hour employee is paid $5.50 more per hour than the employee on a 50-hour workweek. In looking at OFD's annual overtime hours (approximately 9,000 hours), this equates to an additional $49,500 annually.

Recommendation: Oneonta should attempt to negotiate an increase in the firefighter workweek from 42 hours to 50 hours and implement a three-platoon staffing system.

If it is able to alter workweek hours, OFD could move to a three-platoon system and reassign the fourth platoon's six personnel among the remaining three shifts. This will increase assigned staffing from six to eight personnel. If minimum staffing is kept at six personnel, each shift will have two added personnel for coverage. At least one person per shift will be needed to cover off-time for workweek reduction (Kelly Day), and one person will be available to cover scheduled and unscheduled absences. CPSM estimates that OFD expends approximately $125,000 annually in overtime costs in order to maintain minimum staffing. We believe that by moving to a three-platoon system and redistributing the current complement of staffing, there will be a 50 percent reduction in the current overtime needed to maintain minimum staffing, or roughly $60,000 in annual savings.

In addition to a change in the current workweek, Oneonta should attempt to clarify the definition of ***time worked*** for the purpose of determining overtime eligibility. Under current CBA provisions, overtime is considered as any time worked in addition to the normal work schedule. Article X, Section 1 states: *Employees covered by this agreement who are required to work at any time other than their regular schedule as set forth in Article XIX, shall be paid for such time at a rate of 1½ times their regular hourly rate*. The Fair Labor Standards Act, which regulates overtime rates for municipal employees, only requires overtime pay when the ***actual hours worked*** are in excess of the normal workweek. FLSA does not require that this calculation include time scheduled but not worked, such as vacation time, sick leave, or holidays (Federal or otherwise).[3] Oneonta has chosen to provide this added benefit, thus going beyond FLSA requirements.

Recommendation: Oneonta should revise the current language in the CBA, in Article X: Overtime Pay, to exclude from the calculation of overtime eligibility any leave time utilized by an employee during a specific workweek.

The city has negotiated this added benefit into the current CBA and if it chooses to alter this position it would need to renegotiate this provision in a future CBA with the firefighters' local.

[3] U.S. Department of Labor, Wage and Hour Division, Overtime Pay: General Guidance.

Section 4. Operational Planning, Response, and Workload

Fire Risk Analysis/Target Hazards

The cost of providing fire protection in most communities has increased steadily in recent years. This has been fueled in part by rising wages, additional special pay, and escalating overtime costs. In addition, funding requirements have been compounded by increasing insurance premiums and spiraling pension contributions. At the same time, the workforce has become less productive largely because of higher levels of lost time resulting from increased vacation leave, greater usage of sick leave, and increases in other miscellaneous lost time categories (workers' compensation, light duty, FMLA, holiday leave, training leave, etc.). As a result of these factors, many jurisdictions are asking the fundamental question of whether the level of risk in their jurisdiction is commensurate with the type of protective force that is currently being deployed. To this end, a fire risk assessment and hazard analysis process is typically utilized in an effort to provide a more objective assessment of a community's level of risk.

A fire risk analysis utilizes a "fire risk score" which is a rating of an individual property on the basis of several factors, including needed fire flow, probability of an occurrence based on historical events, the consequence of an incident in that occupancy (to both occupants and responders), and the cumulative effect of such occupancies and their concentration in the community. From this analysis a score is established and this is used to categorize the property as one of low-, moderate-, or high/maximum-risk. To assist in this endeavor, there is specific training and a number of retail software products currently available for carrying out this process.

Plotting the rated properties on a map will provide a better understanding of how the response matrix and staffing patterns can be used to provide a higher concentration of resources for worse-case scenarios or, conversely, fewer resources for lower levels of risk.[4] The community fire risk assessment may also include determining and defining the differences in fire risk between a detached single-family dwelling, a multifamily dwelling, an industrial building, and a high-rise building by placing each in separate category. Further, an overall community risk profile can be linked to historical response time data. That analysis can then be used to establish response time baselines and benchmarks.

Community risk and vulnerability assessment are essential elements in a fire department's planning process. OFD has not completed a comprehensive community risk and vulnerability assessment. The leadership in OFD has recognized the importance and usefulness of this process and has begun to obtain the necessary training to complete this assessment. According to a National Fire Protection Association (NFPA) paper on assessing community vulnerability, fire department

[4] *Fire and Emergency Service Self-Assessment Manual,* Eighth Edition, (Center for Public Safety Excellence, 2009), 49.

operational performance is a function of three considerations: resource availability/reliability, department capability, and operational effectiveness.[5] These elements can be further defined as:

Resource availability/reliability: The degree to which the resources are ready and available to respond.

Department capability: The ability of the resources deployed to manage an incident.

Operational effectiveness: The product of availability and capability. It is the outcome achieved by the deployed resources or a measure of the ability to match resources deployed to the risk level to which they are responding.[6]

Recommendation: OFD should conduct a formal fire risk analysis that concentrates on the city's downtown areas, high-rise structures, A.O. Fox Hospital, and manufacturing and institutional occupancies.

Target Hazards

The process of identifying target hazards and preplanning suppression and rescue efforts are basic preparedness efforts that have been key functions in the fire service for many years. In this process, critical structures are identified on the basis of the risk they pose. Then, tactical considerations are established for responding to fires in these structure. Consideration is given to the activities that take place (manufacturing, processing, etc.), the number and types of occupants (elderly, youth, handicapped, imprisoned, etc.), and other specific aspects relating to the construction of the facility or any hazardous or flammable materials that are regularly found in the building. Target hazards are those occupancies or structures that are unusually dangerous when considering the potential for loss of life or the potential for property damage. Typically, these occupancies include hospitals, nursing homes, high-rise buildings, and other large structures. Also included are arenas and stadiums, industrial and manufacturing plants, and other buildings or large complexes.

Oneonta has a limited number of target hazards within its service area. Certainly the A.O. Fox complex would be a target hazard, along with area nursing or adult care facilities (Robynwood Home, Hampshire House, Fox Adult Day Care, Bassett Health Care, the Plains at Parish Homestead, and Nader Towers). The historic downtown along Main Street would also be considered a target hazard and specific preplanning efforts for this area would be appropriate. In addition, high-rise dormitories and lab buildings at SUNY and Hartwick College should be included. There are several manufacturing establishments (Burt Rigid Box and Corning Industries) that may also be considered. The city/town has a number of large assembly facilities (schools, theaters, and churches) and some large storage facilities, big box retail stores, and distribution centers. The presence of Interstate 88

[5] Fire Service Deployment, Assessing Community Vulnerability: From http://www.nfpa.org/assets/files/pdf/urbanfirevulnerability.pdf.
[6] National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011.

and Highway 28 present the potential for transportation accidents and the dispersal of product, which could require specific tactical consideration and preparation. In addition, the presence of Canadian Pacific Railroad would also create operational concerns in the event of derailment or the breach of container cars carrying hazardous or flammable product.

Operational Response Approaches

Many agencies incorporate the use of prefire plans to provide a response and tactical strategy for those more critical or complex occupancies in the community. The community risk and vulnerability assessment evaluates the community as a whole, and with regard to a property, measures all property and the risks associated with that property, and then segregates the property as either a high-, medium-, or low-hazard, and these ratings are further broken down into varying degrees of risk. According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

> **High-hazard occupancies:** Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard or large fire-potential occupancies.
>
> **Medium-hazard occupancies:** Apartments, offices, and mercantile and industrial occupancies not normally requiring extensive rescue by firefighting forces.
>
> **Low-hazard occupancies:** One-, two-, or three-family dwellings and scattered small business and industrial occupancies.[7]

Figures 4-1 and 4-2 illustrate the critical tasks and resource deployment required on low-risk incidents and moderate-risk incidents such as structure fires. Understanding the community's risk greatly assists fire department management planning for and justification of staffing and apparatus resources.

[7] Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), 12.

FIGURE 4-1: Low-Risk Response-Exterior Fire Attack

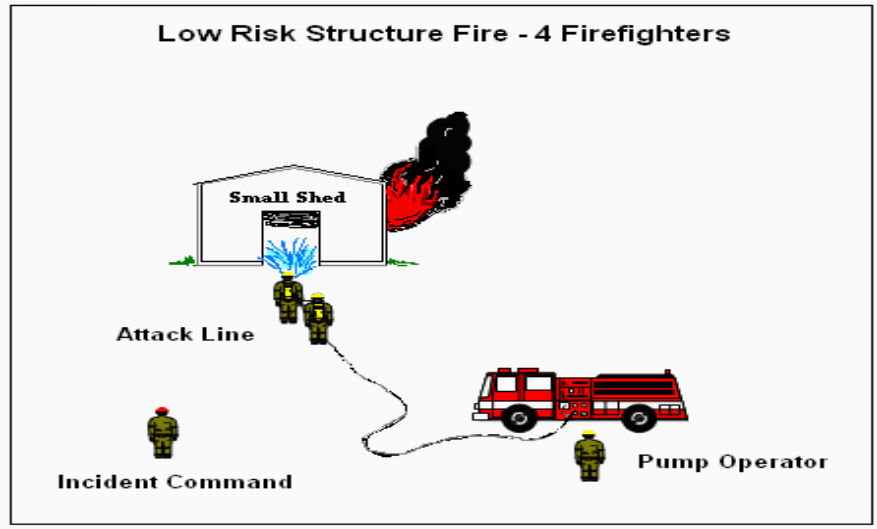
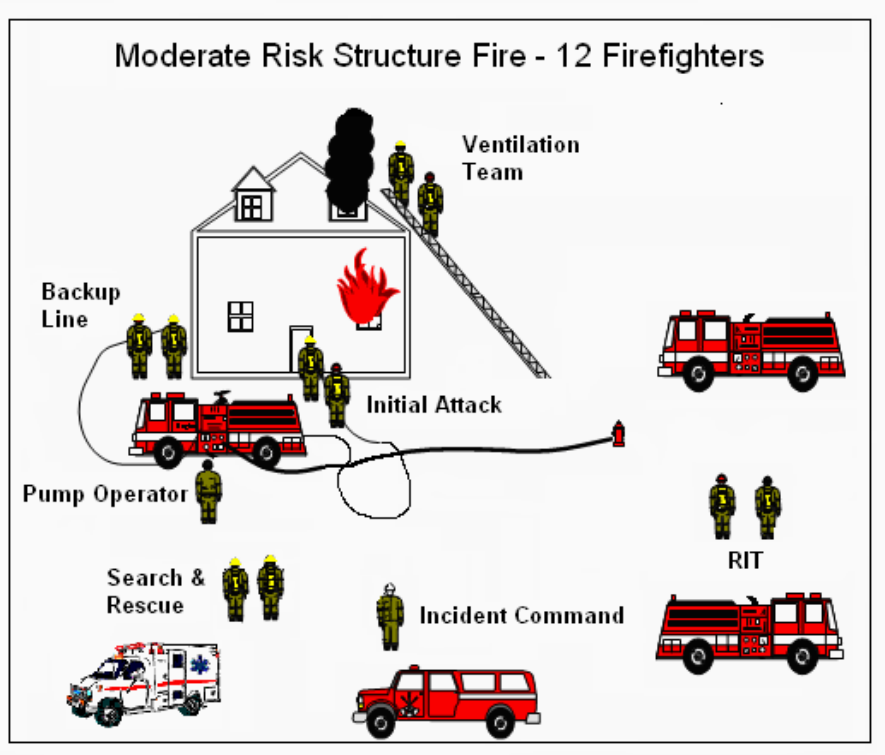


Figure 4-2 represents critical task elements for a moderate-risk structure fire. Some jurisdictions add additional response resources to meet and in some cases exceed the specifics of national benchmarking, such as National Fire Protection Association (NFPA) 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments*, 2010 Edition.

FIGURE 4-2: Moderate Risk Response-Interior Fire Attack



In addition to examining risks faced by the community at large, the department needs to examine internal risks in an effort to protect all assets, including personnel, resources, and property. This concept is not new to the fire service and can be an excellent tool for strengthening existing health and safety guidelines. The National Fire Protection Association's *Standard for a Fire Department Occupational Safety and Health Program* (NFPA 1500) requires the development of a separate risk management plan[8] for fire departments; that is, separate from those incorporated in a local government plan. The risk management plan establishes a standard of safety for the daily operations of the department. This standard of safety establishes the parameters by which the department should conduct all activities during emergency and nonemergency operations. The intent is for all members of the department to operate within this standard or plan of safety and not deviate from this process.

OFD has compiled a limited number of preplan documents for its high- and medium-risk occupancies. In addition, it has developed a ***"Risk Assessment Worksheet"*** for the high-rise structures that pose the greatest risk for entrapment at elevations. This is a very good effort that is considered a ***best practice***. However, the number of structures identified and evaluated in this process does not constitute the entirety of the high- and medium-risk occupancies in the city and town, nor are these plans updated on a regular basis.

Oneonta Response Matrix and Incident Responses

As mentioned above, OFD utilizes a very dynamic process when deploying apparatus to its myriad calls for service. This is not unusual given a single station operation and the limited personnel available for response. OFD utilizes a response matrix that outlines the deployment of resources (apparatus and staffing) for EMS, motor vehicle accidents, fires, and hazardous material responses. In each of these categories, deployment can to be modified at the discretion of the captain or a chief officer. In the absence of the captain, this determination can be made by the crew leader or the senior firefighter on duty. For EMS responses the matrix calls for a single resource with a staffing of three. All motor vehicle accidents call for a two-vehicle response (rescue engine/ambulance or ambulance/ambulance) and five to six staffing (aggregate of both vehicles). Fire responses are either a one-apparatus response (three to four staffing) or a two-apparatus response (engine/engine; engine/aerial; engine/ambulance) with a staff complement of five to six.

The call-back of off-duty career staff is triggered either by the type of call or upon request of the first arriving officer-in-charge or incident commander. This determination is made on the judgement that either more people will be needed for a particular incident or a unit will be tied up for an extended period of time, usually associated with transport activities. CPSM estimates that nearly 45 percent of all overtime incurred by OFD is the result of calling in off-duty personnel to staff units when calls are in progress and the need for additional staffing is determined by the officer in charge. ***Department SOP #11*** provides guidance in the recall of off-duty personnel;

[8] Robert C. Barr and John M. Eversole, eds., *The Fire Chief's Handbook*, 6th edition (Tulsa, OK: PennWell Books), 270.

however, this policy is based on a premise that two apparatus and six personnel should be available at all times within the city. The policy recommends the recall of off-duty personnel when units are expected to be tied up for a ***five to seven-minute time frame or longer***.

> ***Recommendation: OFD should consider the modification of Department SOP # 11 so that the recall of off-duty personnel occurs when there are two simultaneous calls in progress, rather than a single call that is anticipated to last more than five to seven minutes.***

CPSM estimates that OFD has averaged approximately $300,000 in overtime annually for each of the last three years. We also estimate that nearly 45 percent (approximately $135,000 annually) of this expenditure is the result of the recall of off duty personnel to provide additional staffing for active incidents (categorized as emergency recalls). The ability to request the recall of off-duty personnel to assist during a major incident is very appropriate given the limited on-duty staffing in Oneonta (typically six personnel). Larger incidents, including structure fires, freeway and railroad accidents, and incidents involving multiple patients, will require more personnel than are available on a daily basis. In these instances, OFD must rely on the recall of off-duty personnel or to request assistance from its mutual aid partners. A review of the 2015 overtime expenditures, shown in Table 4-1, indicates the purposes for which overtime was incurred:

TABLE 4-1: 2015 Overtime Purpose and Percent of Total

Overtime Purpose	Percent of Total
Active event/recall	46
Coverage/minimum staffing	42
Training	8
Misc. OT	4
Total	100

A review of alarm data indicates that OFD responded to 41 structure fires and 32 outside fires in the twelve-month period between June 1, 2014 and May 31, 2015. Of the 41 structure fires, only on 5 of these events did the investigation report document any property loss. The majority of outside fires were handled in 30 minutes or less, indicating very minor or nonfire events. On only 6 of the 32 outdoor fires were units tied up for one hour or more. In contrast, there were just under 2,000 transports made during this same period. In addition, OFD units handled approximately 63 interfacility transports. A total of 177 hours was spent either responding to or managing structure fires and outdoor fires. In comparison, OFD crews spent 2, 296 hours responding to and managing EMS activities. It is clear from this analysis that the majority of the OFD workload and the corresponding recall for off-duty personnel is attributable to EMS work.

Fire Responses

With its limited number of on-duty staffing, OFD's ability to properly manage anything greater than a small structural fire; an outbuilding, garage, or vehicle fire; or porch fire is very limited. If a fire grows to an area in excess of 2,000 square feet or has extended beyond the building of origin, it is likely that additional personnel and equipment will be needed. Based on OFD's staffing situation, it is critical that OFD units respond rapidly and initiate extinguishment efforts within the first eight to ten minutes of notification. It is, however, difficult to determine in every case the effectiveness of the initial response in limiting the fire spread and fire damage. Many variables will impact these outcomes, including:

- The age and type of construction of the structure.
- The contents stored in the structure and its flammability.
- The presence of any flammable liquids, explosives, or compressed gas canisters.
- The time of detection, notification, and ultimately response of fire units.
- The presence of any built-in protection (automatic fire sprinklers) or fire detection systems.
- Weather conditions and the availability of water for extinguishment

Subsequently, in those situations in which there are extended delays in the extinguishment effort or the fire has progressed sufficiently upon arrival of fire units, there is actually very little that can be done to limit the extent of damage to the entire structure and its contents. In these situations suppression efforts will focus on the protection of nearby or adjacent structures with the goal being to limit of the spread of the fire beyond the building of origin. This is often termed ***protecting exposures***. When the extent of damage is extensive and the building becomes unstable, firefighting tactics typically move to what is called a ***defensive attack***, or one in which hose lines and more importantly personnel are on the outside of the structure and their focus is to merely discharge large volumes of water until the fire goes out. In these situations the ability to enter the building is very limited and if victims are trapped in the structure, there are very few safe options to make entry.

Today's fire service is actively debating the options of interior firefighting vs exterior firefighting. These terms are self-descriptive in that an ***interior fire attack*** is one in which firefighters enter a burning building in an attempt to find the seat of the fire and from this interior position extinguish the fire with limited amounts of water. An ***exterior fire attack*** is a tactic in which firefighters initially discharge water from the exterior of the building, either through a window or door, and knock down the fire before entry in the building is made. The concept is to introduce larger volumes of water initially from the outside of the building, cool the interior temperatures and reduce the intensity of the fire before firefighters enter the building. An exterior attack is most applicable in smaller structures, typically single-family, one-story detached units that are typically smaller than 2,500 square feet in total floor area.

There are a number of factors that have fueled this debate. The first and most critical of these factors is the staffing level. With fire departments operating with reduced levels of staffing, with personnel who may be arriving at the scene from greater distances, a single fire unit with two, three, or four personnel has little option but to conduct an exterior attack.

The U.S. Occupational Safety and Health Administration (OSHA) has in place a regulation that is termed the ***"Two-in-Two-Out"*** provision. This standard affects most public fire departments across the U.S., including OFD. Under this standard, firefighters who are engaged in ***interior structural firefighting*** and enter an area that is *immediately dangerous to life or health* (an IDLH atmosphere), must remain in visual or voice contact with each other and have at least two other employees located outside the IDLH atmosphere. This assures that the "two-in" can monitor each other and assist with equipment failure or entrapment or other hazards, and the "two-out" can monitor those in the building, initiate a rescue, or call for back-up if a problem arises.[9] There is also a provision within the OSHA standard that will allow two personnel to make entry into an IDLH atmosphere without the required two back-up personnel. This is allowed when they are attempting to rescue of a person or persons in the structure before the entire team is assembled.[10]

When using an exterior attack, the requirement of having the four persons assembled on-scene prior to making entry would not apply. Recent studies by UL have evaluated the effectiveness of interior vs exterior attacks in certain simulated fire environments. These studies have found the exterior attack to be equally effective in these simulations.[11] This debate is deep-seated in the fire service and traditional tactical measures have always proposed an interior fire attack, specifically when there is a possibility that victims may be present in the burning structure. The long-held belief in opposition to an exterior attack is that this approach may actually push the fire into areas that are not burning or where victims may be located. The counterpoint supporting the exterior attack centers on firefighter safety. The exterior attack limits the firefighter from making entry into those super-heated structures that may be susceptible to collapse. From our perspective, given the limited number of on-duty personnel and the likelihood that a single crew of three personnel will encounter a fire situation, it is prudent that OFD build their training and operating procedures around the tactical concept of the exterior fire attack when the situation warrants such an approach.

> ***Recommendation: OFD should build its training regimens and tactical strategies around the exterior or transitional attack when the fire scenario and the number of responding personnel warrant this approach.***

Table 4-2 shows the aggregate call totals for the 12-month period evaluated. As mentioned, EMS calls represent the largest percentage of calls for service at almost 78 percent; this is not unusual in today's fire department and is quite similar to what we have observed in many communities. While fire call types represent 15 percent of the calls for service, actual fire calls (structural and outside) represent only 2.3 percent of the overall calls for service (approximately 0.2 calls per day or one

[9] OSHA-Respiratory Protection Standard, 29CFR-1910.134(g)(4)
[10] Ibid, Note 2 to paragraph (g).
[11] "Innovating Fire Attack Tactics", U.L.COM/News Science, Summer 2013.

actual fire-type call every five days). Also as indicated above, when looking at the call duration for structure and outside fires and the associated fire loss, the number of actual fires is even lower. Hazard, false alarms, and good intent calls represent the largest percentage of fire type calls for service, which is also typical in CPSM data and workload analyses of other fire departments.

During our period of evaluation, OFD responded to a total of 41 incidents that were classified as structure fires. In looking in more detail at the structure fire incidents, it was determined that for 36 of these events there was ***no fire damage*** reported to the structure involved. On 15 of the 41 fires, extinguishment was carried out by fire personnel. When we looked at the time spent on fire incidents, we found that on approximately 56 percent of all structure fire calls, the call duration for these incidents was 60 minutes or less. This is also indicative of minor occurrences. However, 18 structure fire calls lasted for durations of greater than one hour, and 9 lasted for more than two hours. These durations would indicate more significant events.

TABLE 4-2: Call Types

Call Type	Number of Calls	Calls per Day	Call Percentage
Cardiac and stroke	277	0.8	8.8
Seizure and unconsciousness	277	0.8	8.8
Breathing difficulty	268	0.7	8.5
Overdose and psychiatric	85	0.2	2.7
MVA	110	0.3	3.5
Fall and injury	572	1.6	18.1
Illness and other	876	2.4	27.7
EMS Total	**2,465**	**6.8**	**77.9**
Structure fire	41	0.1	1.3
Outside fire	32	0.1	1.0
Hazard	108	0.3	3.4
False alarm	193	0.5	6.1
Good intent	14	0.0	0.4
Public service	87	0.2	2.7
Fire Total	**475**	**1.3**	**15.0**
Mutual aid	135	0.4	4.3
Canceled	90	0.2	2.8
Total	**3,165**	**8.7**	**100.0**

Observations:

- The department received an average of 8.7 calls per day.
- EMS calls for the year totaled 2,465 (77.9 percent of all calls), averaging 6.8 per day.
- Fire calls for the year totaled 475 (15.0 percent of all calls), averaging 1.3 per day.

- Structure and outside fires combined for a total of 73 calls during the year, averaging about 1.4 calls a week.
- Mutual aid calls totaled 135 (4.3 percent of all calls), and canceled calls totaled 90.

On only five of the structure fire calls was there any fire damage to the structure that was noted in the incident report. The total fire loss in Oneonta (structure and contents) for all structural fires in 2014 was estimated to be $127,500. For the calls in which damage was reported (structure and contents), we have estimated that the average damage for each fire was approximately $25,500. When looking at fire loss comparisons nationwide for structure fires, NFPA estimates that in 2012 the average fire loss for a structure fire nationally was $20,345.[12] From this perspective, Oneonta is very characteristic of many communities across the nation regarding the incidence and magnitude of its fires. Though the fire loss in 2014 was not exceptionally high, of course at any time a single fire can occur that results in millions of dollars in fire loss. Table 4-3 provides an analysis of the OFD fire loss in 2014.

TABLE 4-3: Property and Content Loss Analysis for Structure Fire Calls

Call Type	Property Loss		Content Loss	
	Loss Value	Number of Calls	Loss Value	Number of Calls
Structure fire	$120,500	5	$7,000	2
Total	**$120,500**	**5**	**$7,000**	**2**

Note: This analysis only includes calls with property loss or content loss greater than 0. Mutual aid structure and outside fire calls are not included.

Observations:

- Out of 41 structure fire calls, 5 calls (12.2 percent) had recorded property loss, with total recorded loss value of $120,500. Total content loss was $7,000.
- No outside fire call had recorded property or content loss.

[12] Michael J. Karter Jr., *Fire Loss in the United States during 2012*, NFPA September 2013, p. 13.

TABLE 4-4: Actions Taken Analysis for Structure and Outside Fire Calls

Action Taken	Number of Calls	
	Structure fire	Outside fire
Fire control or extinguishment, other	3	1
Extinguishment by fire service personnel	15	13
Remove hazard	0	1
Ventilate	6	0
Shut down system	1	0
Investigate	9	8
Investigate fire out on arrival	4	7
Standby	1	0
No Action Recorded	2	2
Total	**41**	**32**

Observations:

- A total of 18 structure fire calls were extinguished by fire service personnel, which accounted for 44 percent of structure fire calls in OFD's jurisdiction.
- A total of 14 outside fire calls were extinguished by fire service personnel, which accounted for 44 percent of outside fire calls in OFD's jurisdiction.

Recommendation: OFD should reevaluate the quality assurance review processes currently in place for its fire incident reporting, particularly for the estimates of fire loss.

The current review process for fire incident reporting is done primarily by the fire chief and assistant fire chief. CPSM has observed a number of omissions and inconsistent reporting in our analysis of OFD alarm data. Inaccurate or incomplete incident reporting prohibits a comprehensive review of both emergency and support activities. It is a fundamental responsibility of the company officer and chief officers to ensure that all reporting is accurately, timely, and consistent across the organization.

EMS Responses and Transport

EMS is the primary workload within the OFD system. Nearly 78 percent of call activities reviewed in our analysis involve EMS responses. OFD is part of the Adirondack-Appalachian Regional Emergency Medical Services Council (AAREMS), which is the regional coordinator for emergency prehospital care in the Oneonta area. AAREMS, one of eighteen regional EMS councils established in New York, operates under the authority of the New York State Department of Health. The AAREMS Council meets monthly and provides guidance and medical direction to EMS providers in the six-

county area covered by AAREMS. AAREMS provides guidelines on training and recertification for advanced life support (ALS) and basic life support (BLS) providers and conducts quality assurance reviews on EMS field activities for all agencies operating in the region. The AAREMS area includes the following counties:

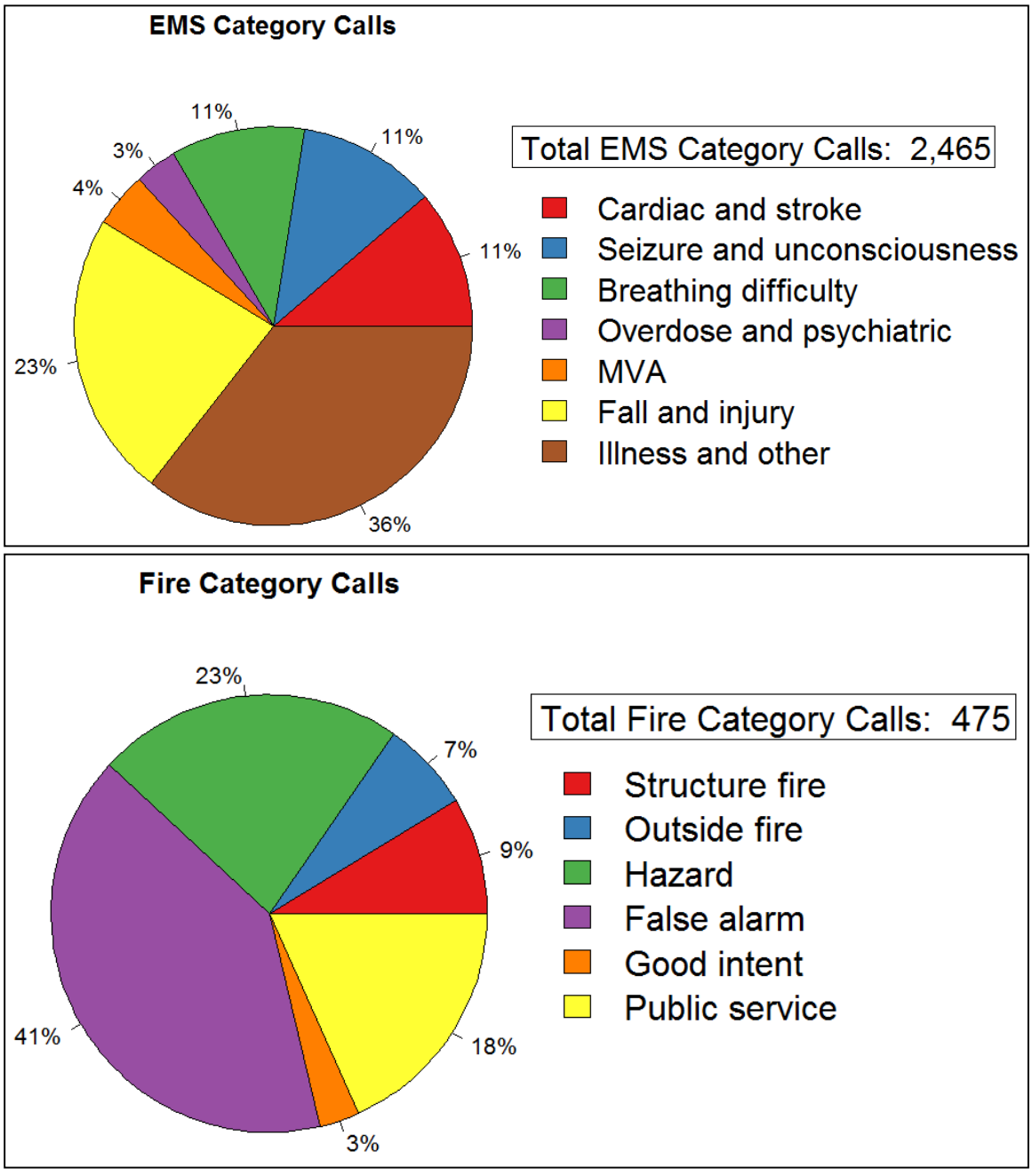
- Hamilton
- Fulton
- Montgomery
- Schoharie
- Otsego
- Delaware

AAREMS covers a very large area, nearly 5,700 square miles, and serves a population in excess of 250,000 people. A total of 108 agencies, both private and governmental, operate under the guidance and authorization of AAREMS. OFD is one of these providers, licensed to provide ALS and BLS emergency response and transport along with nonemergency interfacility transports.

The range of EMS call types in Oneonta is very similar to what CPSM typically observes in many rural/suburban communities across the nation. OFD units respond to an average of six to seven EMS calls each day. The array of EMS calls are primarily related to illness and other medical conditions, falls and injuries, seizures and unconsciousness, respiratory problems, and cardiac-related incidents. There is some deviation in the EMS call types related to seasonal activities. During the winter months there is an up-tick in those injuries related to winter activities including slipping on ice, exertion from shoveling snow, sledding accidents, ice skating, etc. In the summer months calls related to water accidents, heat exhaustion, working in the yard, farming accidents, and the like are more prevalent.

OFD provides EMS transport for those patients requiring further medical care. Our analysis indicates that OFD units transport on average five to six times each day. This indicates that on nearly 74 percent of all EMS responses, a transport takes place. On average, each transport lasts an estimated 50 minutes. Most patients are transported to A.O. Fox Hospital in Oneonta. Those patients requiring more specialized care (cardiac, trauma, cancer treatment, etc.) are taken to Bassett Medical Center, which is located in Cooperstown, approximately 20 miles away. In addition to emergency medical responses, OFD provides interfacility, nonemergency transport of patients. This involves the movement of patients either from an assisted care center or a private home to a medical facility. The majority of such transports involve the movement of patients from A.O. Fox to Bassett. Interfacility transports are carried out with on-duty staffing. CPSM estimates that approximately 63 interfacility transports are carried out annually by OFD units.

FIGURE 4-3: EMS and Fire Calls by Type



Observations:

- A total of 41 structure fire calls accounted for 9 percent of the fire category total.
- A total of 32 outside fire calls accounted for 7 percent of the fire category total.
- False alarm calls were the largest fire call category, making up 41 percent of the fire category total.

- Illness and other calls were the largest EMS call category and accounted for 36 percent of the EMS category total.
- Cardiac or stroke calls were 11 percent of the EMS category total.
- Motor vehicle accidents calls were 4 percent of the EMS category total.

As mentioned above, OFD provides fire and EMS response into the town of Oneonta on a contractual basis. In 2014 the city received approximately $950,000 from the town for these services. The city utilizes a complex formula that adjust the town's contract rate on the basis of a number of factors relating to operating costs, valuation, and capital expenditures. In practical terms, the town has been paying approximately one-third of OFD's operating and capital costs and at the same time drives approximately one-third of OFD's service demand. Table 4-5 indicates the breakdown of call activity between the city and town.

TABLE 4-5: Calls by Type and Jurisdiction

Call Type	City of Oneonta	Town of Oneonta	Missing
Cardiac and stroke	149	121	7
Seizure and unconsciousness	169	100	8
Breathing difficulty	162	97	9
Overdose and psychiatric	60	22	3
MVA	39	52	19
Fall and injury	289	266	17
Illness and other	571	246	59
EMS Total	**1,439**	**904**	**122**
Structure fire	28	11	2
Outside fire	19	11	2
Hazard	86	20	2
False alarm	131	43	19
Good intent	7	7	0
Public service	37	22	28
Fire Total	**308**	**114**	**53**
Canceled	68	22	0
Total	**1,815**	**1,040**	**175**
Calls per Day	**5.0**	**2.8**	**0.5**
Percent of Total	**57.3%**	**32.9%**	**6%**

Note: NFIRS district information is used to identify jurisdiction.

Observations:

- On average, calls in the city of Oneonta averaged 5.0 per day, which accounted for 57 percent of the total calls.

- On average, calls in the town of Oneonta averaged 2.8 per day, which accounted for 33 percent of the total calls.
- A total of 135 mutual aid calls, which accounted for 4.3 percent of the total calls, were not included in this analysis.
- On approximately 175 reports there was no jurisdiction reported. This information was obtained from NFIRS reporting provided by OFD.

OFD's transport workload is significant as it extends the duration of each call nearly three-fold. OFD transport patients primarily to two medical facilities: A.O. Fox Memorial in Oneonta and Bassett Hospital in Cooperstown. The duration of its transports on average range from 50 minutes for patients transported to Fox and 115 minutes for those patients transported to Bassett.

These transport activities generate significant revenue for the city. Net revenues from EMS transport activities in 2014 exceeded $1.1 million. When EMS transport revenues are combined with contract revenues for services into the town of Oneonta, total revenues are more than $2.1 million. This equates to almost 63 percent of the cost of operating the fire department. This is an extremely high cost recovery rate for the fire department and CPSM recognizes this as a ***best practice***. This observation is even more impressive when considering the staffing levels in Oneonta and the numbers of units operated by fire personnel.

TABLE 4-6: Transport Calls by Call Type

Call Type	Number of Calls			Transport Rate
	Non-transport	Transport	Total	
Cardiac and stroke	42	235	277	84.8
Seizure and unconsciousness	67	210	277	75.8
Breathing difficulty	57	211	268	78.7
Overdose and psychiatric	25	60	85	70.6
MVA	57	53	110	48.2
Fall and injury	173	399	572	69.8
Illness and other	203	673	876	76.8
EMS Total	**624**	**1,841**	**2,465**	**74.7**
EMS Daily Average	**1.7**	**5.0**	**6.8**	**NA**
Fire Total	469	6	475	1.3
Mutual aid	54	81	135	60.0
Canceled	131	0	131	0.0
Total	**1,237**	**1,928**	**3,165**	**60.9**
Daily Average	**3.4**	**5.3**	**8.7**	**NA**

Observations:

- Overall, 75 percent of EMS calls to which OFD responded involved transporting patients.
- On average, OFD responded to 6.8 EMS calls per day, and 5.0 involved transporting patients.
- Cardiac and stroke calls had the highest transport rates, averaging 84.8 percent.
- Among the 673 illness and other transport calls, 62 were described as interfacility transfer calls.

TABLE 4-7: Call Duration by Transport and EMS Call Type

Call Type	Nontransport		Transport			
			Fox		Bassett at Cooperstown	
	Ave. Duration	Number of Calls	Ave. Duration	Number of Calls	Ave. Duration	Number of Calls
Cardiac and stroke	44.0	42	53.5	192	118.8	40
Seizure and unconsciousness	31.6	67	50.6	193	118.2	17
Breathing difficulty	42.5	57	50.5	191	121.9	20
Overdose and psychiatric	37.0	25	45.3	53	89.8	7
MVA	33.3	57	62.0	52	40.8	1
Fall and injury	33.3	173	48.7	358	129.8	41
Illness and other	55.7	203	47.0	566	107.3	104
EMS Total	**42.1**	**624**	**49.4**	**1,605**	**114.6**	**230**

Note: Duration of a call is defined as the longest deployed time of any of the OFD units responding to the same call.

Observations:

- The average duration was 42.1 minutes for a nontransport EMS call.
- The average duration was 49.4 minutes for an EMS call that transported a patient to the A.O. Fox Hospital.
- The average duration was 114.6 minutes for an EMS call that transported a patient to the Bassett Hospital at Cooperstown.
- A total of six calls that transported patients to other hospitals were not included, and the average duration for these calls was 78.4 minutes.

The call duration rate for nontransport patients (42.1 minutes) seems high in comparison with call durations we typically observe in fire agencies providing EMS transport services. CPSM believes that the amount of time OFD units spend on calls in which a patient transport does not occur should be evaluated and a concerted effort made toward reducing this on-scene time.

> ***Recommendation: OFD should evaluate unit on-scene time for calls that do not result in a patient transport, and put in place an effort to reduce this time and return units back into service more rapidly.***

It is not unreasonable to expect that on-scene times for nontransport incidents can be reduced to a 25 to 30 minute duration. Many of these calls are either minor or nonemergency in nature and the turnaround time should be quicker. In a review of on-scene times for transported patients (Table 4-8) CPSM found the on-scene time averaged approximately 15 minutes, which is only about one-third the time spent on calls in which a transport is not required. OFD personnel typically would process a patient release for patients not being transported or refusing to be transported, but even with this added administrative process, we feel that the current on-scene time can be reduced.

TABLE 4-8: Time Component Analysis for Ambulance Transport Runs

Hospital	Average Deployed Minutes per Run	Average On-scene Time	Average Travel to Hospital Time	Average Travel back to Station Time	Sample Size
Bassett at Cooperstown	114.1	***18.5***	31.7	61.6	231
A.O. Fox Memorial	49.2	***13.5***	6.6	23.6	1,612

Note: This analysis only includes ambulance runs that can be identified as transport runs.

Observations:

- The travel time to the Bassett Hospital at Cooperstown was 32 minutes, whereas the travel time to A.O. Fox Memorial Hospital was 6.6 minutes.
- A transport run to the Bassett Hospital averaged 114.1 minutes, which is 65 minutes longer than a run to A.O. Fox.

Workload Analysis

The emergency call volume observed in Oneonta is high considering the limited number of units operated and the frequency with which EMS transports are required. The total call volume handled by OFD units in the 12-month period we observed was 3,165 calls. This equates to 8.7 calls per day. However, given the high percentage of calls that result in a transport (approximately 75 percent) and the average duration of each transport (approximately 58 minutes), on most days OFD units are collectively managing incidents for about 8.1 hours each day. This high call activity time is compounded by the fact that most calls occur in the 12-hour period between 9:00 a.m. and 9:00 p.m. Subsequently, CPSM observed a high frequency in which simultaneous calls occurred and both OFD ambulance units are actively managing incidents. Table 4-9 displays the detail of call activity and the corresponding minutes deployed for each call type. It is important to note that a total of 374.2 minutes (6.2 hours) are devoted each day in managing EMS incidents.

TABLE 4-9: Annual Deployed Time by Call Type

Call Type	Average Deployed Minutes per Run	Annual Hours	Percent of Total Hours	Deployed Minutes per Day	Annual Number of Runs	Runs per Day
Cardiac and stroke	59.7	294	9.9	48.4	296	0.8
Seizure and unconsciousness	47.7	238	8.0	39.1	299	0.8
Breathing difficulty	52.5	245	8.2	40.3	280	0.8
Overdose and psychiatric	44.9	67	2.2	10.9	89	0.2
MVA	38.7	122	4.1	20.1	190	0.5
Fall and injury	48.4	485	16.3	79.8	601	1.6
Illness and other	55.0	825	27.8	135.7	900	2.5
EMS Total	**51.4**	**2,276**	**76.5**	***374.2***	**2,655**	**7.3**
Structure fire	113.4	138	4.6	22.7	73	0.2
Outside fire	48.2	38	1.3	6.2	47	0.1
Hazard	32.0	65	2.2	10.7	122	0.3
False alarm	25.9	92	3.1	15.2	214	0.6
Good intent	16.4	5	0.2	0.8	17	0.0
Public service	74.4	126	4.3	20.8	102	0.3
Fire Total	**48.4**	**464**	**15.6**	**76.3**	**575**	**1.6**
Mutual aid	82.8	213	7.1	34.9	154	0.4
Canceled	12.5	21	0.7	3.4	99	0.3
Total	**51.2**	**2,974**	**100.0**	**488.8**	**3,483**	**9.5**

Note: Each dispatched unit is a separate "run." As multiple units are dispatched to a call, there are more runs than calls. Therefore, the department responded to 8.7 calls per day and had 9.5 runs per day.

Observations:

- The department made 3,483 runs during the year studied, including 154 mutual aid responses; the daily average was 9.5 runs for all units combined.
- Fire category calls accounted for 15.6 percent of the total workload.
- There were 120 runs for structure and outside fire calls, with a total workload of 176 hours. This accounted for 5.9 percent of the total workload. The average deployed time for structure fire calls was 113.4 minutes, and the average deployed time for outside fire calls was 48.2 minutes.
- EMS calls accounted for 76.5 percent of the total workload. The average deployed time for EMS calls was 51.4 minutes. The deployed hours for all units dispatched to EMS calls averaged 6.2 hours per day.

When we examine the unit workload it is not surprising that the greatest number of deployed minutes each day are logged by the OFD ambulance units (1692, 1693, and 1691). These three units are deployed on average 6.7 hours each day. Table 4-10 details individual unit workloads.

TABLE 4-10: Call Workload by Unit

Station	Unit Type	Unit ID	Average Deployed Minutes per Run	Annual Number of Runs	Annual Hours	Runs per Day	Deployed Minutes per Day
Station 16	Engine	1612	35.8	309	184.4	0.8	30.3
	Engine	1613	41.1	89	61.0	0.2	10.0
	Engine	1614	37.5	154	96.2	0.4	15.8
	Light Rescue	1631	93.2	20	31.1	0.1	5.1
	Aerial Ladder	1641	114.4	14	26.7	NA	NA
	Command	1651	90.6	36	54.4	0.1	8.9
	Brush Utility	1652	45.4	91	68.9	0.2	11.3
	Ambulance	1691	48.6	95	77.0	0.3	12.7
	Ambulance	1692	53.9	1,789	1,606.0	4.9	264.0
	Ambulance	1693	52.0	886	768.2	2.4	126.3

Observations:

- Ambulance 1692 made the most runs and had the greatest deployed time, averaging 4.9 runs and 4.4 hours of deployed time per day.
- Ambulance 1693 made the second most runs, averaging 2.4 runs and 2.1 hours of deployed time per day.
- Engine 1612 made 309 runs, averaging 0.8 runs and 30.3 minutes of deployed time per day.

The most critical aspect in evaluating call activity is the frequency with which calls overlap and multiple responses occur simultaneously. On occasion there are situations in which an emergency call occurs and there are no OFD units available to respond. In these cases off-duty personnel are returned to service and this can result in a delay in response. Overlapping calls are not an infrequent occurrence. Table 4-11 is an analysis of overlapped calls. This analysis indicates that on 516 occasions OFD had three or more calls in progress at the same time.

TABLE 4-11: Overlapped Call Analysis

Scenario	Frequency	Percent
No Overlapped Call	1,536	48.5
Overlapped with another call	1,113	35.2
Overlapped with two calls	388	12.3
Overlapped with three calls	102	3.2
Overlapped with four or more calls	26	0.8

Observations:

- 48.5 percent of emergency incidents had no overlapped call.
- 35.2 percent of emergency incidents overlapped with another call.
- 12.3 percent of emergency incidents overlapped with two calls.
- 4.0 percent of emergency incidents overlapped with three or more calls.

OFD does not keep records regarding the frequency in which units are unavailable to respond, though our indication is that this occurs on more than ten percent of all responses. This point elevates the importance of proper call screening so that units can divert if they are responding to or handling a minor call and a more serious call arises. In addition, it heightens the importance of both turning over calls as rapidly as possible and adding an additional EMS part-time unit to assist in managing the call volume. Finally, expanding the relationship with Cooperstown Medical Transport (CMT) in order to provide additional capacity would help alieve periods of heavy EMS call volume.

Service Relationship with the Town of Oneonta Fire District

CPSM was informed that in recent years the dialogue regarding the fire contract between the city and the Oneonta Fire District is on-going. The city and fire district are currently operating under a one-year agreement (for 2015), whereas in previous years multiyear agreements were negotiated. Over the past six years, the contract costs have increased by nearly 34% from $706,388 in 2009 to $946,023 in 2015.

CPSM views the arrangement between the city and fire district as beneficial for both parties. The city is receiving nearly one-third of the fire department's operating and capital costs and in return the town accounts for a like amount of OFD's workload. The fire district could not replicate the level of service it receives from the city if it were to operate its own full-time fire department. The fire district's ability to obtain comparable services from another, neighboring agency is not realistic, though it does have the option to establish a volunteer force for fire protection and obtain EMS services through Cooperstown Medical Transport.

CPSM believes that the city should take whatever steps are necessary to maintain the contractual relationship with the fire district. If the district were to terminate this agreement, the city would be

faced with the difficult decision of either increasing its funding for OFD operations or cutting the fire department's costs (that is, primarily staffing) sufficiently to offset the revenue loss.

Recommendation: The city should maintain its current relationship with the town of Oneonta Fire District in providing fire protection under this intermunicipal agreement.

The proximity of the fire district to the city is ideal for this type of contractual relationships. Fire and EMS services are provided more efficiently when done on a regional basis. Fire district officials speak highly of the services they are receiving and feel that the cost for these services are reasonable. There are, however, strains in the relationship in that the fire district does not feel that it can provide realistic and impactful input to the city regarding service delivery and the costs for fire services. It would behoove the city to develop some type of budget/review process that enables the town's fire district board to have some input regarding fire service delivery in their jurisdiction.

Recommendation: The city should establish a formal oversight process that enables the Town Fire District, through its duly appointed representatives, to provide realistic input into the costs and service delivery model provided under the fire contract between the city and the district.

The fire district operates in a manner consistent with any governing body with taxing authority. It must manage its costs and be accountable for its expenditures. To do this requires sound accounting practices and transparency. The ability for the Town Fire District to have some say in the annual expenditure of nearly $950,000 in tax dollars is not unreasonable. CPSM believes that the city should provide this accommodation and include representation by the district's board during budget deliberations regarding the Oneonta Fire Department.

The current funding formula is very complex and is difficult for the lay person to understand. While the financial concepts utilized in this formula are based on sound principals, including comparative valuation adjustments and an equalization rate, the complexity appears unnecessary and may contribute to the difficulties in the city and district reaching a service agreement. Fortunately, the city and town are not restricted on the type of methodology by which a contract amount is established. Though it is crucial that the process be transparent and decided upon in a public forum, CPSM believes that a more simplified process will assist the parties in building needed trust. The current contract cost of approximately $950,000 annually has been the basis for agreement in the past. CPSM believes that the city should attempt to propose that a new base rate for service be established and that a multiyear contract agreement negotiated, with an annual cost of living increase to adjust for inflation. When larger capital purchases are required, for example for a new apparatus or the construction of a new fire station, we would suggest that these added costs be addressed through a subsequent negotiation for determining an appropriate cost-sharing formula for these isolated expenditures.

Recommendation: The city and fire district should move to simplify the funding formula for the fire services contract and move to a multiyear agreement that is built upon a new base rate with annual cost of living adjustments.

In addition to the fire district's participation in the OFD's budget review process, CPSM believes that a stronger day-to-day working relationship is needed between OFD and the district. The district's board has monthly meetings during which it conducts public business; CPSM recommends that OFD provide a departmental liaison to the board to attend these meetings. This liaison would provide periodic updates regarding the OFD, report on call activities, new equipment purchases, upcoming service events, etc. The fire chief would normally be the appropriate representative to serve in this capacity; the assistant fire chief may also be a suitable representative for this assignment.

Recommendation: OFD should assign a liaison to the fire district to serve as the official point of contact between the Oneonta Fire District and OFD regarding the fire contract.

The town of Oneonta is experiencing growth at a more rapid rate than the rate of growth occurring within city limits. Much of the area's commercial growth is occurring in the town and as this growth continues, it will create greater demand for emergency response and prevention efforts. It is not unrealistic to anticipate that a second fire station and added response personnel may be needed as a result of this growth. It is also likely that these additional resources would need to be located outside the city and within the town. The ability to expand emergency services and construct an additional fire station facility will require direct communication and skillful collaboration. Strong relationships are built around good communications and trust. CPSM feels that it is in the best interest of both the city and the fire district to work diligently toward improving their working relationship.

CPSM believes that the relationship between the city and the town is crucial to the ongoing success and efficiency of the fire department. We believe this relationship is extremely viable, but it will require a concerted effort from both parties to ensure that the lines of communications remain open and substantive dialogue takes place. The city and town should formalize the avenues for viable input regarding key service delivery decisions. The ***strategic planning process*** would be an ideal venue for city and town officials to design the future service network for emergency services. It is very likely that future service demands will require a multiple station format and this may even necessitate the relocation of the current fire station to ensure optimal coverage throughout the entire service district. The potential for some type of formal consolidation or functional consolidation between the city and fire district may become a reality in the not-too-distant future.

Recommendation: The city and the fire district should jointly develop a strategic plan for fire and emergency services that charts the future design and performance measures for service delivery.

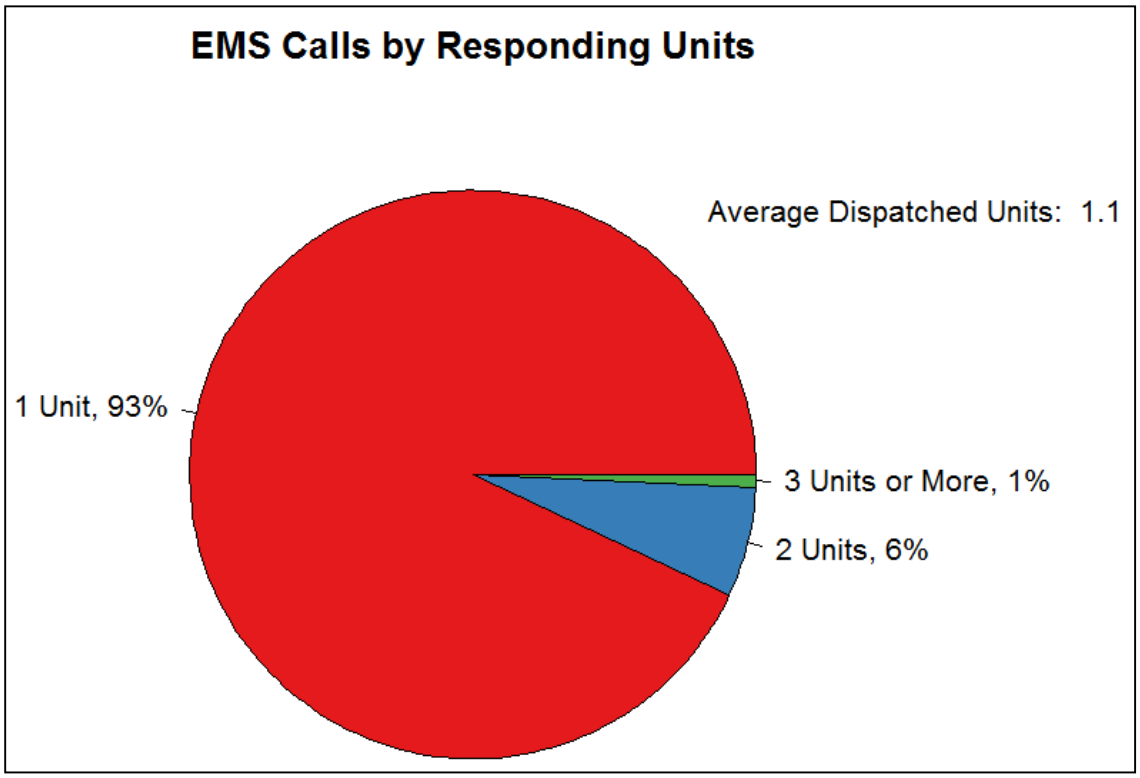
The strategic planning process can provide significant benefit to both the city and town. In this effort, key stakeholders can align in determining the future design of the department and the measurement of its service performance outcomes. The ability to work together in delineating how a system is structured and more importantly, how it will be monitored, will likely pay significant dividends in improving the current relationship between the city and town.

Emergency/Nonemergency Response

An interesting trend in the fire service which CPSM continues to evaluate is the frequency of true emergency calls vs. nonemergency or public assist calls. Our findings nationally (from CPSM fire data reports) indicate that in many jurisdictions more than 50 percent of all responses (fire, EMS, and other) are nonemergency in nature. This factor is critical when calculating response time data, determining staffing levels, identifying appropriate deployment strategies, and the recall of off-duty personnel to supplement staffing.

OFD has attempted to adjust some of its response assignments, specifically to automatic fire alarm soundings, so that only the needed resources are sent to those incidents that are characteristically nonemergency events. Our analysis found that on 91.6 percent of all responses, OFD responds a single unit. This is a very positive attribute and a further indication of the strategic approach OFD has adopted in maximizing its resources and emphasizing employee safety.

FIGURE 4-4: Number of Oneonta Fire Department Units Dispatched to Calls



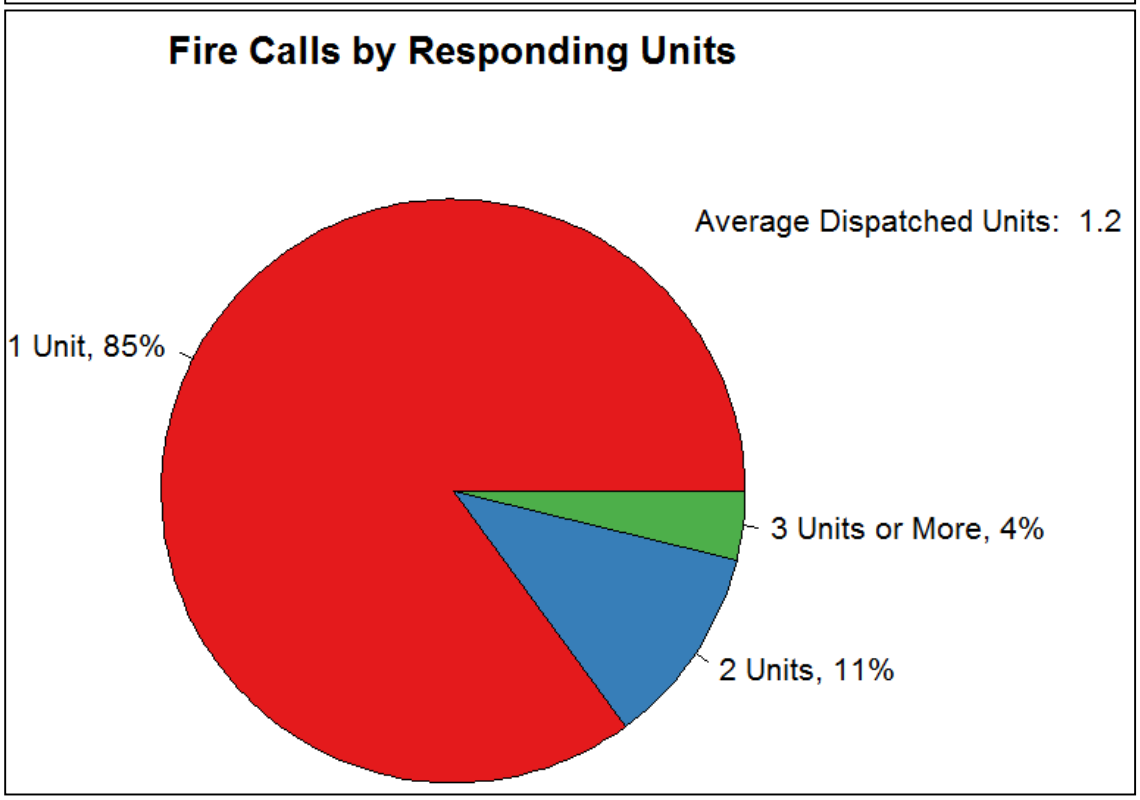


TABLE 4-12: Number of Oneonta Fire Department Units Dispatched to Calls

Call Type	Number of Units			
	One	Two	Three or More	Total
Cardiac and stroke	260	15	2	277
Seizure and unconsciousness	257	18	2	277
Breathing difficulty	256	12	0	268
Overdose and psychiatric	81	4	0	85
MVA	42	56	12	110
Fall and injury	544	27	1	572
Illness and other	853	22	1	876
EMS Total	**2,293**	**154**	**18**	**2,465**
Structure fire	24	8	9	41
Outside fire	24	5	3	32
Hazard	94	14	0	108
False alarm	177	12	4	193
Good intent	11	3	0	14
Public service	74	11	2	87
Fire Total	**404**	**53**	**18**	**475**
Mutual aid	121	10	4	135
Canceled	82	7	1	90
Total	**2,900**	**224**	**41**	**3,165**
Percentage	**91.6**	**7.1**	**1.3**	**100.0**

Note: This includes command vehicle 1651.

Observations:

- On average, 1.2 units were dispatched per fire category call. For fire category calls, one unit was dispatched 85 percent of the time, two units were dispatched 11 percent of the time, and three or more units were dispatched 4 percent of the time.
- For structure fire calls, one unit was dispatched 59 percent of the time, two units were dispatched 20 percent of the time, and three or more units were dispatched 22 percent of the time.
- For outside fire calls, one unit was dispatched 75 percent of the time, two units were dispatched 16 percent of the time, and three or more units were dispatched 9 percent of the time.
- On average, 1.1 units were dispatched per EMS category call. For EMS category calls, one unit was dispatched 93 percent of the time, two units were dispatched 6 percent of the time, and three or more units were dispatched 1 percent of the time.

In looking at the mode of response (emergency or nonemergency), our evaluation indicates that on only 12 percent of all responses (approximately 350 calls), OFD units responded in a nonemergency mode (following traffic patterns and not utilizing lights and sirens). In our estimation this a very low number of incidents considering the numbers of calls that can be screened sufficiently to reduce the mode of response to nonemergency. CPSM feels that the number of nonemergency responses by OFD units can be increased. In reviewing OFD response data, CPSM has found that more than 60 percent of all responses result in call types that are traditionally nonemergency (false alarms, good intent, public service, fall/injury, and illness). To determine which calls merit a nonemergency response will require greater collaboration with the dispatch center and an expanded use of the call-screening process. The capability to accurately screen calls, determine their severity, and then adjust the mode of response can pay substantial dividends in the following ways:

- Increased unit availability.
- Reduced wear and tear on the vehicles.
- Reduced fuel and operating costs.
- Reduced vehicle maintenance.
- Reduced potential for vehicle accidents.

Recommendation: OFD should work closely with the Otsego 911 Dispatch Center to improve its call-screening efforts and identify those non-emergent and public assist calls that should not receive an emergency response.

Our examination indicates that OFD does not rely on neighboring agencies for joint response or automatic response to supplement staffing levels. It was indicated to us that this is a result of the distance to neighboring agencies and the fact that most surrounding fire agencies are not career departments and rely primarily on volunteer personnel. There is one exception, however, and that is with regard to Cooperstown Medical Transport (CMT). CMT is a private ambulance provider that operates in the Oneonta area. CMT typically operates two ALS units from its Oneonta posting, which is located at 599 Delaware County Hwy 11. This facility is approximately six miles from the Oneonta fire station and less than 10 minutes by road travel.

Only on very infrequent occasions will OFD request assistance from CMT to cover EMS responses in its service area. Our analysis indicates that on many occasions the recall of off-duty personnel on an overtime basis is done to maintain the minimum staffing levels and these personnel are utilized on a stand-by basis. CPSM believes that greater efficiency and cost savings can occur through the increased utilization of Cooperstown Medical Transport (CMT) to respond to EMS calls in the city. Also, CMT is available for interfacility, nonemergency transports when OFD units are unavailable.

Recommendation: OFD should consider the use of Cooperstown Medical Transport to provide backup EMS assistance when OFD units are unavailable.

As referenced earlier, CPSM recommends a review of OFD Department Policy #11 in order to modify the recall of off-duty personnel so that a recall occurs when two calls are simultaneously in progress and both OFD units are unavailable. This would change the current practice of initiating a recall when one unit is anticipated to be tied up for more than seven minutes. In addition, CPSM has recommended that an additional two-person EMS unit, staffed with part-time personnel (EMS certified only), also be made available to handle BLS responses and non-ALS transports. These changes, combined with an expanded utilization of CMT, will heighten the ability of OFD to manage its workload and reduce overtime expenditures. These changes can be facilitated if a stronger relationship is forged with CMT; this private provider can then provide coverage when three EMS calls are occurring simultaneously.

CMT is a fully licensed ALS provider and is readily available and willing to assist the city when fire units are not available. CMT provides a comparable level of care and operates under the same medical protocols and standing orders utilized by OFD personnel. It is licensed under the state of New York Department of Health and operates under the Adirondack-Appalachian Regional Emergency Medical Services Council (AAREMS). This backup service may be provided at no additional cost to the city, as CMT would be able to assess its current EMS transport charges to those patients requiring transport.

Response Time Analysis

Response times are typically the primary measurement in evaluating fire and EMS services. Most deployment models have been built around a four-minute initial travel time for EMS response and an eight-minute full-force travel time for fire response. Though these times have validity, the actual impact of a speedy response time is limited to very few incidents. For example, in a full cardiac arrest, analysis shows that successful outcomes are rarely achieved if basic life support (CPR) is not initiated within four minutes of the onset. However, cardiac arrests occur very infrequently; on average they are 1 percent to 1.5 percent of all EMS incidents.[13] There are also other EMS incidents that are truly life-threatening and the time of response can clearly impact the outcome. These involve full drownings, electrocutions, and severe trauma (often caused by gunshot wounds, stabbings, and severe motor vehicle accidents, etc.). Again, the frequency of these types of calls is limited.

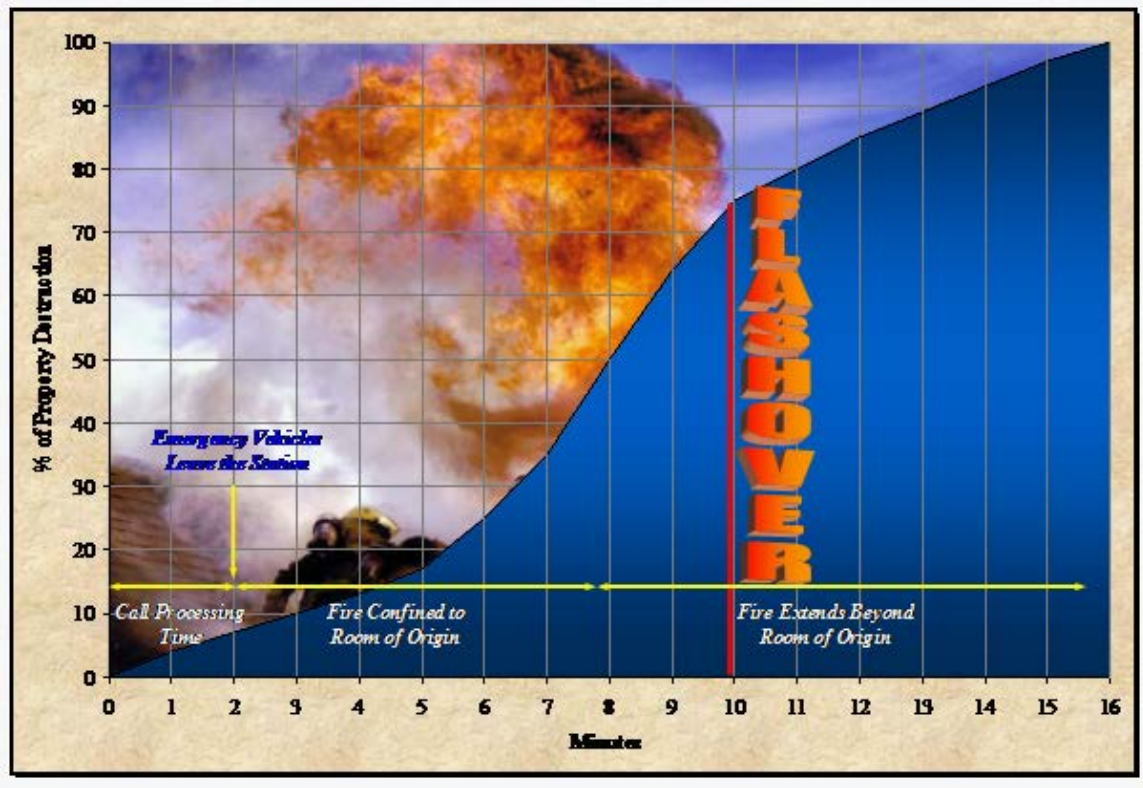
Regarding response times for fire incidents, the frequency of actual fires in the Oneonta service area is very low, less than 2 percent of all responses. The criterion for fire response is based on the concept of "flashover." This is the state at which super-heated gasses from a fire in an enclosed structure are released rapidly, causing the fire to burn freely and become so volatile that the fire reaches an explosive state. In this situation, usually after an extended period of time (eight to twelve minutes), and a combination of the right conditions (a fuel load and depleted oxygen), the

[13] Myers, Slovis, Eckstein, Goodloe et al. (2007). "Evidence-based Performance Measures for Emergency Medical Services System: A Model for Expanded EMS Benchmarking." *Pre-hospital Emergency Care.*

fire expands rapidly and is much more difficult to contain. When the fire does reach this extremely hazardous state, a larger and more destructive fire occurs. Figure 4-5 illustrates the flashover phenomenon and its potential impact on firefighters and fire extinguishment as the fire propagation curve.

Another important factor in the whole response time question is what we term "detection time." This is the time it takes to detect a fire or a medical situation and notify 9-1-1 to initiate the response. In many instances, particularly at night or when automatic detection systems (fire sprinklers and smoke detectors) are unavailable or inoperable, the detection process can be extended.

FIGURE 4-5: Fire Propagation Curve



Measuring Response Times

There have been no documented studies that have made a direct correlation between response times and outcomes in fire and EMS events. No one has been able to show that a four-minute response time is measurably more effective than a six-minute response time. The logic has been "faster is better" but this has not been substantiated by any detailed analysis. Furthermore, the ability to measure the difference in outcomes (patient saves, reduced fire damage, or some other quantifiable measure) between a six-minute, eight-minute, or ten-minute response is not a performance measure often utilized in the fire service. So, in looking at response times it is prudent to design a deployment strategy around the actual circumstances that exist in the community and the fire problem that is perceived to exist. This requires a "fire risk assessment" and a political

determination as to the desired level of protection for the community. It would be imprudent, and very costly, to build a deployment strategy that is based solely upon response times.

For the purpose of this analysis ***Response Time*** is a product of three components: ***Dispatch Time***, ***Turnout Time***, and ***Travel Time***.

- *Dispatch time* is the time interval that begins when the alarm is received at the communication center and ends when the response information begins to be transmitted via voice or electronic means to the emergency response facility or emergency response units in the field. Dispatch time is the responsibility of the Otsego County 911 Center and outside the control of Oneonta officials.
- *Turnout time* is the time interval that begins when the notification process to emergency response facilities and emergency response units begins by an audible alarm or visual announcement or both and ends at the beginning point of travel time. The fire department has the greatest control over these segments of the total response time.
- *Travel time* is the time interval that initiates when the unit is en route to the call and ends when the unit arrives at the scene.
- *Response time*, also known as total response time, is the time interval that begins when the call is received by the primary dispatch center and ends when the dispatched unit arrives on the scene to initiate action.

For this study, and unless otherwise indicated, response times measure the first arriving unit only. The primary focus of this section is the dispatch and response time for emergency calls responded with lights and sirens.

According to NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments*, 2010 Edition, the alarm processing time or dispatch time should be less than or equal to 60 seconds 90 percent of the time. This standard also states that the turnout time should be less than or equal to 80 seconds (1.33 minutes) for fire and special operations 90 percent of the time, and travel time shall be less than or equal to 240 seconds for the first arriving engine company 90 percent of the time. The standard further states the initial first alarm assignment (a total of fourteen personnel for a single family residential structure) should be assembled on scene in 480 seconds 90 percent of the time (not including dispatch and turnout time). ***NFPA 1710 response time criterion is utilized by CPSM as a benchmark for service delivery and in the overall staffing and deployment of fire departments, and is not a CPSM recommendation***. The decision regarding response time standards is a local decision that should be based on the level of risk in the community and the political decision of the community regarding its willingness to fund its operations at a specific level.

As noted, the OFD deploys all apparatus from a single station. Figure 4-6 illustrates the station location along with 240-second (indicated by the red overlay), 360-second (indicated by the green overlay), and 480-second (indicated by the blue overlay) travel time benchmarks. The small concentric circle represents a 1.5 mile radius from the station and the large concentric circle

represents a 2.5 mile radius from the station; these demonstrate the ISO's grading schedule benchmarks for engine company placement (within 1.5 road miles of built-upon area) and aerial ladder company placement (within 2.5 road miles of built-upon area).

FIGURE 4-6: OFD Station Location and Travel Times

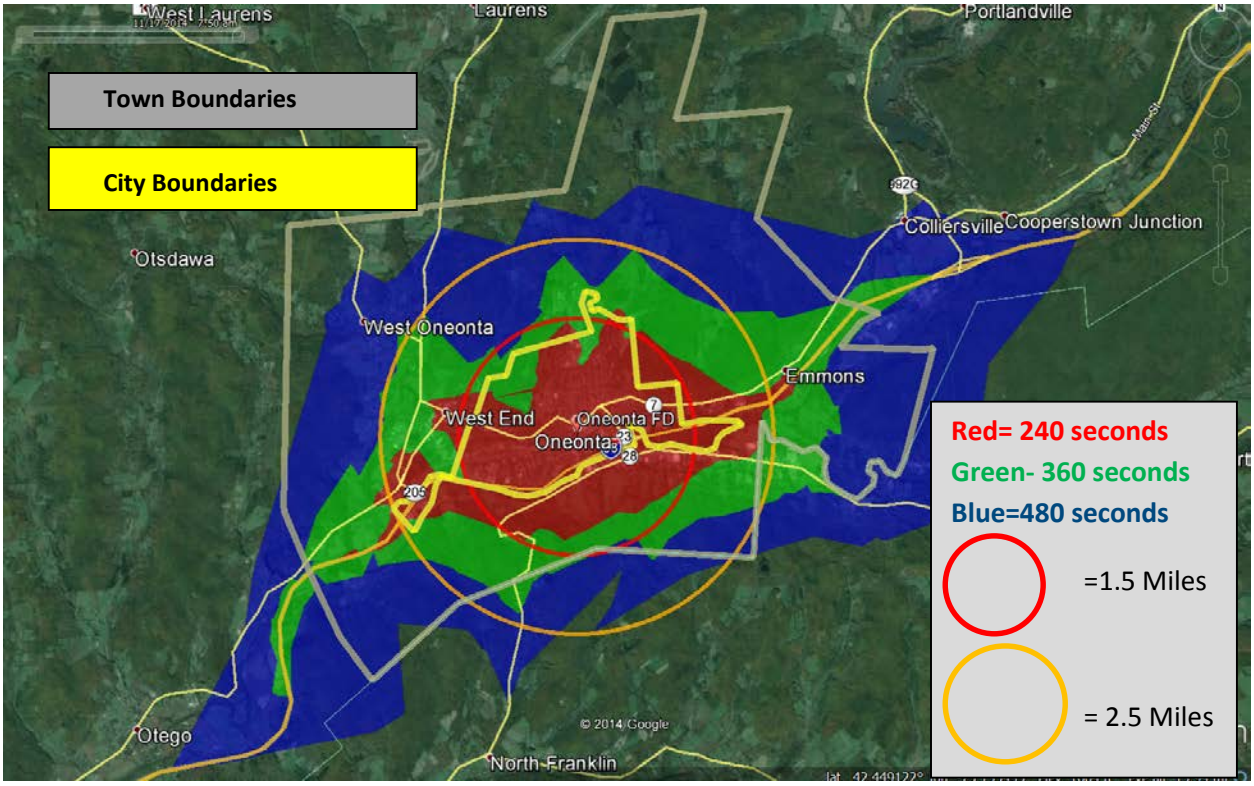


Figure 4-6 shows that the city is nearly 100 percent covered under the 240-second benchmark, and is 100 percent covered under the 360- and 480-second benchmarks. Further, the greatest percentage of the city is within the 1.5 mile radius for engine companies and is within 100 percent of the 2.5 mile radius for aerial ladder apparatus. The town, because of its larger size, is largely outside of the 240-second benchmark (northwest and southwest), and somewhat covered under the 360- and 480-second benchmarks. The area of the town that is largely commercial and more built upon is, however, well within the 240- and 360-second benchmarks as well as the 1.5 and 2.5 mile radius circles (east-central and southeast). Town areas not covered under the travel time benchmarks are beyond a ten-minute travel time; however, these areas are mostly not built upon and are more rural in nature. It is, however, important to note that these travel time distances do not take into consideration alarm handling and turnout times. ***This map only depicts travel distances and not actual response times.***

Figures 4-7 and 4-8 graphically depict the actual locations of fire and EMS emergency responses carried out by the OFD. We would expect that those responses within city boundaries will result in travel times in the four to six minute range. However when we look at actual response times,

approximately only half of all city responses are under eight minutes. Almost all response times in town areas exceed eight minutes. CPSM attributes this to the extended dispatch handling and turnout times that were tabulated in this analysis.

FIGURE 4-7: Fire Runs

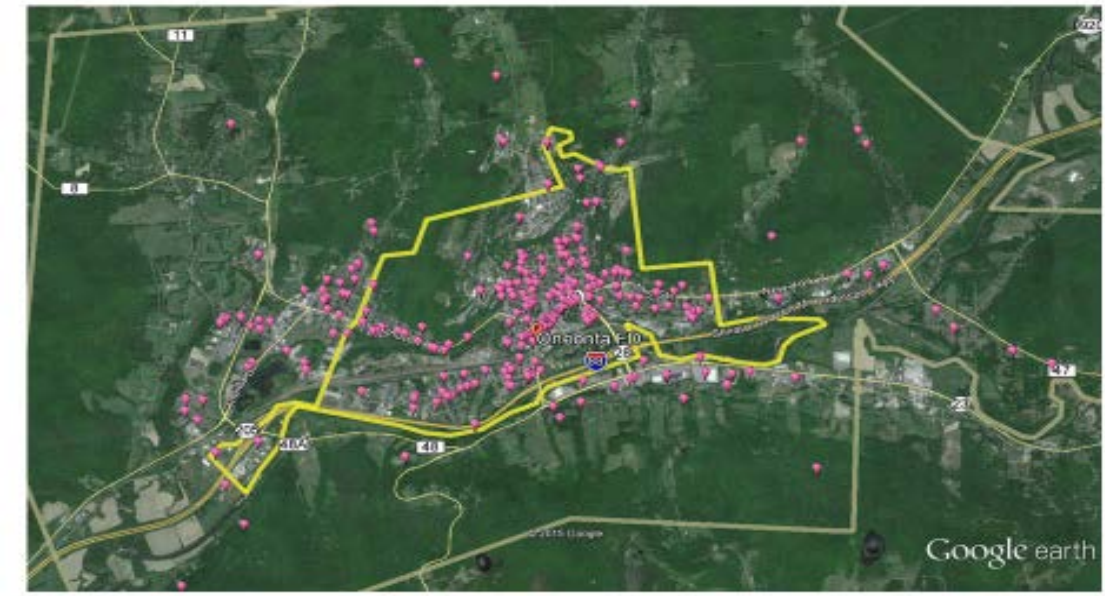


FIGURE 4-8: EMS Runs

OFD Response Times for Priority Calls

This section focuses on response time analysis for priority one calls, which were responded with lights and sirens. In this analysis, we included first arriving units that had complete unit dispatch time, unit en route time, and unit on-scene arrival time. A total of 2,587 calls (92.9 percent of EMS and fire category calls) were used in the analysis. We excluded those calls in which the response was nonemergency and all calls in which there was incomplete response time data. The average dispatch time was 3.2 minutes. The average turnout time was 1.5 minutes. The average travel time was 4.0 minutes. The average response time for EMS calls was 8.8 minutes. The average response time for fire category calls was 8.0 minutes. The average response time for structure fire calls was 8.8 minutes. The average response time for outside fire calls was 6.8 minutes.

TABLE 4-13: Average Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type

Call Type	Dispatch Time	Turnout Time	Travel Time	Response Time	Sample Size
Cardiac and stroke	3.2	1.4	3.9	8.6	272
Seizure and unconsciousness	3.2	1.4	3.7	8.3	265
Breathing difficulty	3.0	1.5	4.0	8.5	262
Overdose and psychiatric	3.3	2.2	4.5	10.0	75
MVA	3.5	1.0	3.7	8.1	91
Fall and injury	3.3	1.5	4.1	8.9	544
Illness and other	3.0	1.7	4.2	8.9	734
EMS Total	**3.2**	**1.5**	**4.1**	**8.8**	**2,243**
Structure fire	3.8	0.6	4.4	8.8	37
Outside fire	3.2	0.7	2.9	6.8	24
Hazard	3.0	1.1	3.5	7.5	89
False alarm	3.4	1.0	3.5	7.9	151
Good intent	3.8	2.1	2.9	8.9	11
Public service	4.5	0.4	4.7	9.7	32
Fire Total	**3.5**	**0.9**	**3.6**	**8.0**	**344**
Total	**3.2**	**1.5**	**4.0**	**8.7**	**2,587**

Note: For overdose and psychiatric calls, the local safety protocol requires that OFD waits until the local police department arrives to secure the scene, thus the turnout time is longer.

Observations:

- The average dispatch time was 3.2 minutes.
- The average turnout time was 1.5 minutes.
- The average travel time was 4.0 minutes.
- The average response time for EMS calls was 8.8 minutes.
- The average response time for fire category calls was 8.0 minutes.
- The average response time for structure fire calls was 8.8 minutes.
- The average response time for outside fire calls was 6.8 minutes.

The 90th percentile measurement, often referred as a "fractile response," is a more conservative and stricter measure of total response time. Most fire agencies are unable to meet this standard. Simply explained, for 90 percent of calls, the first unit arrives within a specified time, and if measured, the second and third unit. Table 4-14 depicts the 90th percentile response times in Oneonta for fire and EMS responses. It is important to note that the 90th percentile dispatch time for fire and EMS is 5.1 minutes. In addition, the 90th percentile for turnout time is 3.5 minutes.

These areas require further evaluation, as CPSM believes these times should be reduced to a two-minute time frame.

TABLE 4-14: 90th Percentile Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type

Call Type	Dispatch Time	Turnout Time	Travel Time	Response Time	Sample Size
Cardiac and stroke	4.8	3.3	6.6	12.1	272
Seizure and unconsciousness	4.8	3.4	6.8	12.1	265
Breathing difficulty	4.7	3.2	7.4	12.6	262
Overdose and psychiatric	5.6	4.2	8.6	17.3	75
MVA	6.1	2.7	7.5	13.5	91
Fall and injury	4.8	3.7	7.2	12.8	544
Illness and other	4.9	3.7	7.6	13.4	734
EMS Total	**4.9**	**3.5**	**7.4**	**12.9**	**2,243**
Structure fire	6.5	2.6	7.1	12.0	37
Outside fire	6.6	2.0	6.0	10.0	24
Hazard	5.7	3.1	8.9	14.0	89
False alarm	5.9	3.2	6.6	12.2	151
Good intent	6.9	9.8	8.0	13.5	11
Public service	7.1	2.3	10.3	15.9	32
Fire Total	**6.3**	**3.0**	**7.5**	**13.2**	**344**
Total	**5.1**	**3.5**	**7.4**	**13.0**	**2,587**

Note: A 90th percentile value of 13.0 indicates that the total response time was less than 13.0 minutes for 90 percent of all calls. Unlike averages, the 90th percentile response time is not equal to the sum of the 90th percentile of dispatch time, turnout time, and travel time.

Observations:

- The 90th percentile dispatch time was 5.1 minutes.
- The 90th percentile turnout time was 3.5 minutes.
- The 90th percentile travel time was 7.4 minutes.
- The 90th percentile response time for EMS calls was 12.9 minutes.
- The 90th percentile response time for fire category calls was 13.2 minutes.
- The 90th percentile response time for structure fire calls was 12.0 minutes.
- The 90th percentile response time for outside fire calls was 10.0 minutes.

Recommendation: OFD should work with Otsego County dispatch personnel and internally to identify ways to reduce both dispatch handling times and OFD turnout times. CPSM believes it is realistic to reduce these times at the 90th percentile to a two-minute time frame.

Dispatch times, both average and in the 90th percentile, are exceedingly high. CPSM was unable to ascertain if these excessive times were a product of inaccurate reporting or poor performance at the dispatch center. In any case, these delays are excessive and require close scrutiny and modification. It is also important to note those categories of calls that have the highest 90th percentile dispatch handling times are:

- Public service, 7.1 minutes.
- Good intent, 6.9 minutes.

The indication is that these are calls that typically are nonemergency and though they are responded to as emergency events, it appears that dispatching staff have unintentionally slowed the pace of handling these calls. This point is further emphasized when looking at the turnout time for good intent calls. Our review of the CAD information indicates that turnout time for good intent calls at the 90th percentile is 9.8 minutes. When looking at the combined dispatch handling and turnout time, the total elapsed time at the 90th percentile is 16.7 minutes.

Section 5. Operational Support Areas

Performance Measurement

Fire suppression, prevention programs, and EMS service delivery need to be planned and managed to achieve specific, agreed-upon results. This requires establishing intended results and a set of goals for the activities of any given program to achieve these results. Determining how well an organization or program is doing requires that these goals be measurable and that they are measured against desired results. This is the goal of performance measurement.

Simply defined, performance measurement is the ongoing monitoring and reporting of progress toward pre-established goals. It captures data about programs, activities, and processes, and displays data in standardized ways that help communicate to service providers, customers, and other stakeholders how well the agency is performing in key areas. Performance measurement provides an organization with tools to assess performance and identify areas in need of improvement. In short, what gets measured gets done.

The need to continually assess performance requires adding new words and definitions to the fire service lexicon. Fire administrators need to be familiar with the different tools available and the consequences of their use. In *Managing the Public Sector*, business professor Grover Starling applies the principles of performance measurement to the public sector. He writes that the consequences to be considered for any given program include:

> **Administrative feasibility:** How difficult will it be to set up and operate the program?
>
> **Effectiveness:** Does the program produce the intended effect in the specified time? Does it reach the intended target group?
>
> **Efficiency:** How do the benefits compare with the costs?
>
> **Equity:** Are the benefits distributed equitably with respect to region, income, gender, ethnicity, age, and so forth?
>
> **Political feasibility:** Will the program attract and maintain key actors with a stake in the program area?[14]

Performance measurement systems vary significantly among different types of public agencies and programs. Some systems focus primarily on efficiency and productivity within work units, whereas others are designed to monitor outcomes produced by major public programs. Still others track the quality of services provided by an agency and the extent to which citizens are satisfied with these services.

Within the fire service, performance measures tend to focus on inputs (the amount of money and resources spent on a given program or activity) and short-term outputs (the number of fires in the community, for instance). One of the goals of any performance measurement system should be also

[14] Starling, *Managing the Public Sector*, 396.

to include efficiency and cost-effectiveness indicators, as well as explanatory information on how these measures should be interpreted. The types of performance measures are shown in Table 5-1.

TABLE 5-1: The Five GASB Performance Indicators[15]

Category	Definition
Input Indicators	These are designed to report the amount of resources, either financial or other (especially personnel), that have been used for a specific service or program.
Output Indicators	These report the number of units produced or the services provided by a service or program.
Outcome Indicators	These are designed to report the results (including quality) of the service.
Efficiency (and cost-effectiveness) Indicators	These are defined as indicators that measure the cost (whether in dollars or employee hours) per unit of output or outcome.
Explanatory Information	This includes a variety of information about the environment and other factors that might affect an organization's performance.

One of the most important elements of performance measurement within the fire service is to describe service delivery performance in a way that both citizens and those providing the service have the same understanding. The customer will ask, "Did I get what I expected?" the service provider will ask, "Did I provide what was expected?"

Ensuring that the answer to both questions is "yes" requires alignment of these expectations and the use of understandable terms. The author of the "Leadership" chapter of the 2012 edition of ICMA's *Managing Fire and Emergency Services* "Green Book" explains how jargon can get in the way:

> *Too often, fire service performance measures are created by internal customers and laden with jargon that external customers do not understand. For example, the traditional fire service has a difficult time getting the public to understand the implications of the "time temperature curve" or the value of particular levels of staffing in the suppression of fires. Fire and emergency service providers need to be able to describe performance in a way that is clear to customers, both internal and external. In the end, simpler descriptions are usually better.*[16]

The OFD is measuring a number of key aspects of its performance, and posts these findings in its year-end report. For instance, the department collects data on response statistics including response types by location. It provides comparisons on call activities in recent years and provides

[15] From Harry P. Hatry et al., eds. *Service Efforts and Accomplishments Reporting: Its Time Has Come* (Norwalk , CT: GASB, 1990).
[16] I. David Daniels, "Leading and Managing," in *Managing Fire and Emergency Services* (Washington, DC: 2012), 202.

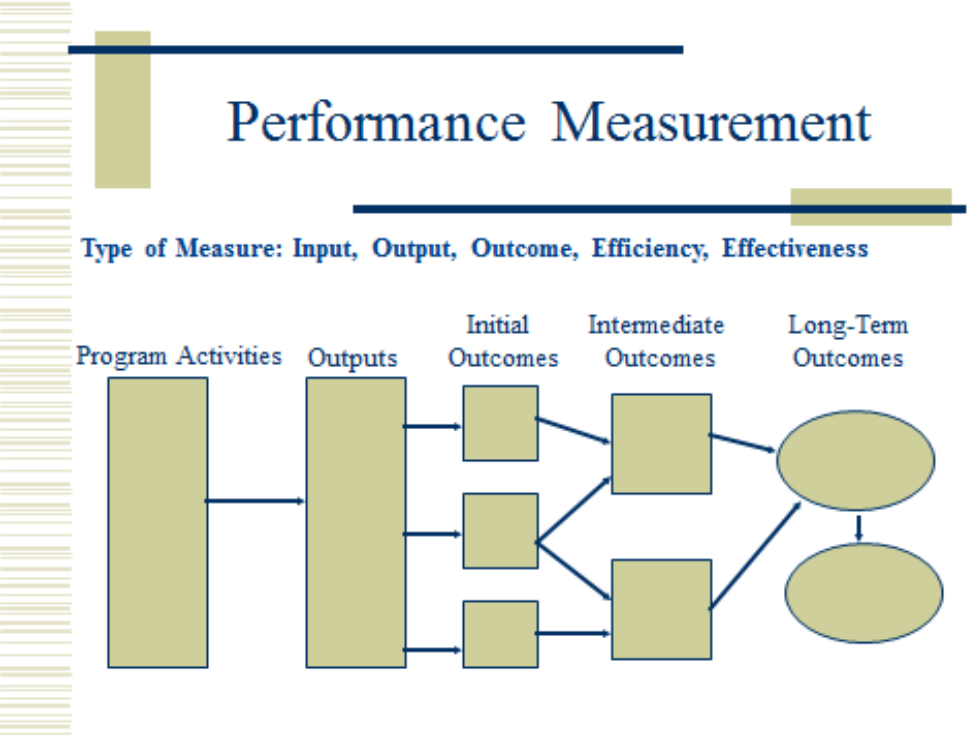
information regarding the total training hours and fire prevention activities. The report also highlights specific accomplishments of the year including new equipment placed in service or specialized training achieved. These data, although reflecting typical workload measures and department activity, does not provide a direct link to department goals of specific target measures. This type of ongoing analysis and the monitoring of trends are most useful to justify program budgets and to measure service delivery levels.

To accomplish this linkage, other forms of performance measures, particularly service-quality and customer-satisfaction measures, should be incorporated into the system. Staff throughout the organization should participate in developing performance measures. In addition to helping facilitate department wide buy-in, this could provide an opportunity for upper management to better understand what the line staff believes to be critical goals—and vice versa. For the same reason, the process of developing performance measures should include citizen input in both the city and town. This will enhance citizen understanding regarding service levels and obtain their input in this decision making

Establishing a performance management system within the framework of an overall strategic plan would help city management and elected officials (including Oneonta Fire district officials) gain a better understanding of what the OFD is trying to achieve. Building any successful performance management system that measures more than outputs requires a consistent model. Figure 5-1 illustrates a successful program logic model[17] designed to build consistent performance measures and these should be linked to the performance measure indicators shown in Table 5-1 to build a successful performance measurement system.

[17] Shows the logic by which program activities are expected to lead to targeted outcomes. Poister, 35.

FIGURE 5-1: Performance Measure Program Logic



- Type of Measure: identify the type of indicator to be measured.
- Program Activities: the provision of services provided by this program area.
- Outputs: the results of or how much is produced from the program activities.
- Initial/Intermediate Outcomes: substantive changes/improvements/benefits of the program as measured against the program goal.
- Long-term Outcomes: satisfy the stated *goal*—links to the budget/strategic plan.

Recommendation: OFD should undertake a concerted effort to develop a comprehensive set of performance measures to monitor its system performance and system outcomes. The process of developing these measures should utilize input from OFD members, the community, the mayor and city council, city administration, and the Oneonta Fire District.

CPSM has identified this shortcoming and recommends that OFD undertake a concerted effort to develop a comprehensive listing of performance measures for both emergency and nonemergency activities. The following are a number of performance measures that may be considered:

Operations:

- Response Times (Fire & Fractile/Average/Frequency of Excessive Times)
  - Alarm handling times

    - Turnout times
    - Travel times
    - On-scene time
    - Call duration
    - Cancelled en route
- Workload Measures
    - Emergency vs. nonemergency responses
    - EMS transports/types/locations/revenues
    - Response to automatic fire alarms/frequency and outcomes
    - Company inspections/area occupancy familiarization
    - Smoke detector distribution (installations and follow-up)
    - Prefire planning
    - Public education: contact hours/numbers by age group
- Outcome Measures
    - EMS/save rates/action taken
    - Fire loss/limit of fire spread-point of origin, room of origin, etc.
    - On-duty injuries/workers' comp claims
    - Lost time: sick/injury
    - Vehicle accidents
    - Equipment lost or broken

Training:

- Fire and EMS hours
- Officer development
- Specialty training
- Professional development/formal education/certifications
- Fitness performance

Prevention:

- Plans review (numbers/valuation $/completion time)
- Inspections (new and existing)
    - Numbers
    - Completion time

- Violations (found/corrected)
- Quantification by type of violation and occupancy type

- Fire investigations
  - Numbers and determinations
  - Fire loss/structure and contents
  - Arson arrests/convictions
  - Fire deaths(demographics/occupancy type/cause and origin)

Miscellaneous:

- Customer service surveys (by engine/by shift)
  - Following emergency response
  - Public assist
  - Inspections (prevention and company)
  - Public education
  - In-service training (employee assessments)

Hazard Analysis

As discussed previously, the fire chief has been designated as the city's emergency manager and as such is responsible for the city's overall emergency planning and disaster preparedness efforts. The city of Oneonta has identified those potential hazards that can affect the community as a whole. Although a formal vulnerability analysis for the community has not been completed the city has identified those events that would have the highest potential for occurrence and, depending on severity, the greatest potential for widespread damage. These include:

- Flooding.
- Transportation accident (rail, roadway transport).
- Severe weather events.
- Wildland fires.
- Terrorism/ workplace & school violence.
- Energy shortage/ disruption.
- Hazardous materials incidents.
- Water emergency/ drought.

While OFD has completed a preliminary risk assessment list, it does not have a written internal risk management plan in place. In order for the list to be expanded into an effective tool it needs to be

put into the following operative framework. This will provide a broad outline for the actions that can be taken in the event of a wide scale emergency or disaster event.

- **Risk identification:** Actual or potential hazards.
- **Risk Evaluation:** The potential of occurrence of a given hazard and the severity of its consequences.
- **Prioritizing risk:** The degree of a hazard based upon the frequency and severity of occurrence.
- **Risk control:** Solutions for eliminations or reduction of real or potential hazards by implementing an effective control measure.
- **Risk monitoring:** Evaluation of effectiveness of risk control measures.[18]

The city's planning efforts should also focus on the support and organizational systems that would be necessary to respond to and sustain ongoing relief efforts during times of disaster. Included in these efforts are:

- Continuity of operations planning (COOP).
- Public awareness and public information.
- Succession planning (continuity of government).
- Automatic and mutual aid on a regional basis.
- Utilization of volunteers and management of donations.

Linking a fire department's operational functionality to the community risk and its vulnerability assessment is intended to assist fire personnel in refining their preparedness efforts. CPSM has observed little effort directed towards this level of preparedness and organized management of the city in the event of a large-scale disaster or emergency event with a broad reach. We will discuss this issue and our recommendations in the "Emergency Management" section of this report.

Fire Preplanning

In addition to examining communitywide risk and vulnerability, OFD should examine specific risks and vulnerabilities on the basis of the community's critical occupancies. Risk assessment and vulnerability analysis are not new to the fire service: the NFPA 1620 standard, *Recommended Practice for Pre-Incident Planning*, identifies the need to utilize both written narrative and diagrams to depict the physical features of a building, its contents, and any built-in fire protection systems. The occupancies that are typically specified for pre-incident plans, or "preplans," are as follows:

- Large assembly.
- Educational.

[18] NFPA 1500 (2007). *Standard for a Fire Department Occupational Safety and Health Program, Annex D*.

- Health care.
- Detention and correction.
- High-rise residential.
- Residential board and care (assisted living).
- Mercantile.
- Business.
- Industrial.
- Warehouse and storage.

Our evaluation has found OFD to be deficient in its preplanning efforts. The department did not have a schedule for reviewing or updating existing preplans, and the existing plans were outdated. In the most recent ISO review of the Oneonta Fire Department (August 2012), comment was made regarding prefire planning efforts by OFD. Of the possible 15 points available for prefire planning efforts, OFD received a total of 4.8 points or approximately 30 percent of the available scoring in this category.

> ***Recommendation: The OFD should revise its current prefire planning process and require in-service engine companies to conduct site visits into commercial, industrial, institutional, and other high- and medium-hazard occupancies within both the city and town of Oneonta, for the purpose of familiarizing crews with these occupancies and developing tactical strategies in the event of a fire or emergency in these buildings.***

NFPA 1620, *Standard for Pre-Incident Planning*, is a very appropriate guideline to use in developing, training, and tracking the use of prefire plans in the fire service. It is critical that this planning process be the fire officer's responsibilities, with oversight by the fire chief and assistant fire chief. OFD should also look at options to store these preplans, once developed, in a way that enables rapid retrieval by responding units to incidents at these locations. OFD should monitor and ensure that all critical occupancies are visited on a regular basis and that the tactical planning components, including building schematics, are utilized in training scenarios with other responding crew members, chief officers, and mutual aid partners.

Accreditation

Accreditation is a comprehensive self-assessment and evaluation model that enables organizations to examine past, current, and future service levels. It is used to evaluate internal performance and compares this performance to industry best practices. The intent of the process is to improve service delivery.

The Center for Public Safety Excellence (CPSE) provides an exhaustive evaluation process, on a fee basis to member agencies, which ultimately leads to accreditation. CPSE is governed by the Commission on Fire Accreditation International (CFAI), an 11-member commission representing a

cross-section of the fire service industry, including fire departments, city and county management, code councils, the U.S. Department of Defense, and the International Association of Firefighters. The CPSE accreditation program is built around the following key measurements:

- Determine community risk and safety needs.
- Evaluate the performance of the department.
- Establish a method for achieving continuous organizational improvement.

Local government executives face increasing pressure to "do more with less" and justify expenditures by demonstrating a direct link to improved or measured service outcomes. Particularly for emergency services, local officials need criteria to assess professional performance and efficiency.

CPSE accreditation has national recognition and is widely used throughout the fire service. The key to its success is that it enables communities to set their own standards that are reflective of their needs and a service delivery model that is specific to the community. In addition, it is a program that is based on ongoing improvement and continuous monitoring. CPSM feels that the CPSE accreditation model is very well suited for Oneonta and should be considered in the near future.

Recommendation: Oneonta should consider the pursuit of fire accreditation through the Center for Public Safety Excellence (CPSE).

Essential Resources

Fire Prevention and Code Enforcement

OFD plays a limited role in fire prevention efforts in Oneonta. Code enforcement, fire plans review and inspection activities are the responsibility of the city's Code Enforcement Office. The fire chief, in his role as emergency manager, provides a cursory review of those more significant structures in which fire protection features or life safety concerns are prevalent. OFD does not have any members on staff with formal training in code review, plans inspection, or fire code enforcement efforts. This is an unfortunate situation. CPSM believes that OFD personnel need to play a more active role in the fire prevention effort in both the city and town. Fire suppression and response, although necessary in minimizing property damage, have little impact on preventing fires. Rather, public fire education, fire prevention, and built-in fire protection and notification systems are essential elements in protecting citizens from death and injury due to fire. The city currently utilizes the 2010 Uniform Fire Code; however, an effort is underway to adopting the 2015 International Code Congress (ICC) International Fire Code.

Recommendation: The Oneonta Fire Department should have a greater role and sign-off responsibilities in the review and approval of all high- and medium-hazard occupancies and all structures with on-site annunciation or fire protection systems.

In addition to playing an active role in the plans review and conceptual approval processes, it is critical that OFD staff be involved in on-site inspections and the issuance of the ***certificate of occupancy*** for all critical structures.

Automatic fire sprinklers have proven to be very effective in reducing fire loss and minimizing fire deaths in residential structures. Many communities have been reluctant to impose code provisions that require these installations. The 2015 ICC International Fire Code includes the requirement for automatic fire sprinklers in single family and duplex residential structures. Given the limited staffing and response capabilities that are provided by OFD, CPSM believes it is essential that when adopting the 2015 ICC International Fire Code the city retain the residential fire sprinkler requirement.

> ***Recommendation: The City of Oneonta should maintain the residential fire sprinkler requirements when adopting the 2015-ICC-International Fire Code.***

According to the National Fire Protection Agency, the average cost nationally for installing automatic fire sprinklers in new single-family residential structures was estimated to be $1.61 per square foot.[19] For a 2000 square-foot home, this estimated cost would be approximately $3,220. This can be less than the cost of granite counter tops or a carpeting upgrade. Given the limited resources available for fire suppression efforts in the Oneonta service area, CPSM believes that the city should include in its 2015 fire code adoption the requirement for automatic fire sprinklers in all new single-family residential structures.

As mentioned previously, the City Code Enforcement Office conducts periodic maintenance inspections on a number of properties as required by code. This office provides a "Certificate of Compliance" to all rental properties (single and multi-unit dwellings). There are an estimated 900 rental properties in the city, including 7 fraternity/sorority houses. Line personnel have little if any involvement in this effort nor do they conduct prefire planning inspections and in-service company inspections with any regularity on any target hazards or high-hazard properties.

In many agencies, engine companies are expected to conduct a designated number of company inspections and prefire plans each month. In addition to obtaining a first-hand observation of the structure and being able to correct any code violations or life safety concerns, these actions provide an opportunity for an exchange between business owners and building managers regarding fire safety and fire code compliance.

> ***Recommendation: OFD should institute an in-service company inspection program in conjunction with the Oneonta Code Enforcement Office and which places fire department units into all critical occupancies on a regular basis for the purpose of conducting company inspections involving exit lighting, egress, storage, and the operational readiness of fire protection/notification systems.***

[19] NFPA, "Cost of Installing Residential Fire Sprinklers Averages $1.61 per Square Foot" Quincy, MA: September 11, 2008.

Plans review for automatic fire suppression systems and alarm systems, as well as the review of site plans involving fire lanes and ingress and egress for fire apparatus, are handled through the city's Code Enforcement Office. Annual or biennial inspections and maintenance inspections are typically done by the code enforcement staff; engine companies make only cursory entries into these buildings and this is at the discretion of the company officer. There is not an annual schedule or informal requirement for fire companies to visit or inspect those critical occupancies in the city or town.

Arson investigation is the responsibility of the fire chief. Fire loss calculations, along with determining the cause and origin of the fire, is the responsibility of the responding engine company officer. If the fire or loss is more extensive or if arson is suspected, OFD will call in a number of its personnel who have received additional training in fire investigation through the New York State Office of Fire Prevention and Control. In more extensive cases involving large fire loss or deaths, the State Fire Marshall may be called in to assist in the investigation.

The OFD public education program is primarily an outreach by fire companies which focuses on school-age children. Department personnel present safety programs, primarily upon request. They participate in area and business safety programs along with providing fire station visits and tours in which safety messages are given. The department has participated in smoke detector give-away programs and often provides detector battery exchanges when requested.

Education and Training Programs

Education and training programs create the character of a fire service organization. Agencies that place a true emphasis on their training have a tendency to be more proficient in carrying out day-to-day duties. The prioritization of training also fosters professionalism and instills pride in the organization. OFD places a significant emphasis on the training of its personnel, but with its limited resources and the inherent difficulties in maintaining proficiencies among part-time employees, CPSM believes that a greater emphasis on in-service training is warranted.

OFD is responsible for administering the training program for its members and maintaining compliance with state training requirements. Training is conducted primarily while personnel are on duty, with topics identified in the monthly training calendar. Various department members, depending on their areas of expertise and interest, assist in developing the various training regimens that meet the categorical and hourly requirements specified by the state. New York State Division of Homeland Security and Emergency Services under its ***Office of Fire Protection and Control***, specifies both initial firefighter training requirements and continuing educational requirements for the career firefighter. Under the ***Minimum Standards for Firefighting Personnel (NYCRR Part-426)***, firefighter training, including specialty training, is defined by the state. New York requires permanently appointed firefighters and officers to complete 100 hours of training annually for recertification. All required training is certified for its content and completed hours by the chief of the department and the records submitted to the state.

In addition to the training specified by the Office of Fire Protection and Control, OFD personnel are also required to complete PESH Training (Public Employee Safety and Health). PESH guidelines are

issued through the New York State Department of Labor, Safety and Health for the purpose of providing adherence to U.S. Occupational Safety and Health Administration (OSHA) standards. PESH investigates deaths or injuries in the workplace and will follow-up on employee complaints or perceived violations of safety standards or equipment malfunctions. In addition, PESH provides annual training directives that are specifically targeted at those work groups typically operating in hazardous environments, including firefighters. This training focuses on efforts to reduce the incidence of injuries, illnesses, and those activities typically related to firefighter safety. These include such topics as: working in confined space environments, the use of personal protective equipment (PPE), hazardous materials storage and release, infectious disease prevention, and a host of other related topics.

Training records for the OFD are meticulously kept and reported as required. All training hours and the topics involved are logged for each employee. ISO also reviews training hours as part of its evaluation process. ISO recommends a total of 192 hours annually (16 hours monthly) in fire-related topics as recommended in the NFPA 1001 pamphlet (Standard for Professional Firefighter Qualifications). In its 2012 "Summary Report of the Oneonta Fire Department," it was found that the average monthly hours of training logged for OFD fire personnel was 9.7 hours. Because of this level of training, OFD received only 12.13 points out of a possible 25 points for fire company training.

As mentioned above, the current work schedule for OFD personnel is a 24 hours on /72 hours off schedule. In this rotation, firefighters work every fourth day, or a maximum of ninety-one, 24-hour tours each year. Due to various leave times available (vacation, sick leave, holiday leave, personal leave, and other miscellaneous time off), CPSM estimates that, on average, OFD personnel work a total of 75 tours each year, or six to seven tours each month. This does not include any overtime hours or recall tours that may be worked. In order to meet the recommended ISO training hours, which is the level of training that we typically see in most departments we study, OFD would need to set a minimum daily training requirement of two hours for each 24-hour shift worked.

> ***Recommendation: OFD should establish a daily training requirement for all line personnel of two hours for each 24-hour shift worked.***

Department-licensed EMTs, CCEMTs, AEMTs, and Paramedics must meet the following requirements for continuing education every three years:

- Emergency Medical Technician—26 hours of core refresher training and 46 hours of additional continuing medical education (CME) (72 hours total).
- Advanced Emergency Medical Technician—40 hours of core refresher training and 38 hours of additional CME (78 hours total).
- EMT-Critical Care—36 hours of core refresher training and 36 hours of additional CME (72 hours total).
- Paramedic—48 hours of core refresher training and 24 hours of additional CME (72 hours total).

In addition, all certifications require a renewed CPR certification in each three-year cycle. All providers must demonstrate specific skills competencies that vary on the basis of their level of certification. Paramedic certifications also require the completion of an advanced cardiac life support class (ACLS) within each recertification cycle.

AAREMS requirements specify that up to 50 percent of the additional CME hours required for recertification can be obtained through an on-line learning format. Most training, however, is available through remote delivery forums (distance learning), in which an instructor is leading the session and available for questions. This format is allowable under AAREMS recertification guidelines without limitation. This can be done via a live Internet feed or through closed-circuit video. The current CBA requires that all off-duty training for EMS certification will be compensated at an overtime rate. CPSM estimates that upwards of 300 hours of overtime are expended annually for EMS recertification training. We estimate the annual expenditures for EMS-related training and coverage to be in excess of $10,000 annually.

Recommendation: In contract negotiations with the fire union, the city of Oneonta should pursue a change in Article IX, Section 5B to eliminate overtime pay for EMS recertification training hours that are conducted on-duty.

EMS certifications are job requirements. There is ample opportunity to obtain EMS continuing education training while on-duty. In those instances when an employee must attend training during off-duty hours in order to maintain his or her required certifications, it should be the responsibility of the employee to complete this training without the city being required to pay overtime wages for these hours.

Employee physical fitness is a key component in the ability of fire and EMS personnel to do their jobs effectively and avoid injuries. Rigid fitness standards are typically required in many fire departments throughout the nation. NFPA standard 1583, *Standard on Health-Related Fitness Programs for Fire Department Members*, is a recognized industry standard for monitoring and maintaining firefighter fitness. OFD does not have a fitness standard for its emergency response personnel. Although employees are encouraged to maintain appropriate levels of fitness and the current firefighting job description includes language requiring good physical conditioning, a formal organizational fitness assessment does not exist. OFD does require annual medical examinations that follow NFPA 1582 guidelines, which is a good practice; however, the department should develop an annual fitness assessment process for its emergency response employees.

Recommendation: OFD should institute an annual physical fitness evaluation process for all emergency response personnel, including chief officers.

New York State Civil Service currently requires new firefighters to pass a physical fitness evaluation that is patterned after the Candidate Physical Ability Test (CPAT). This testing utilizes a number of firefighter skill components (stair climb, hose drag, equipment carry, ladder raise, forcible entry, rescue drag, search and ceiling pull) that are completed in a sequential order and as a timed event.

OFD should consider the use of a modified CPAT exam as the annual fitness qualification for all emergency response personnel.

Emergency Management

The mayor of Oneonta, as the chief elected official, has the authority to declare that a state of emergency exists within the city. If needed, the mayor may request, from the governor of New York, a state disaster declaration and disaster assistance. The governor can then declare a state disaster, and in turn request a federal emergency or disaster declaration from the president of the United States.

The fire chief has been designated as the emergency manager for the city of Oneonta and is responsible for the coordination of emergency operations. This includes the periodic updating of emergency management planning documents, managing grants from the state and the Department of Homeland Security, NIMS training requirements, and monitoring statewide events and Oneonta special events. The range and number of responsibilities held by an emergency management coordinator is extensive. It is important that redundancy be built into this critical position. Whenever the fire chief is unavailable there should be a designated alternate who is fully trained and well versed in the emergency management responsibilities and who can assume these duties should an emergency arise.

Otsego County has established an emergency management function under its Office of Emergency Services. OFD staff has worked closely with Otsego County in the department's coordination, planning, and training activities related to emergency management.

Disaster response generally requires numerous agencies to work together and share resources. Very often agencies have overlapping lines of authority and responsibility. In these situations coordination is critical. During disaster events, situations change rapidly and the work environment can be very stressful. To be effective a solid team effort is needed. Personnel must be well trained and the lines of communication must be strong. Too often these conditions cause miscommunication and conflict. Though the fire chief has committed an extensive amount of his time and has involved other supervisory members of the fire department in emergency management activities, we have observed minimal interaction and inclusion of other city departments in the emergency management effort. Effective emergency management goes well beyond the response phase of an incident. The ability to manage the impacts of the event, and the ability to return the community back to normalcy, oftentimes results in the greatest controversy. According to the Federal Emergency Management Agency (FEMA), a comprehensive emergency management program is developed around the following four components:

- Mitigation.
- Preparedness.
- Response.
- Recovery.

The city of Oneonta has developed an emergency operations plan (EOP), but this document is largely an internal document for the fire department and is not readily available to other members of the city organization. The document is not available electronically and key city departments do not have assigned roles in the emergency operations center (EOC) or as part of the EOP.

Recommendation: The city should expand the inclusion of other key city officials in both the emergency operations plan (EOP) and the city emergency operations center (EOC), specifically the chief of police, code enforcement officer, finance director, and public works director.

The ability to effectively manage a large-scale disaster or emergency event requires coordination among all key officials and the ability to collectively make decisions and prioritize efforts. The ability to garner the necessary resources and to effectively communicate status reports and updates to the public is critical. Working as part of an emergency management team also requires specific training in the concepts of emergency management and the processing and tracking of requests for assistance from both state and federal resources. This training must be accomplished in advance of the event and key officials involved in this effort must be well versed in the emergency management process, the EOP, and the necessary documents and processing required by the county and the state of New York.

The city has designated a small work area in the fire station to serve as the city's EOC. This area is adjacent to the apparatus bay area and the fire station watch room. CPSM does not believe that this space is adequate to serve as the city EOC nor is it properly equipped. Specifically, there is limited ability to support numerous computers and Internet access is limited. The number of phone lines and phone sets are insufficient. Status boards for display purposes and facsimile and copying capabilities appear insufficient to manage a large-scale event. Areas for media and press conferences would be difficult to accommodate and TV monitors and video production equipment do not exist in the designated area. The facility is not secure and during an emergency the station will be a central hub for supporting response activities and personnel. This would compound the limited space and the noise level and movement of personnel into this area will compound its effectiveness.

Recommendation: Oneonta should revisit the designation of the EOC in the fire station and should consider an alternate site that can better accommodate a full EOC operation.

An EOC should have full generator capacity, situational awareness technology assets, rest/rehab areas for staff, a policy-making meeting room, a secure environment, and a direct feed from the communications center. FEMA, through it Emergency Management Institute, offers a number of training classes in the set-up, activation, and operation of an EOC during an emergency event. EMI's Integrated Emergency Management Course (IEMC) is designed to train key officials in EOC operations.

Regular tabletop exercises should be scheduled to familiarize management with the plan, their assigned responsibilities, and the functioning of a fully activated EOC. Oneonta should conduct a formal table-top exercise annually and a full-scale exercise every other year.

Recommendation: Oneonta should develop a training plan that includes annual tabletop exercises and a full-scale exercise every other year so that city management becomes more familiar with the emergency management plan, EOC responsibilities, and municipal operations during a disaster scenario.

Continuity of operations planning (COOP) is the process by which government formally reviews operations and makes contingency plans in the event that government can no longer operate under normal conditions. COOP looks at the inability to utilize key public buildings, including fire stations or police stations, city hall, or other key structures. The planning process identifies alternative sites that could be utilized if these facilities are incapacitated. COOP also looks at contingencies if current service levels must be curtailed due to wide-scale employee absences. Agencies are asked to formulate plans if their workforce is reduced by various increments (15 percent, 25 percent, 50 percent, and so forth). This exercise requires each department to define its plan for which of its services will continue and which other services could be modified or eliminated. There are numerous guides that provide insights or models for COOP. FEMA provides a template that is often utilized to assist local government and federal agencies in this process: http://www.fema.gov/pdf/about/org/ncp/coop/continuity_plan_federal_d_a.pdf

Oneonta does not have a formal continuity of operations plan. The city has not identified an alternative site for its only fire station should it become uninhabitable. These disruptions in service would not necessarily be the product of some type of mass calamity or terrorist act. It can be the result of something more common: a fire, a water line break that goes unnoticed when the building is closed, an extended power disruption, or another event that makes the structure unusable. This planning effort evaluates available options for relocating an entire service agency and what equipment and information must be moved to the alternative work site.

Recommendation: The city should undertake a continuity of operations planning (COOP) effort for all major municipal functions and city facilities.

Emergency Communications Center (ECC)

The Otsego County 911 Center is the Public Safety Answering Point (PSAP) for Otsego County, including the city of Oneonta. This center is managed by the Otsego County Office of Emergency Services; this agency was recently assigned the oversight of the 911 Center (in July 2014). Prior to that, the center was managed by the Otsego County Sheriff. The center, which provides dispatching services to 75 public safety agencies throughout the county, handles in excess of 15,000 911 call annually and is operational on a 24/7 basis. It has a minimum of two dispatchers on duty at any given time.

The center utilizes Mobile Tech™ computer-aided dispatch (CAD) software. The ECC uses a nationally recognized emergency medical dispatching (EMD) system to provide callers with critical

pre-arrival instructions for medical emergencies as well as establishing some dispatching parameters for response recommendations. All dispatchers are trained to provide emergency medical dispatching (EMD), and this activity is reviewed by two staff member who are QA/QI certified. All critical ECC equipment is on an uninterrupted power supply (UPS). The county office serves as the backup 911 Center; the transfer of operations from the center to the backup center is tested periodically.

CPSM's review of the Otsego County 911 Center indicated a number of concerning performance issues. As mentioned earlier, dispatch handling times are some of the longest times we have observed in recent studies. Average call handling times were 3.2 minutes and the fractile time was 5.1 minutes overall and 6.3 minutes for fire calls. These levels of performance greatly exceed national standards and require close evaluation by both county and city officials.

Recommendation: Oneonta should request monthly performance reporting from the Otsego County 911 Center regarding alarm handling times for OFD response units.

CPSM also encountered difficulties in evaluating CAD data against the OFD incident reporting system. Two issues that were encountered were an inability to cross-reference CAD files against the OFD incident reporting and lack of synchronization between the time clocks utilized by both agencies. This lack of synchronization results in the same incident reports having different time sequences. In addition, OFD incident reporting does not report in minutes and seconds, only minutes, while CAD reports are logged in minutes and seconds.

Recommendation: OFD and the Otsego County 911 Center should put into place methods to link their incident report numbering systems and should synchronize their time clocks.

CPSM also observed a noted discrepancy in the number of transported patients when CAD data were compared with ambulance billing records. It is difficult to determine if this inconsistency is a product of inconsistent radio communications between field personnel and the 911 Center or if it's a product of inattentive incident reporting. Once the issue was elevated the fire chief took quick action to understand the cause of the inconsistency and rectify the problem.

Recommendation: OFD and the Otsego 911 Center need to build improved quality control systems into their dispatching, reporting, and review of EMS transport activities.

All calls for OFD are dispatched onto a single dispatching channel and the calls are generally handled on the same channel. Calls that escalate in their complexity or the number of responders can be moved to a tactical channel; however, the tactical channel is both unmonitored by ECC staff and it is unrecorded. This requires the incident commander of a complex event to monitor both the tactical channel as well as the dispatch channel and this is inconsistent with best practices

The OFD assistant chief serves as the ECC liaison to assist the ECC staff in making sound operational and policy decisions. During CPSM's site visit, the Otsego County 911 Center was being renovated

and moved from its previous location in the Sheriff's office to a new location in the Office of Emergency Services. When fully outfitted there will be five operational consoles that can be used within the ECC facility; however, when the new center becomes operational only two consoles will be staffed.

The transition of the center from the Sheriff's Office to the Office of Emergency Services was a work in progress during our site visit. CPSM has every confidence that when this transition is complete and the new center is operational, many of the performance issues observed will be resolved. There must, however, be a concerted effort between city and county officials to ensure that this vital link in the emergency response network is functioning properly. This will only be achieved through teamwork, the ongoing monitoring and reporting of key performance measures, effective communications, and the mutual commitment in providing optimal performance outcomes.

Section 6. Data Analysis

Introduction

This data analysis was prepared as a key component of the study conducted by the Center for Public Safety Management, LLC, of the Oneonta Fire Department (OFD). This analysis examines all calls for service between June 1, 2014, and May 31, 2015, as recorded in the communication center.

This analysis is divided into five sections: the first section focuses on call types and dispatches; the second section explores time spent and workload of individual units; the third section presents analysis of the busiest hours in a year; the fourth section provides a response time analysis of OFD units; and the fifth section primarily analyzes EMS transports.

During the period covered by this study, the department operated out of one station. The department utilizes three ambulances, three engines, one aerial ladder, one light rescue, one brush utility, and one command vehicle.

During the study period, the department responded to 3,165 calls, including 135 mutual aid calls. Calls in the city of Oneonta accounted for 57 percent of the total, and averaged 5.0 calls per day. Calls in the town of Oneonta accounted for 33 percent of the total, and averaged 2.8 calls per day. The total combined yearly workload (deployed time) for all OFD units was 2,974 hours. The average estimated dispatch time of the first arriving OFD unit was 3.2 minutes and the average response time of the first arriving OFD unit was 8.7 minutes. The 90th percentile dispatch time was 5.1 minutes and the 90th percentile response time was 13.0 minutes. The department provided transport service on 1,928 calls, averaging 5.3 transport calls per day. For EMS calls, the transport rate was 74.7 percent.

Methodology

In this report, we analyze calls and runs. A call is an emergency service request or incident. A run is a dispatch of a unit. Thus, a call might include multiple runs.

We received CAD data for the Oneonta Fire Department along with its National Fire Incident Reporting System (NFIRS) data. Since there does not exist a common field to join CAD and NFIRS data, we used call time and address fields to match CAD and NFIRS incidents. We were able to match 92 percent of NFIRS incidents to leverage unique NFIRS information including NFIRS incident type, actions taken, and property and content loss information.

We first removed 92 incidents to which no OFD unit responded. Advised by the fire department, we also excluded 682 dispatches which did not have unit en-route time, unit arriving on scene time, and lasted less than 10 minutes. Then, we classified the calls in a series of steps. We first used the NFIRS mutual aid field to accurately identify mutual aid calls from the OFD perspective. Then, we used the NFIRS incident type to assign EMS, MVA, fire category, and canceled call types. Lastly, for NFIRS EMS calls, we used the CAD incident description to assign detailed EMS categories. For CAD incidents that were not matched to any NFIRS incident, CAD incident descriptions are used to

assign call categories. A transport call was identified by requiring at least one OFD ambulance with a recorded unit arriving at hospital time. NFIRS district information was used to identify calls in the city of Oneonta or town of Oneonta.

In this report, mutual aid and canceled calls are not included in the analysis of variations of average call and workload by month and hour of day. Nor are mutual aid and canceled calls included in the response time analysis.

In our data validation process, we have noticed **data issues** and recommend the agency to address these in future operations:

- The current CAD data not only has units which have responded to the incidents, but also units which were recommended by CAD for responses. We recommend modifying the system to only record units which were dispatched to provide emergency services.

- Currently, CAD and NFIRS have different incident numbers, and there is no easy way to join both data sets for analysis and reporting. We recommend the communication center to implement an IT process to automatically link the NFIRS incident number in CAD.

- We recommend the communication center to build a quality control process to assure the transport data. The process should cross-validate critical information with the billing company such as which unit has provided the transport, number of patients, pick up location, destination location, and actual miles.

- We recommend the fire department to record seconds in the NFIRS system, and also synchronize time stamps between NFRIS and CAD.

Aggregate Call Totals and Dispatches

In this report, each citizen-initiated emergency service request is a call. During the year studied, OFD responded to 3,165 calls. Of these, 41 were structure fire calls and 32 were outside fire calls within OFD jurisdiction. Each dispatched unit is a separate "run". As multiple units are dispatched to a call, there are more runs than calls. The department's total runs and workload are reported in the second section.

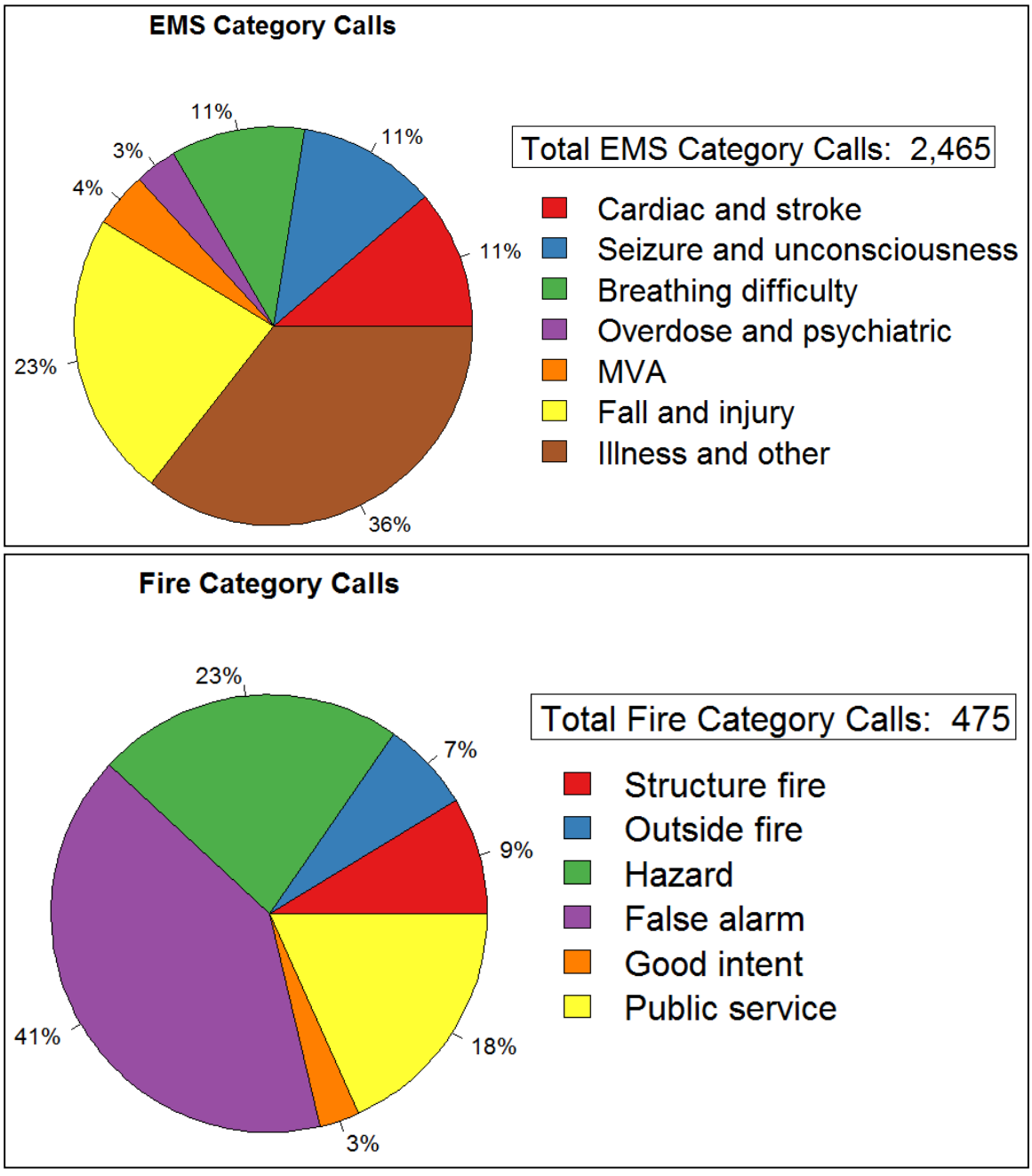
TABLE 6-1: Call Types

Call Type	Number of Calls	Calls per Day	Call Percentage
Cardiac and stroke	277	0.8	8.8
Seizure and unconsciousness	277	0.8	8.8
Breathing difficulty	268	0.7	8.5
Overdose and psychiatric	85	0.2	2.7
MVA	110	0.3	3.5
Fall and injury	572	1.6	18.1
Illness and other	876	2.4	27.7
EMS Total	**2,465**	**6.8**	**77.9**
Structure fire	41	0.1	1.3
Outside fire	32	0.1	1.0
Hazard	108	0.3	3.4
False alarm	193	0.5	6.1
Good intent	14	0.0	0.4
Public service	87	0.2	2.7
Fire Total	**475**	**1.3**	**15.0**
Mutual aid	135	0.4	4.3
Canceled	90	0.2	2.8
Total	**3,165**	**8.7**	**100.0**

Observations:

- The department received an average of 8.7 calls per day.
- EMS calls for the year totaled 2,465 (77.9 percent of all calls), averaging 6.8 per day.
- Fire calls for the year totaled 475 (15.0 percent of all calls), averaging 1.3 per day.
- Structure and outside fires combined for a total of 73 calls during the year, averaging about 1.4 calls a week.
- Mutual aid calls totaled 135(4.3 percent of all calls), and canceled calls totaled 90.

FIGURE 6-1: EMS and Fire Calls by Type



Observations:

- A total of 41 structure fire calls accounted for 9 percent of the fire category total.
- A total of 32 outside fire calls accounted for 7 percent of the fire category total.
- False alarm calls were the largest fire call category, making up 41 percent of the fire category total.
- Illness and other calls were the largest EMS call category and accounted for 36 percent of the EMS category total.
- Cardiac or stroke calls were 11 percent of the EMS category total.
- Motor vehicle accidents calls were 4 percent of the EMS category total.

TABLE 6-2: Calls by Type and Jurisdiction

Call Type	City of Oneonta	Town of Oneonta	Missing
Cardiac and stroke	149	121	7
Seizure and unconsciousness	169	100	8
Breathing difficulty	162	97	9
Overdose and psychiatric	60	22	3
MVA	39	52	19
Fall and injury	289	266	17
Illness and other	571	246	59
EMS Total	**1,439**	**904**	**122**
Structure fire	28	11	2
Outside fire	19	11	2
Hazard	86	20	2
False alarm	131	43	19
Good intent	7	7	0
Public service	37	22	28
Fire Total	**308**	**114**	**53**
Canceled	68	22	0
Total	**1,815**	**1,040**	**175**
Calls per Day	**5.0**	**2.8**	**0.5**
Percent of Total	**57.3%**	**32.9%**	**6%**

Note: NFIRS district information is used to identify jurisdiction.

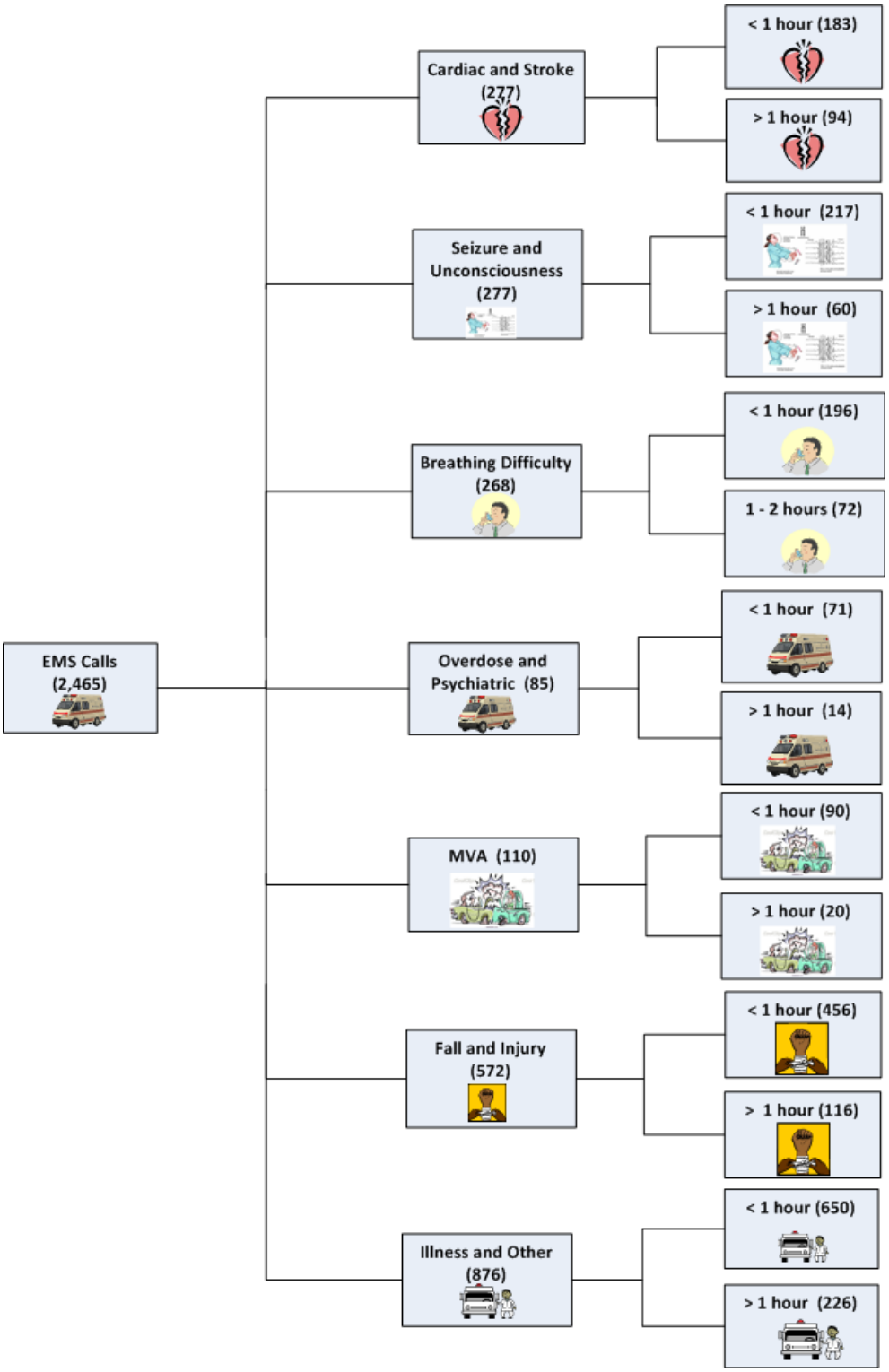
Observations:

- On average, calls in the city of Oneonta averaged 5.0 per day, which accounted for 57 percent of the total calls.
- On average, calls in the town of Oneonta averaged 2.8 per day, which accounted for 33 percent of the total calls.
- A total of 135 mutual aid calls, which accounted for 4.3 percent of the total calls, were not included in this analysis.

TABLE 6-3: Calls by Type and Duration

Call Type	Less than Half an Hour	Half an Hour to One Hour	One to Two Hours	Greater than Two Hours	Total
Cardiac and stroke	21	162	64	30	277
Seizure and unconsciousness	50	167	51	9	277
Breathing difficulty	37	159	53	19	268
Overdose and psychiatric	21	50	11	3	85
MVA	36	54	16	4	110
Fall and injury	124	332	82	34	572
Illness and other	159	491	166	60	876
EMS Total	**448**	**1,415**	**443**	**159**	**2,465**
Structure fire	16	7	9	9	41
Outside fire	21	5	4	2	32
Hazard	65	30	11	2	108
False alarm	145	34	11	3	193
Good intent	12	2	0	0	14
Public service	40	16	10	21	87
Fire Total	**299**	**94**	**45**	**37**	**475**
Mutual aid	17	30	65	23	135
Canceled	81	6	2	1	90
Total	**845**	**1,545**	**555**	**220**	**3,165**

FIGURE 6-2: EMS Calls by Type and Duration

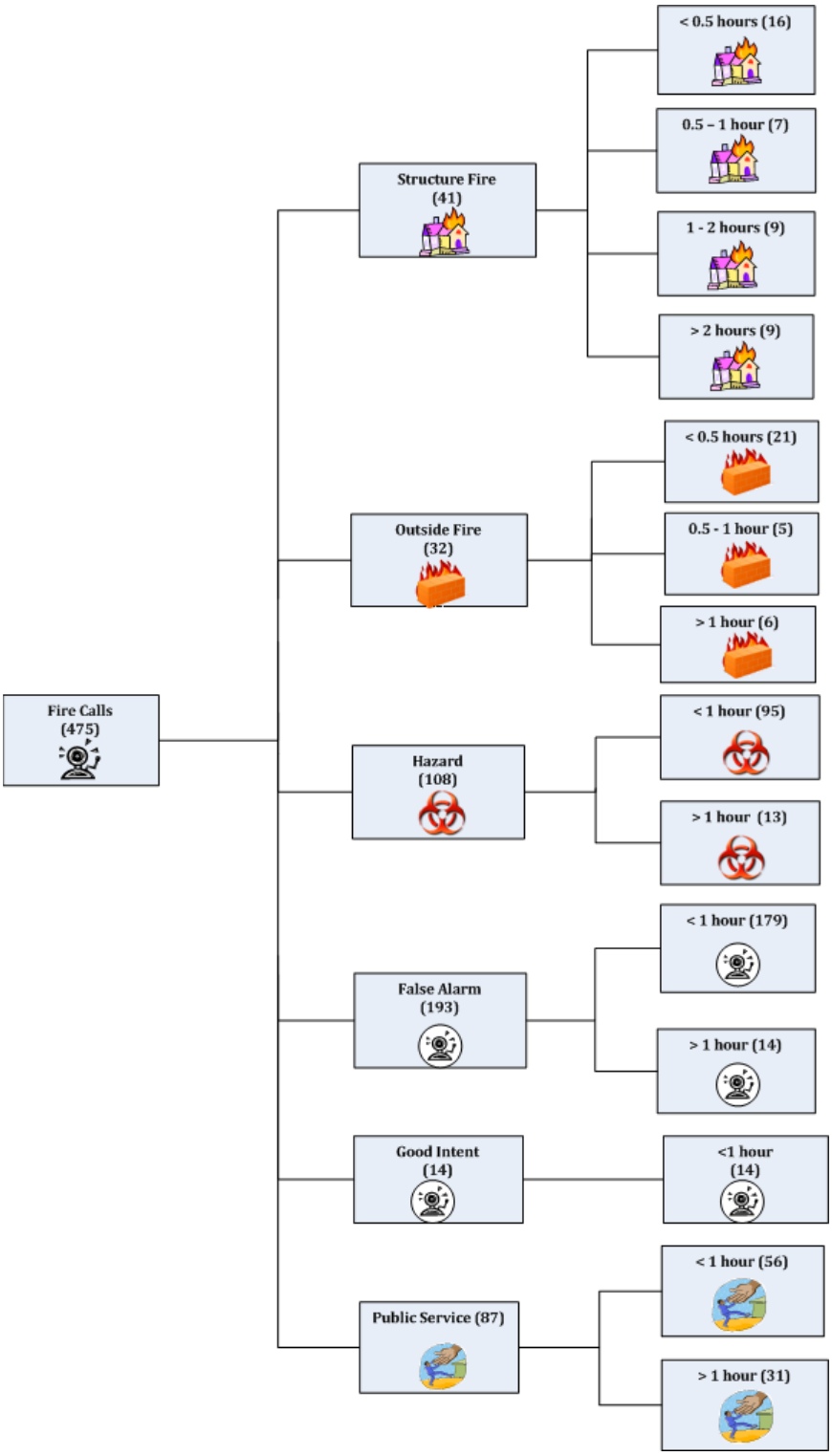


Note: Duration of a call is defined as the longest deployed time of any of the OFD units responding to the same call.

Observations:

- A total of 1,863 EMS category calls (76 percent) lasted less than one hour, 443 EMS category calls (18 percent) lasted between one and two hours, and 159 EMS category calls (6 percent) lasted more than two hours. On average, there were 1.6 EMS category calls per day that lasted more than one hour.
- A total of 183 cardiac and stroke calls (66 percent) lasted less than one hour, and 94 cardiac and stroke calls (34 percent) lasted more than an hour.
- A total of 90 motor vehicle accidents calls (82 percent) lasted less than one hour, and 20 motor vehicle accidents calls (18 percent) lasted more than an hour.

FIGURE 6-3: Fire Calls by Type and Duration

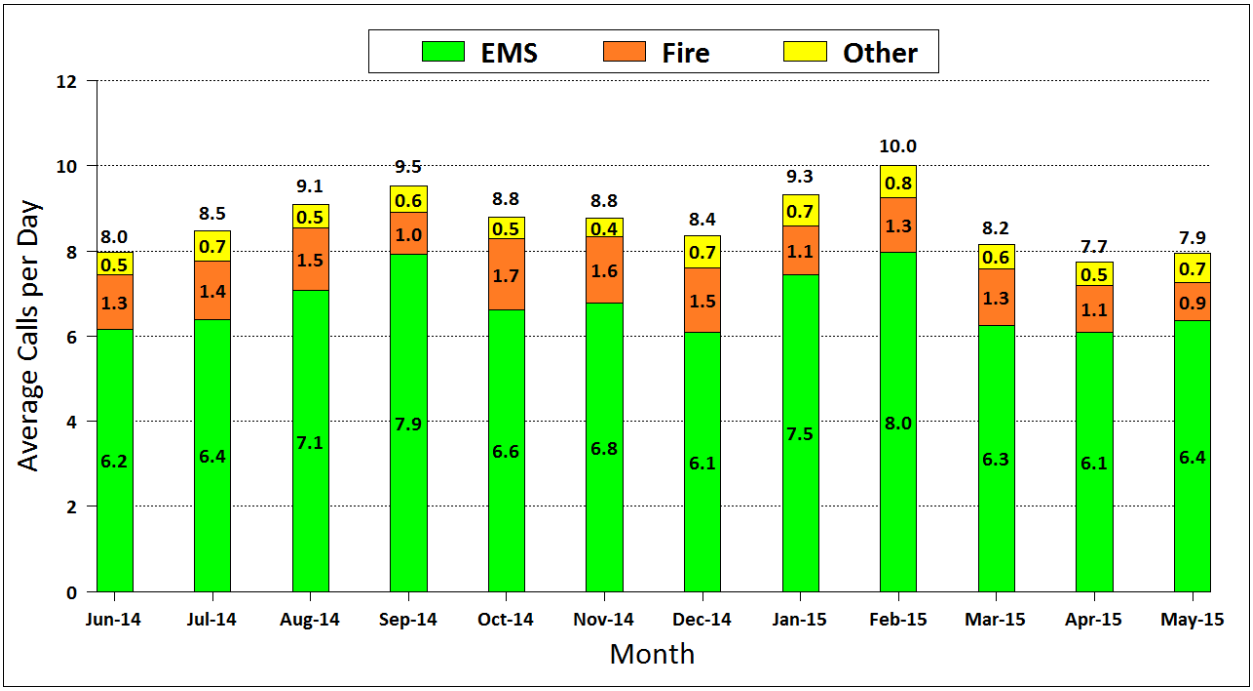


Note: Duration of a call is defined as the longest deployed time of any of the OFD units responding to the same call.

Observations:

- A total of 393 fire category calls (83 percent) lasted less than one hour, 45 fire category calls (9 percent) lasted between one and two hours, and 37 fire category calls (8 percent) lasted more than two hours. On average, there was less than 0.2 fire category call per week that lasted more than one hour.
- A total of 23 structure fires calls (56 percent) lasted less than one hour, 9 structure fires calls (22 percent) lasted between one and two hours, and 9 structure fires calls (22 percent) lasted more than two hours.
- A total of 26 outside fire calls (81 percent) lasted less than one hour, 4 outside fire calls (12 percent) lasted between one and two hours, and 2 outside fire calls (6 percent) lasted more than two hours.
- A total of 179 false alarm calls (93 percent) lasted less than one hour, and 14 false alarm calls (7 percent) lasted more than an hour.

FIGURE 6-4: Average Calls per Day, by Month

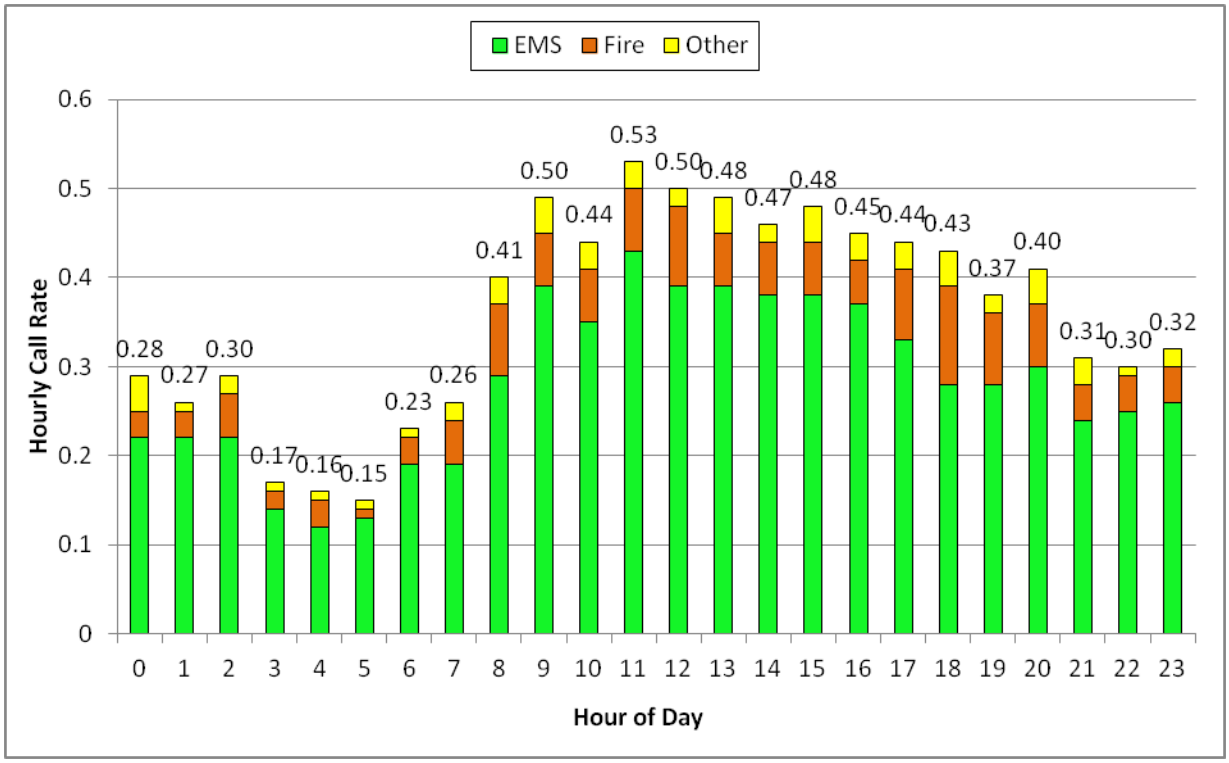


Note: Mutual aid and canceled calls are included in the other category.

Observations:

- Averages calls per day ranged from a low of 7.7 calls per day in April 2015 to a high of 10.0 calls per day in February 2015. The highest monthly average was 30 percent greater than the lowest monthly average.
- Averages EMS calls per day ranged from a low of 6.1 calls per day in December 2014 to a high of 8.0 calls per day in February 2015. The highest monthly average was 31 percent greater than the lowest monthly average.
- Averages fire calls per day ranged from a low of 0.9 calls per day in May 2015 to a high of 1.7 calls per day in October 2014. The highest monthly average was 86 percent greater than the lowest monthly average.
- Averages other calls per day ranged from a low of 0.4 calls per day in November 2014 to a high of 0.8 calls per day in February 2015.

FIGURE 6-5: Calls by Hour of Day



Note: Mutual aid and canceled calls are included in the other category.

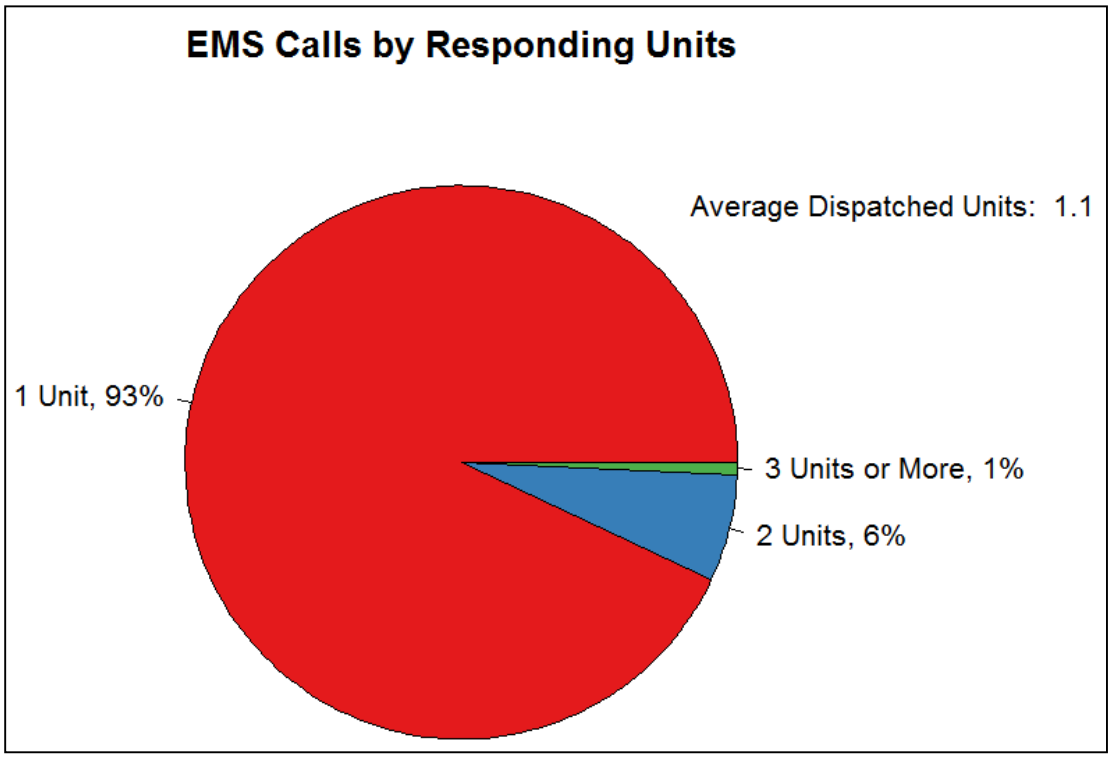
TABLE 6-4: Calls by Hour of Day

Hour of Day	Hourly Call Rate			
	EMS	Fire	Other	Total
0 - 1	0.22	0.03	0.04	0.28
1 - 2	0.22	0.03	0.01	0.27
2 - 3	0.22	0.05	0.02	0.30
3 - 4	0.14	0.02	0.01	0.17
4 - 5	0.12	0.03	0.01	0.16
5 - 6	0.13	0.01	0.01	0.15
6 - 7	0.19	0.03	0.01	0.23
7 - 8	0.19	0.05	0.02	0.26
8 - 9	0.29	0.08	0.03	0.41
9 - 10	0.39	0.06	0.04	0.50
10 - 11	0.35	0.06	0.03	0.44
11 - 12	0.43	0.07	0.03	0.53
12 - 13	0.39	0.09	0.02	0.50
13 - 14	0.39	0.06	0.04	0.48
14 - 15	0.38	0.06	0.02	0.47
15 - 16	0.38	0.06	0.04	0.48
16 - 17	0.37	0.05	0.03	0.45
17 - 18	0.33	0.08	0.03	0.44
18 - 19	0.28	0.11	0.04	0.43
19 - 20	0.28	0.08	0.02	0.37
20 - 21	0.30	0.07	0.04	0.40
21 - 22	0.24	0.04	0.03	0.31
22 - 23	0.25	0.04	0.01	0.30
23 - midnight	0.26	0.04	0.02	0.32
Calls per Day	**6.75**	**1.30**	**0.62**	**8.67**

Observations:

- Hourly call rates averaged between 0.15 calls and 0.46 calls per hour.
- Call rates peaked between 10:00 a.m. and 2:00 p.m., averaging at 0.46 calls per hour.
- Call rates were lowest between midnight and 8:00 a.m., averaging between 0.15 and 0.25 calls per hour.

FIGURE 6-6: Number of Oneonta Fire Department Units Dispatched to Calls



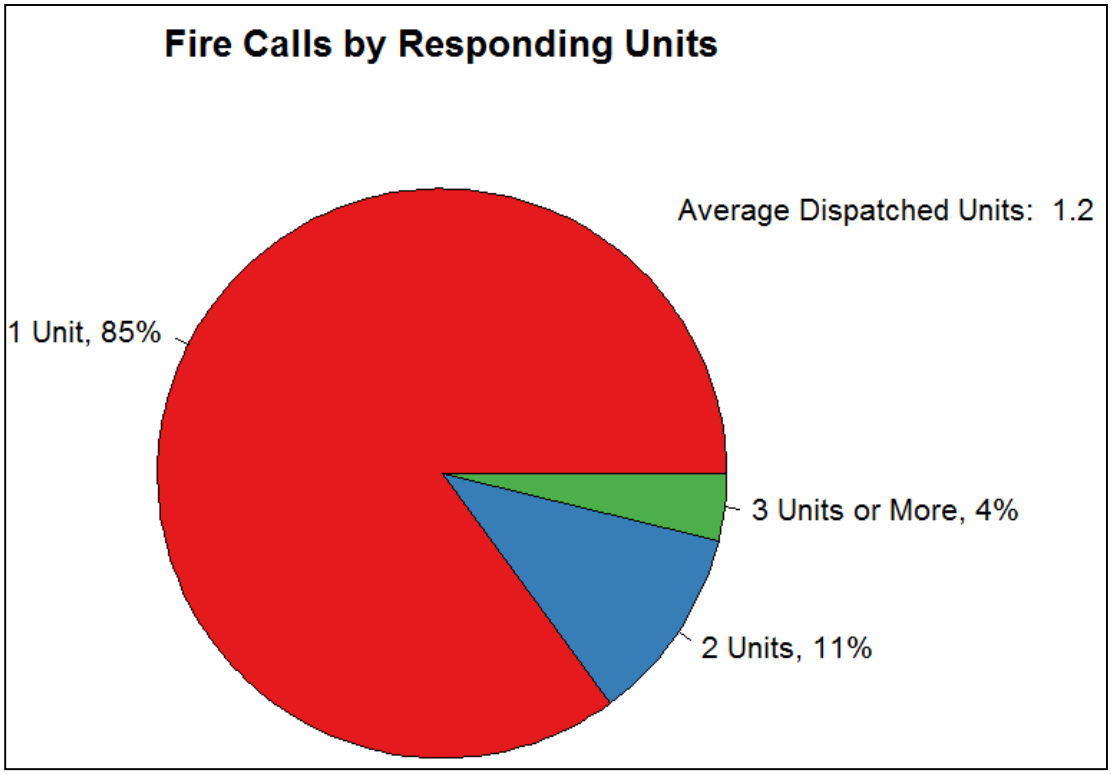


TABLE 6-5: Number of Oneonta Fire Department Units Dispatched to Calls

Call Type	Number of Units			
	One	Two	Three or More	Total
Cardiac and stroke	260	15	2	277
Seizure and unconsciousness	257	18	2	277
Breathing difficulty	256	12	0	268
Overdose and psychiatric	81	4	0	85
MVA	42	56	12	110
Fall and injury	544	27	1	572
Illness and other	853	22	1	876
EMS Total	**2,293**	**154**	**18**	**2,465**
Structure fire	24	8	9	41
Outside fire	24	5	3	32
Hazard	94	14	0	108
False alarm	177	12	4	193
Good intent	11	3	0	14
Public service	74	11	2	87
Fire Total	**404**	**53**	**18**	**475**
Mutual aid	121	10	4	135
Canceled	82	7	1	90
Total	**2,900**	**224**	**41**	**3,165**
Percentage	**91.6**	**7.1**	**1.3**	**100.0**

Note: This includes command vehicle 1651.

Observations:

- On average, 1.2 units were dispatched per fire category call. For fire category calls, one unit was dispatched 85 percent of the time, two units were dispatched 11 percent of the time, and three or more units were dispatched 4 percent of the time.
- For structure fire calls, one unit was dispatched 59 percent of the time, two units were dispatched 20 percent of the time, and three or more units were dispatched 22 percent of the time.
- For outside fire calls, one unit was dispatched 75 percent of the time, two units were dispatched 16 percent of the time, and three or more units were dispatched 9 percent of the time.
- On average, 1.1 units were dispatched per EMS category call. For EMS category calls, one unit was dispatched 93 percent of the time, two units were dispatched 6 percent of the time, and three or more units were dispatched 1 percent of the time.

TABLE 6-6: Annual Deployed Time by Call Type

Call Type	Average Deployed Minutes per Run	Annual Hours	Percent of Total Hours	Deployed Minutes per Day	Annual Number of Runs	Runs per Day
Cardiac and stroke	59.7	294	9.9	48.4	296	0.8
Seizure and unconsciousness	47.7	238	8.0	39.1	299	0.8
Breathing difficulty	52.5	245	8.2	40.3	280	0.8
Overdose and psychiatric	44.9	67	2.2	10.9	89	0.2
MVA	38.7	122	4.1	20.1	190	0.5
Fall and injury	48.4	485	16.3	79.8	601	1.6
Illness and other	55.0	825	27.8	135.7	900	2.5
EMS Total	**51.4**	**2,276**	**76.5**	**374.2**	**2,655**	**7.3**
Structure fire	113.4	138	4.6	22.7	73	0.2
Outside fire	48.2	38	1.3	6.2	47	0.1
Hazard	32.0	65	2.2	10.7	122	0.3
False alarm	25.9	92	3.1	15.2	214	0.6
Good intent	16.4	5	0.2	0.8	17	0.0
Public service	74.4	126	4.3	20.8	102	0.3
Fire Total	**48.4**	**464**	**15.6**	**76.3**	**575**	**1.6**
Mutual aid	82.8	213	7.1	34.9	154	0.4
Canceled	12.5	21	0.7	3.4	99	0.3
Total	**51.2**	**2,974**	**100.0**	**488.8**	**3,483**	**9.5**

Note: Each dispatched unit is a separate "run." As multiple units are dispatched to a call, there are more runs than calls. Therefore, the department responded to 8.7 calls per day and had 9.5 runs per day.

Observations:

- The department made 3,483 runs during the year studied, including 154 mutual aid responses; the daily average was 9.5 runs for all units combined.
- Fire category calls accounted for 15.6 percent of the total workload.
- There were 120 runs for structure and outside fire calls, with a total workload of 176 hours. This accounted for 5.9 percent of the total workload. The average deployed time for structure fire calls was 113.4 minutes, and the average deployed time for outside fire calls was 48.2 minutes.
- EMS calls accounted for 76.5 percent of the total workload. The average deployed time for EMS calls was 51.4 minutes. The deployed hours for all units dispatched to EMS calls averaged 6.2 hours per day.

Workload by Individual Unit—Calls and Total Time Spent

In this section, the actual time spent by each unit on calls is reported in two types of statistics: workload and runs. A dispatch of a unit is defined as a run; thus, one call might include multiple runs. The deployed time of a run is from the time a unit is dispatched through the time a unit is cleared.

TABLE 6-7: Call Workload by Unit

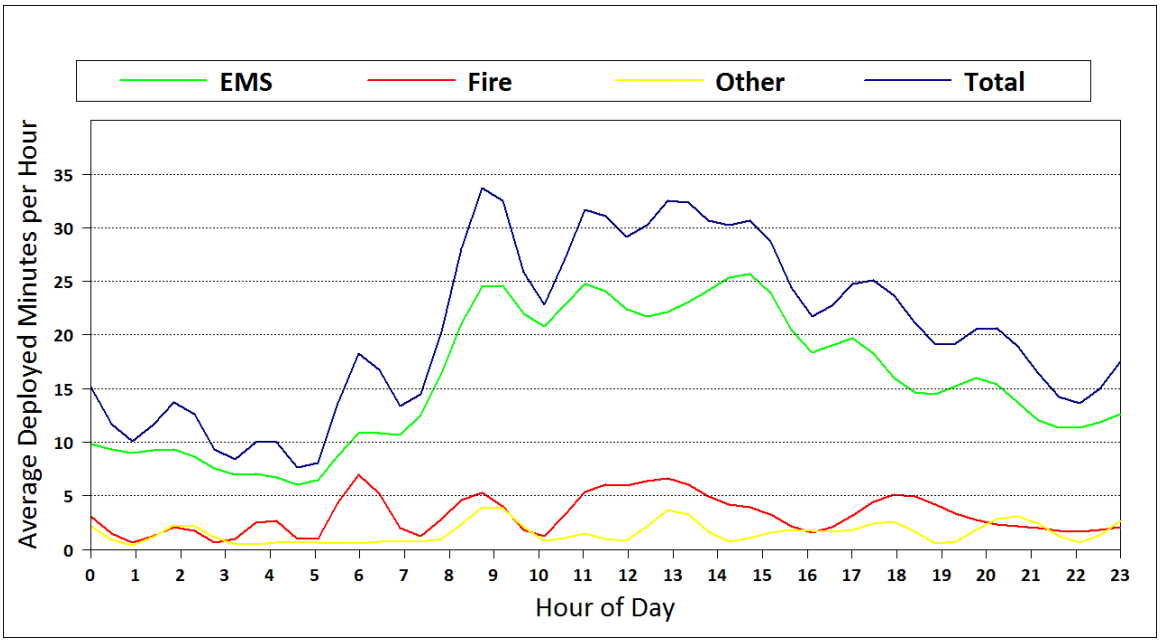
Station	Unit Type	Unit ID	Average Deployed Minutes per Run	Annual Number of Runs	Annual Hours	Runs per Day	Deployed Minutes per Day
Station 16	Engine	1612	35.8	309	184.4	0.8	30.3
	Engine	1613	41.1	89	61.0	0.2	10.0
	Engine	1614	37.5	154	96.2	0.4	15.8
	Light Rescue	1631	93.2	20	31.1	0.1	5.1
	Aerial Ladder	1641	114.4	14	26.7	NA	NA
	Command	1651	90.6	36	54.4	0.1	8.9
	Brush Utility	1652	45.4	91	68.9	0.2	11.3
	Ambulance	1691	48.6	95	77.0	0.3	12.7
	Ambulance	1692	53.9	1,789	1,606.0	4.9	264.0
	Ambulance	1693	52.0	886	768.2	2.4	126.3

Note: Unit 1611 only responded to 3 calls. Throughout the study, its runs were included along with unit 1612.

Observations:

- Ambulance 1692 made the most runs and had the greatest deployed time, averaging 4.9 runs and 4.4 hours of deployed time per day.
- Ambulance 1693 made the second most runs, averaging 2.4 runs and 2.1 hours of deployed time per day.
- Engine 1612 made 309 runs, averaging 0.8 runs and 30.3 minutes of deployed time per day.

FIGURE 6-7: Deployed Minutes by Hour of Day



Note:
Mutual aid and canceled calls are included in the other category.

TABLE 6-8: Deployed Minutes by Hour of Day

Hour of Day	EMS	Fire	Other	Total
0-1	9.9	3.1	2.2	15.1
1-2	9.0	0.7	0.4	10.1
2-3	9.2	2.2	2.4	13.8
3-4	7.1	0.6	0.7	8.4
4-5	6.9	2.9	0.6	10.4
5-6	6.3	0.7	0.6	7.6
6-7	10.9	7.0	0.5	18.4
7-8	10.8	1.5	0.8	13.1
8-9	18.2	3.7	1.4	23.3
9-10	25.1	4.8	4.2	34.1
10-11	20.7	1.1	0.9	22.8
11-12	24.7	5.3	1.5	31.5
12-13	22.3	6.0	0.8	29.1
13-14	22.4	6.6	3.8	32.8
14-15	24.7	4.5	1.1	30.3
15-16	24.9	3.6	1.4	29.9
16-17	18.6	1.6	1.8	22.0
17-18	19.7	3.1	1.8	24.7
18-19	15.8	5.2	2.5	23.4
19-20	14.6	3.9	0.4	18.9
20-21	15.9	2.5	2.4	20.9
21-22	12.5	2.0	2.7	17.3
22-23	11.3	1.7	0.6	13.6
23-midnight	12.7	2.1	2.7	17.5
Daily Total	**374.2**	**76.3**	**38.3**	**488.8**

Observations:

- Hourly deployed minutes were highest during the day between 8:00 a.m. and 8:00 p.m., averaging between 22.0 minutes and 34.1 minutes per hour. Average deployed minutes peaked between 9:00 a.m. and 10:00 a.m., averaging 34.1 minutes per hour.
- Hourly deployed minutes were the lowest between midnight and 6:00 a.m., averaging between 7.6 minutes and 15.1 minutes per hour.

TABLE 6-9: Total Annual and Daily Average Number of Runs by Call Type and Unit

Unit Type	Unit	EMS	**Structure Fire**	**Outside Fire**	Hazard	False Alarm	Good Intent	Public Service	Mutual Aid	Canceled	**Total**	**Runs per Day**
Engine	1612	12	**31**	**24**	56	125	9	28	4	20	**309**	**0.8**
Engine	1613	60	**2**	**1**	9	4	1	4	0	8	**89**	**0.2**
Engine	1614	6	**15**	**9**	30	50	2	12	4	26	**154**	**0.4**
Light Rescue	1631	6	**1**	**2**	1	2	0	6	1	1	**20**	**0.1**
Aerial Ladder	1641	0	**8**	**1**	0	1	1	2	1	0	**14**	**NA**
Command	1651	7	**7**	**2**	3	5	0	5	6	1	**36**	**0.1**
Brush Utility	1652	27	**2**	**5**	18	10	3	21	4	1	**91**	**0.2**
Ambulance	1691	79	**0**	**0**	0	2	0	4	5	5	**95**	**0.3**
Ambulance	1692	1,637	**5**	**2**	4	12	1	12	86	30	**1,789**	**4.9**
Ambulance	1693	821	**2**	**1**	1	3	0	8	43	7	**886**	**2.4**

Note: A dispatch of a unit is defined as a *run*; thus, a call might include multiple runs

Observations:

- Ambulance 1692 had the most runs during the year and it averaged 4.9 runs per day EMS runs accounted for 92 percent of its total.
- Ambulance 1693 had the second most runs during the year and it averaged 2.4 runs per day. EMS runs accounted for 93 percent of its total.
- Engine 1612 averaged 0.8 runs per day, and it made 31 runs to structure fire calls and 24 runs to outside fire calls.

TABLE 6-10: Daily Average Deployed Minutes by Call Type and Unit

Unit Type	Unit	EMS	**Structure Fire**	**Outside Fire**	Hazard	False Alarm	Good Intent	Public Service	Mutual Aid	Canceled	**Total**	**Fire Category Calls Percentage**
Engine	1612	1.0	**8.5**	**2.5**	4.7	7.6	0.5	3.2	1.8	0.6	**30.3**	**96.6**
Engine	1613	5.5	**0.9**	**0.3**	0.4	1.3	0.0	1.4	0.0	0.1	**10.0**	**44.7**
Engine	1614	0.7	**3.4**	**0.9**	2.9	3.8	0.0	1.4	1.5	1.1	**15.8**	**95.7**
Light Rescue	1631	0.9	**0.6**	**0.5**	0.1	0.1	0.0	2.7	0.1	0.1	**5.1**	**81.5**
Aerial Ladder	1641	0.0	**2.6**	**0.0**	0.0	0.1	0.0	1.2	0.5	0.0	**4.4**	**100.0**
Command	1651	0.7	**2.9**	**0.5**	0.2	0.4	0.0	1.3	2.9	0.0	**8.9**	**91.8**
Brush Utility	1652	2.9	**1.1**	**0.7**	2.1	0.6	0.1	2.4	1.5	0.0	**11.3**	**74.5**
Ambulance	1691	9.3	**0.0**	**0.0**	0.0	0.1	0.0	1.6	1.6	0.1	**12.7**	**26.5**
Ambulance	1692	239.8	**1.8**	**0.3**	0.2	1.2	0.1	2.5	17.1	1.1	**264.0**	**9.2**
Ambulance	1693	113.3	**1.0**	**0.4**	0.1	0.1	0.0	3.1	8.0	0.3	**126.3**	**10.3**

Observations:

- On average, Ambulance 1692 was deployed 264 minutes (4 hour and 24 minutes) per day. EMS calls accounted for 90.8 percent of its workload.
- On average, Ambulance 1693 was deployed 126 minutes (2 hour and 6 minutes) per day, and EMS calls accounted for 89.7 percent of its workload.
- On average, Engine 1612 was deployed 30.5 minutes per day, and fire calls accounted for 96.6 percent of its workload.

Analysis of Busiest Hours

There is significant variability in the number of calls from hour to hour. One special concern relates to the fire and EMS resources available for hours with the heaviest workload. We tabulated the data for each of the 8,760 hours in the year. Approximately once every 5.7 days, the Oneonta Fire Department responded to three or more calls in an hour. This occurred in 0.7 percent of the total number of hours in the year studied. We report the top ten hours with the most calls received and discuss in detail the two hours with the most calls received. In the following overlapped call analysis, call clear time is defined as the last clear time of all responding units. An overlapped call is defined as a call that is not cleared before a different call is received.

TABLE 6-11: Overlapped Call Analysis

Scenario	Frequency	Percent
No Overlapped Call	1,536	48.5
Overlapped with another call	1,113	35.2
Overlapped with two calls	388	12.3
Overlapped with three calls	102	3.2
Overlapped with four or more calls	26	0.8

Observations:

- 48.5 percent of emergency incidents had no overlapped call.
- 35.2 percent of emergency incidents overlapped with another call.
- 12.3 percent of emergency incidents overlapped with two calls.
- 4.0 percent of emergency incidents overlapped with three or more calls.

TABLE 6-12: Frequency Distribution of the Number of Calls

Number of Calls in an Hour	Frequency	Percentage
0	6,151	70.22
1	2,123	24.24
2	422	4.82
3	59	0.67
4	4	0.05
5	1	0.01

Observations:

- During 64 hours (0.7 percent of all hours), three or more calls occurred; in other words, the OFD responded to three or more calls in an hour roughly once every 5.7 days.
- Four calls per hour occurred five times in the study year and five calls per hour occurred once in the study year.

TABLE 6-13: Top 10 Hours with the Most Calls Received

Hour	Number of Calls	Number of Runs	Total Deployed Hours
2/16/2015, 11 a.m. to 12 p.m.	5	5	4.9
11/27/2014, 4 p.m. to 5 p.m.	4	6	3.9
12/17/2014, 7 p.m. to 8 p.m.	4	6	3.6
6/15/2014, 6 p.m. to 7 p.m.	4	5	1.9
3/14/2015, 9 a.m. to 10 a.m.	4	4	2.2
12/11/2014, 7 a.m. to 8 a.m.	3	7	2.3
7/29/2014, 3 p.m. to 4 p.m.	3	6	7.4
2/18/2015, 12 p.m. to 1 p.m.	3	6	4.7
12/31/2014, 3 p.m. to 4 p.m.	3	5	3.7
1/24/2015, 9 a.m. to 10 a.m.	3	5	9.2

Note: The combined workload is the total deployed minutes spent responding to calls received in the hour, and which may extend into the next hour or hours. Number of runs only includes dispatches from OFD units.

Observations:

- The hour with the most calls received was 11:00 a.m. to noon on February 16, 2015. The five calls involved five individual dispatches. These five calls included one breathing difficulty call, one fall and injury call, and three mutual aid calls. The combined workload was 4.9 hours. The longest call lasted three hours, and it was a mutual aid transport call.
- The hour with the second most calls received was 4:00 p.m. to 5:00 p.m. on November 27, 2014. The four calls involved six individual dispatches. These four calls included one breathing difficulty call and three MVA calls. The combined workload was 3.9 hours. The longest call lasted one and one-half hour, and it was a MVA call that was responded to by two OFD units.

Dispatch Time and Response Time

This section presents dispatch and response time statistics for different call types and units. The main focus is the dispatch and response time of the first arriving OFD units.

Different terms are used to describe the components of response time: Dispatch processing time is the difference between the unit dispatch time and call received time of the first arriving unit. Turnout time is the difference between the unit time en route and the unit dispatch time. Travel time is the difference between the unit on-scene arrival time and the time en route. Response time is the difference between the on-scene arrival time and call received time.

This section focuses on response time analysis for priority one calls, which were responded with lights and sirens. We included first arriving units with complete unit dispatch time, unit en route time, and unit on-scene arrival time. A total of 2,587 calls (88 percent of EMS and fire category calls) were used in the analysis. The average dispatch time was 3.2 minutes. The average turnout time was 1.5 minutes. The average travel time was 4.0 minutes. The average response time for EMS calls was 8.8 minutes. The average response time for fire category calls was 8.0 minutes. The average response time for structure fire calls was 8.8 minutes. The average response time for outside fire calls was 6.8 minutes.

TABLE 6-14: Average Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type

Call Type	Dispatch Time	Turnout Time	Travel Time	Response Time	Sample Size
Cardiac and stroke	3.2	1.4	3.9	8.6	272
Seizure and unconsciousness	3.2	1.4	3.7	8.3	265
Breathing difficulty	3.0	1.5	4.0	8.5	262
Overdose and psychiatric	3.3	2.2	4.5	10.0	75
MVA	3.5	1.0	3.7	8.1	91
Fall and injury	3.3	1.5	4.1	8.9	544
Illness and other	3.0	1.7	4.2	8.9	734
EMS Total	**3.2**	**1.5**	**4.1**	**8.8**	**2,243**
Structure fire	3.8	0.6	4.4	8.8	37
Outside fire	3.2	0.7	2.9	6.8	24
Hazard	3.0	1.1	3.5	7.5	89
False alarm	3.4	1.0	3.5	7.9	151
Good intent	3.8	2.1	2.9	8.9	11
Public service	4.5	0.4	4.7	9.7	32
Fire Total	**3.5**	**0.9**	**3.6**	**8.0**	**344**
Total	**3.2**	**1.5**	**4.0**	**8.7**	**2,587**

Note: For overdose and psychiatric calls, the local safety protocol requires that OFD waits until the local police department arrives to secure the scene, thus the turnout time is longer.

FIGURE 6-8: Average Dispatch, Turnout and Travel Times of First Arriving Unit, by EMS Call Type

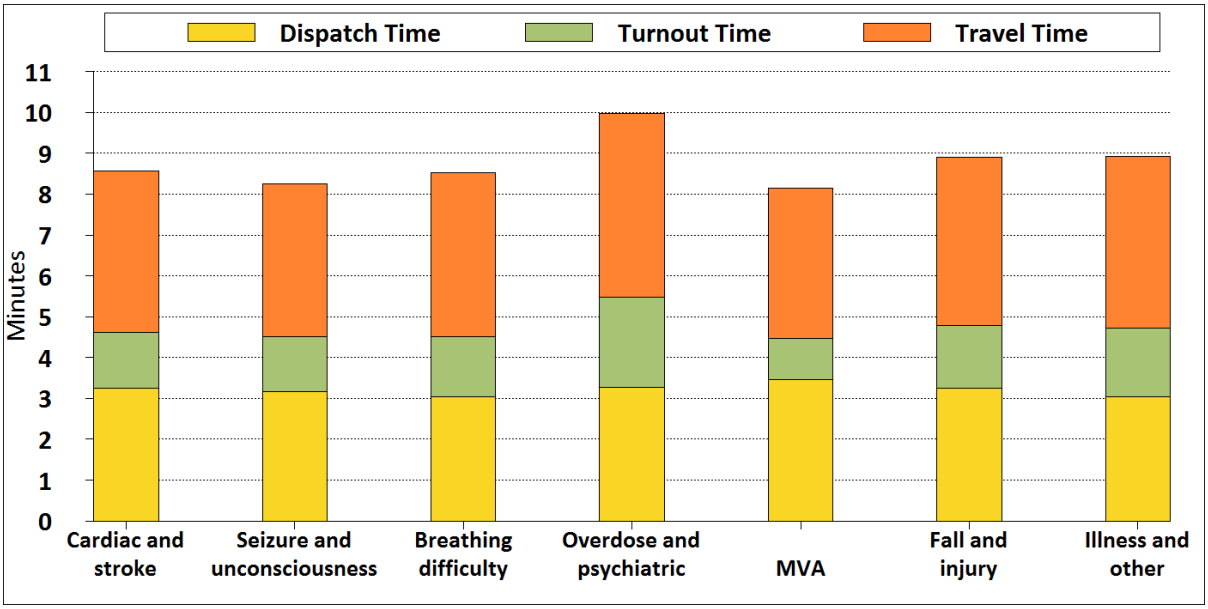
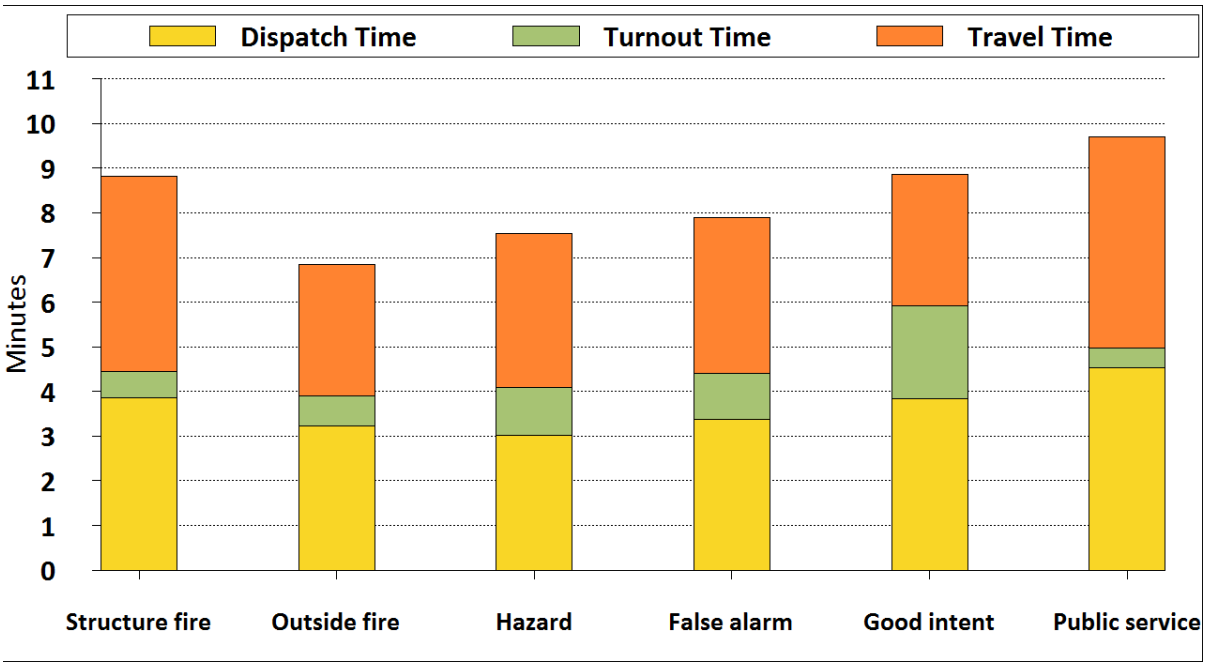


FIGURE 6-9: Average Dispatch, Turnout and Travel Times of First Arriving Unit, by Fire Call Type



Observations:

- The average dispatch time was 3.2 minutes.
- The average turnout time was 1.5 minutes.
- The average travel time was 4.0 minutes.
- The average response time for EMS calls was 8.8 minutes.
- The average response time for fire category calls was 8.0 minutes.
- The average response time for structure fire calls was 8.8 minutes.
- The average response time for outside fire calls was 6.8 minutes.

TABLE 6-15: 90th Percentile Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type

Call Type	Dispatch Time	Turnout Time	Travel Time	Response Time	Sample Size
Cardiac and stroke	4.8	3.3	6.6	12.1	272
Seizure and unconsciousness	4.8	3.4	6.8	12.1	265
Breathing difficulty	4.7	3.2	7.4	12.6	262
Overdose and psychiatric	5.6	4.2	8.6	17.3	75
MVA	6.1	2.7	7.5	13.5	91
Fall and injury	4.8	3.7	7.2	12.8	544
Illness and other	4.9	3.7	7.6	13.4	734
EMS Total	**4.9**	**3.5**	**7.4**	**12.9**	**2,243**
Structure fire	6.5	2.6	7.1	12.0	37
Outside fire	6.6	2.0	6.0	10.0	24
Hazard	5.7	3.1	8.9	14.0	89
False alarm	5.9	3.2	6.6	12.2	151
Good intent	6.9	9.8	8.0	13.5	11
Public service	7.1	2.3	10.3	15.9	32
Fire Total	**6.3**	**3.0**	**7.5**	**13.2**	**344**
Total	**5.1**	**3.5**	**7.4**	**13.0**	**2,587**

Note: A 90th percentile value of 13.0 indicates that the total response time was less than 13.0 minutes for 90 percent of all calls. Unlike averages, the 90th percentile response time is not equal to the sum of the 90th percentile of dispatch time, turnout time, and travel time.

Observations:

- The 90th percentile dispatch time was 5.1 minutes.
- The 90th percentile turnout time was 3.5 minutes.
- The 90th percentile travel time was 7.4 minutes.
- The 90th percentile response time for EMS calls was 12.9 minutes.
- The 90th percentile response time for fire category calls was 13.2 minutes.
- The 90th percentile response time for structure fire calls was 12.0 minutes.
- The 90th percentile response time for outside fire calls was 10.0 minutes.

FIGURE 6-10: Average Dispatch, Turnout and Travel, and Response Time of First Arriving Unit, by Hour of Day

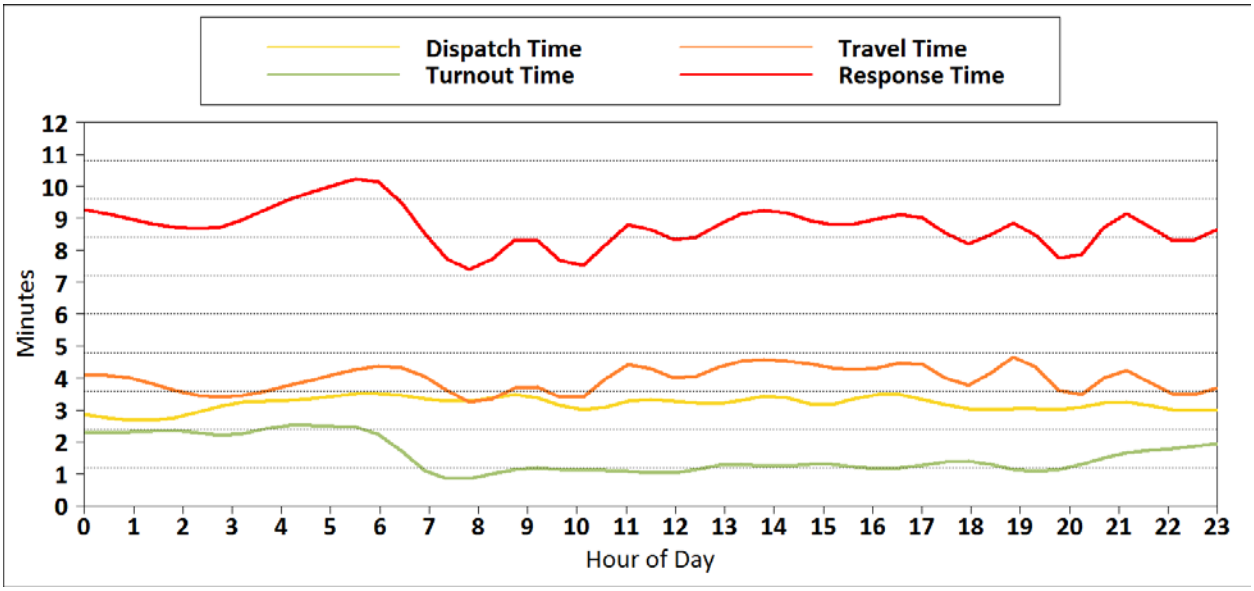


TABLE 6-16: Average Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Hour of Day

Hour	Dispatch Time	Turnout Time	Travel Time	Response Time	90th Percentile Response Time	Sample Size
0	2.9	2.3	4.1	9.3	13.1	83
1	2.7	2.3	4.0	9.0	12.8	85
2	2.8	2.3	3.5	8.7	13.1	89
3	3.2	2.2	3.4	8.8	13.6	49
4	3.3	2.5	3.7	9.5	12.3	49
5	3.4	2.5	4.1	10.0	14.0	49
6	3.5	2.2	4.4	10.1	13.5	75
7	3.3	1.0	4.0	8.3	11.0	80
8	3.3	0.9	3.2	7.4	11.3	115
9	3.5	1.2	3.8	8.4	12.1	147
10	3.0	1.1	3.3	7.5	11.4	131
11	3.3	1.1	4.4	8.8	13.7	165
12	3.3	1.0	4.0	8.3	12.9	151
13	3.2	1.3	4.4	8.9	14.4	141
14	3.4	1.2	4.6	9.2	15.5	138
15	3.2	1.3	4.4	8.8	15.1	138
16	3.5	1.2	4.3	8.9	14.8	132
17	3.3	1.3	4.4	9.0	13.4	130
18	3.0	1.4	3.8	8.2	12.8	125
19	3.0	1.1	4.7	8.8	16.2	108
20	3.0	1.2	3.4	7.7	10.6	121
21	3.3	1.6	4.2	9.1	13.4	91
22	3.0	1.8	3.5	8.4	11.9	95
23	3.0	2.0	3.7	8.7	11.5	100

Observations:

- Average dispatch time was between 2.7 and 3.5minutes.
- Average turnout time was between 0.9 and 2.5 minutes. The average turnout time peaked between midnight and 7:00 a.m., above 2.2 minutes.
- Average travel time was between 3.2 and 4.7 minutes.
- Average response time was between 7.4 and 10.1 minutes.
- 90th percentile response time was between 10.6 and 16.2 minutes.

FIGURE 6-11: Number of Total Calls by First Arriving Units

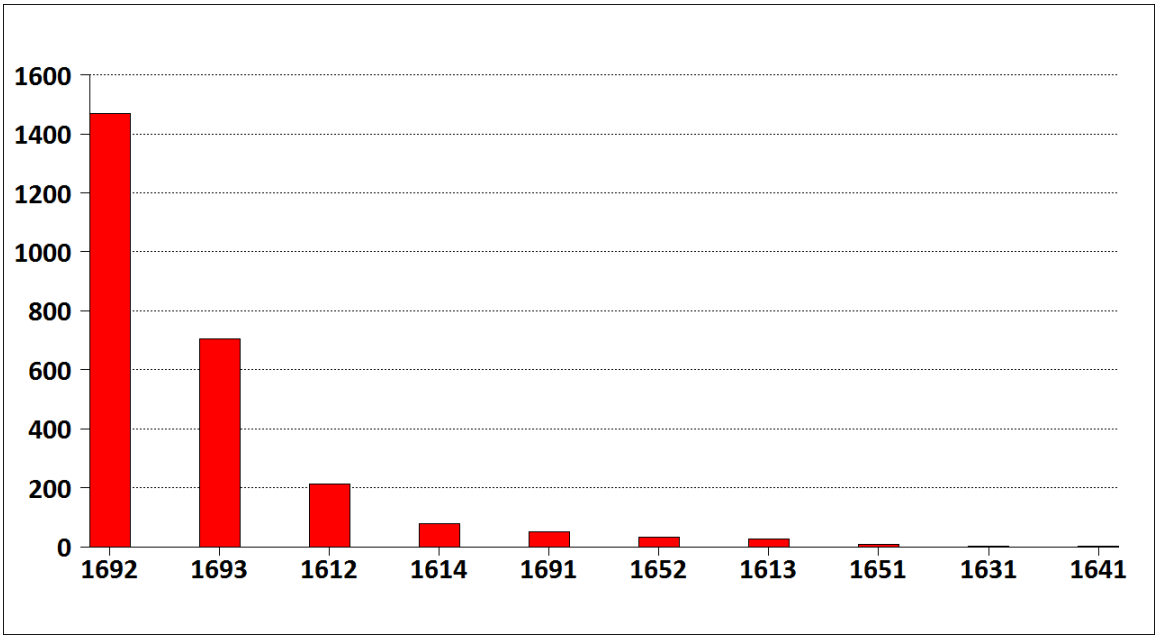


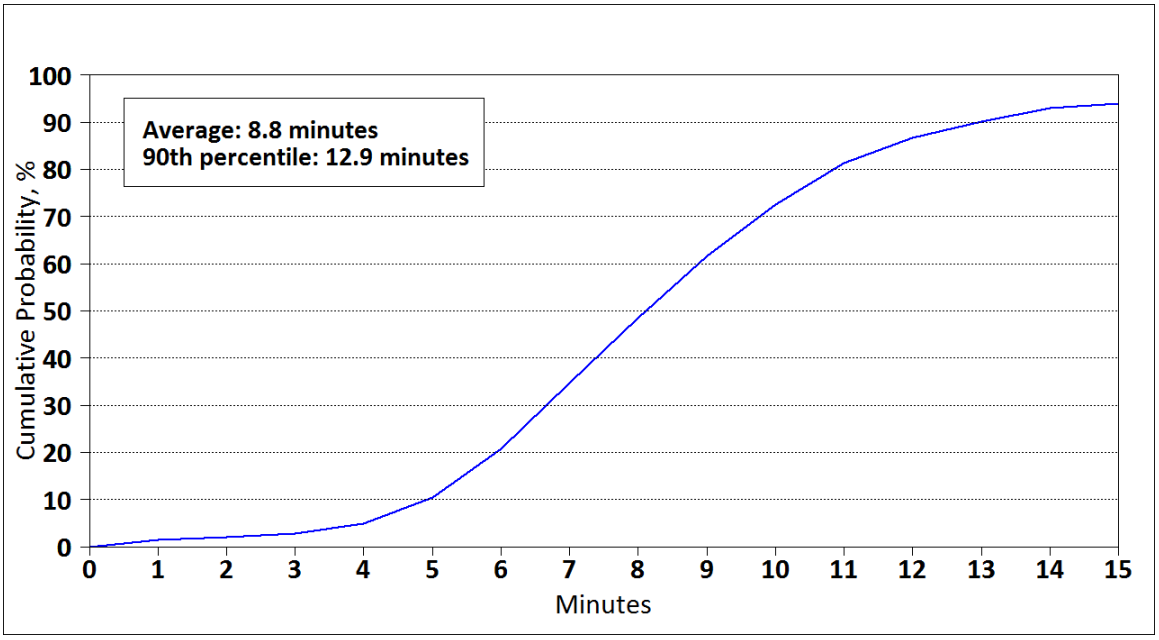
TABLE 6-17: Number of Total Calls by First Arriving Units

Unit	EMS	Structure and Outside Fire	Other Fire	Total	Percentage	Cumulative Percentage
1692	1,459	0	9	1,468	56.75	56.7
1693	706	0	0	706	27.29	84.0
1612	3	43	167	213	8.23	92.3
1614	1	15	63	79	3.05	95.3
1691	50	0	0	50	1.93	97.3
1652	6	1	26	33	1.28	98.5
1613	16	1	8	25	0.97	99.5
1651	1	1	7	9	0.35	99.8
1631	1	0	2	3	0.12	100.0
1641	0	0	1	1	0.04	100.0

Observations:

- Ambulance 1692 arrived first on scene most often, followed by Ambulance 1693 and Engine 1612. Those three units accounted for 92 percent of the first arrivals at calls.
- For structure and outside fire calls, Engine 1612 and Engine 1614 arrived first on scene most often.

FIGURE 6-12: Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for EMS calls



Reading the CDF Chart: The vertical axis is the probability or percentage of calls. The horizontal axis is response time. For example, with regard to EMS calls, the 0.9 probability line intersects the graph at the time mark at about 12.9 minutes. This means that units had a response time of less than 12.9 minutes for 90 percent of these calls.

FIGURE 6-13: Frequency Distribution Chart of Response Time of First Arriving Unit for EMS calls

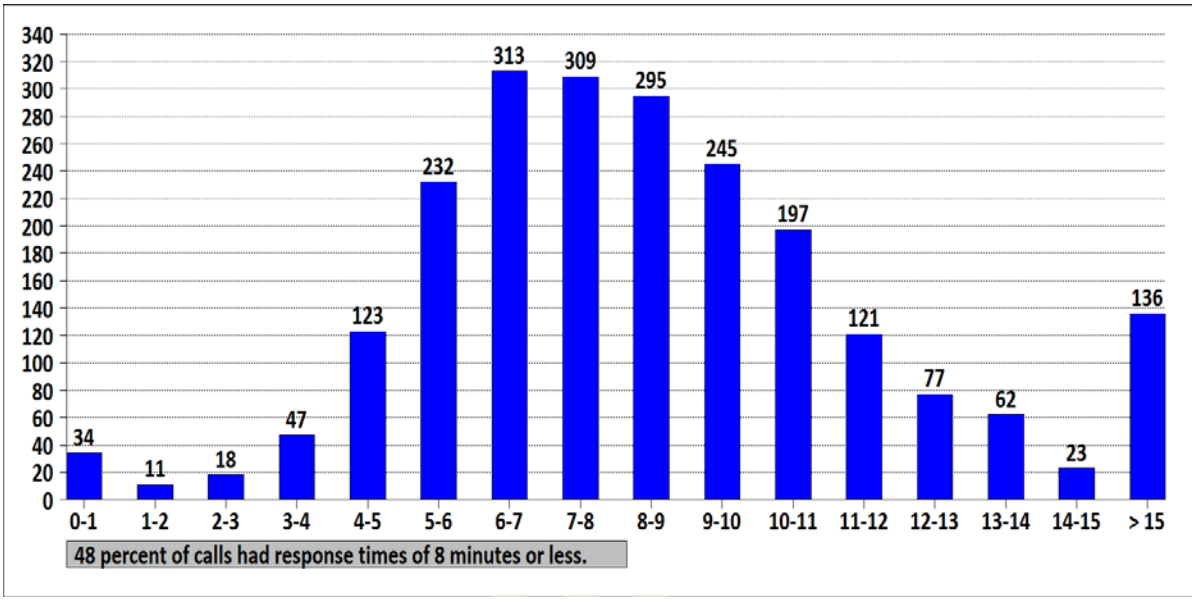


TABLE 6-18: Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for EMS Calls

Response Time (minute)	Frequency	Cumulative Percentage
0 - 1	34	1.5
1 - 2	11	2.0
2 - 3	18	2.8
3 - 4	47	4.9
4 - 5	123	10.4
5 - 6	232	20.7
6 - 7	313	34.7
7 - 8	309	48.5
8 - 9	295	61.6
9 - 10	245	72.5
10 - 11	197	81.3
11 - 12	121	86.7
12 - 13	77	90.1
13 - 14	62	92.9
14 - 15	23	93.9
> 15	136	100.0

Observations:

- The average response time of first arriving OFD unit for EMS calls was 8.8 minutes.
- For 48.5 percent of EMS calls, the response time of the first arriving OFD unit was less than or equal to 8 minutes.
- For 90 percent of EMS calls, the response time of the first arriving OFD was less than 12.9 minutes.

TABLE 6-19: Average Response Time for Structure and Outside Fire Calls by First Arriving Unit

Unit Type	First Arriving Unit	Outside Fire		Structure Fire		Total	
		Response Time	Number of Calls	Response Time	Number of Calls	Response Time	Number of Calls
Brush Utility	1652	0.4	1	NA	0	0.4	1
Command	1651	10.6	1	NA	0	10.6	1
Engine	1612	7.7	16	8.9	27	8.4	43
Engine	1613	NA	0	4.9	1	4.9	1
Engine	1614	5.1	6	9.0	9	7.5	15
Total		**6.8**	**24**	**8.8**	**37**	**8.0**	**61**

Observations:

- For outside fire calls, the average response time of the first arriving unit was 6.8 minutes.
- For outside fire calls, Engine 1612 was the first unit on scene most often and had an average response time of 7.7 minutes.
- For structure fire calls, the average response time of the first arriving unit was 8.8 minutes.
- For structure fire calls, Engine 1612 was the first unit on scene most often and had an average response time of 8.9 minutes.

FIGURE 6-14: Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for Structure and Outside Fire Calls

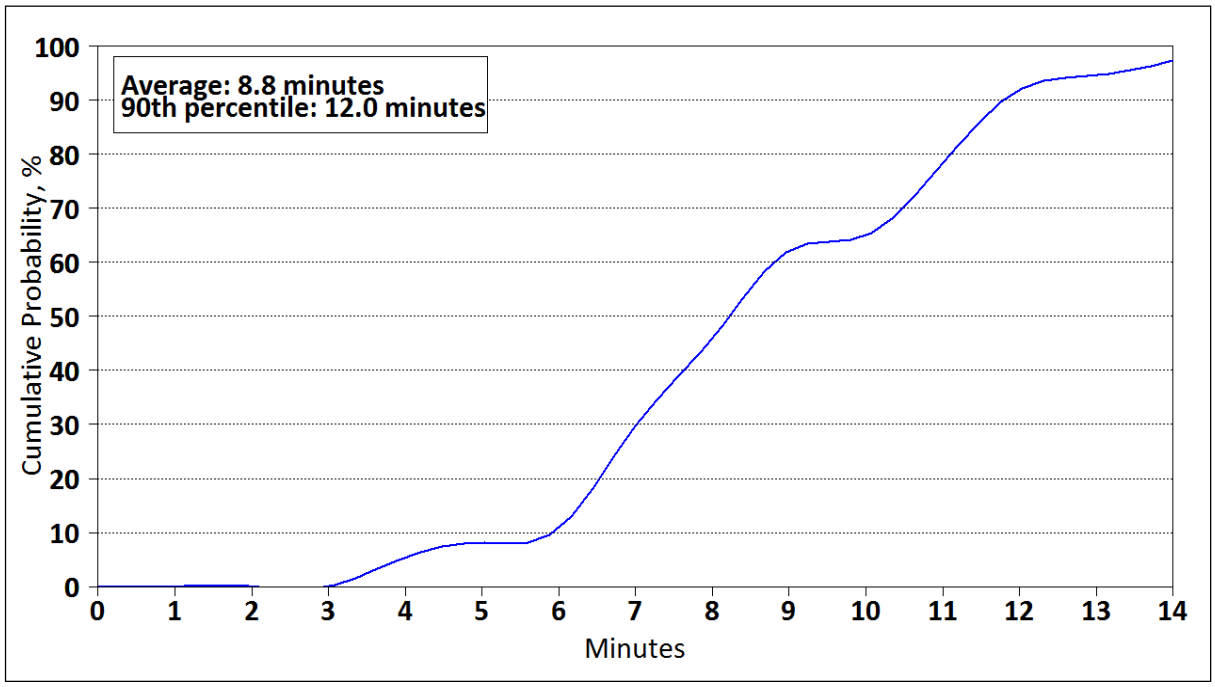


FIGURE 6-15: Frequency Distribution Chart of Response Time of First Arriving Unit for Structure and Outside Fire Calls

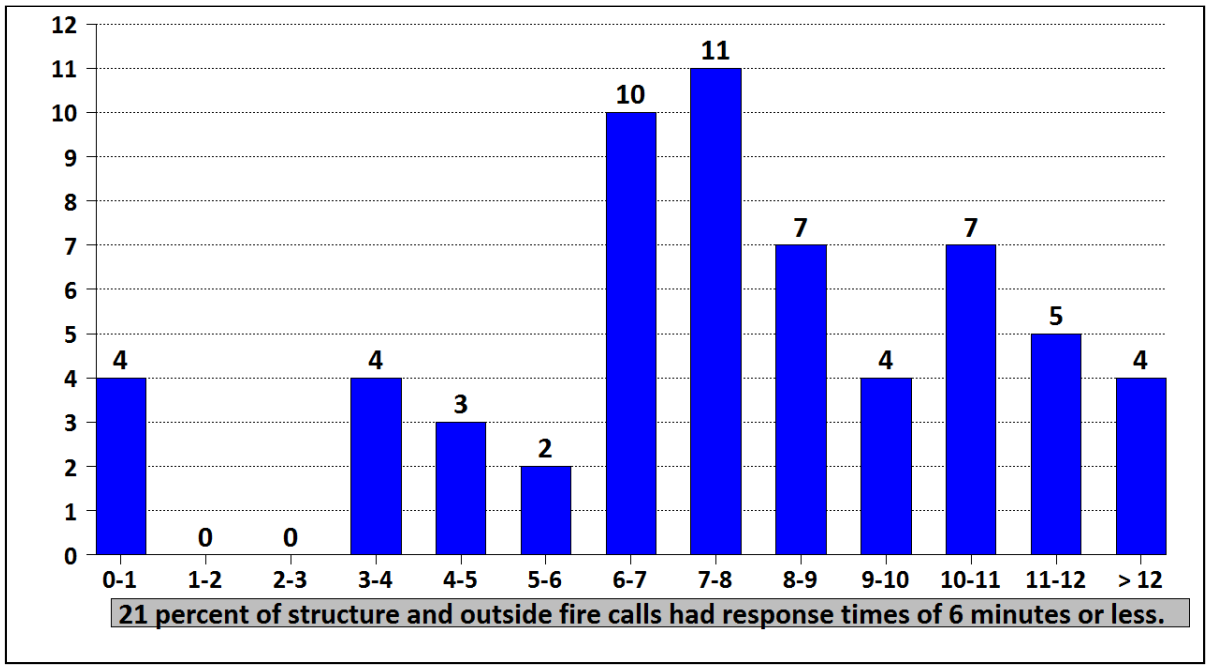


TABLE 6-20: Cumulative Distribution Function (CDF) of Response Time of First Arriving Unit for Structure and Outside Fire Calls

Response Time (minute)	Structure Fire		Outside Fire	
	Frequency	Cumulative Percent	Frequency	Cumulative Percent
0 - 1	0	0.0	4	16.7
1 - 2	0	0.0	0	16.7
2 - 3	0	0.0	0	16.7
3 - 4	2	5.4	2	25.0
4 - 5	1	8.1	2	33.3
5 - 6	1	10.8	1	37.5
6 - 7	7	29.7	3	50.0
7 - 8	6	45.9	5	70.8
8 - 9	6	62.2	1	75.0
9 - 10	1	64.9	3	87.5
10 - 11	5	78.4	2	95.8
11 - 12	5	91.9	0	95.8
> 12	3	100.0	1	100.0

Observations:

- The average response time of the first arriving fire unit for structure fire calls was 8.8 minutes.
- 10.8 percent of the time, the first fire unit's response time was less than 6 minutes.
- 90 percent of the time, the first fire unit's response time was less than 12.0 minutes.

Transport Call Analysis

This section analyzes the number of calls that involved transporting patients, the variations by hour of day, and the average time for each stage of transport service. We identified transport calls by requiring that at least one OFD responding ambulance had a recorded time of arriving at the hospital. Since OFD could have transported patients to the local A.O. Fox Memorial Hospital or the Bassett Hospital at Cooperstown, we particularly discuss the performance variations.

TABLE 6-21: Transport Calls by Call Type

Call Type	Number of Calls			Transport Rate
	Non-transport	Transport	Total	
Cardiac and stroke	42	235	277	84.8
Seizure and unconsciousness	67	210	277	75.8
Breathing difficulty	57	211	268	78.7
Overdose and psychiatric	25	60	85	70.6
MVA	57	53	110	48.2
Fall and injury	173	399	572	69.8
Illness and other	203	673	876	76.8
EMS Total	**624**	**1,841**	**2,465**	**74.7**
EMS Daily Average	**1.7**	**5.0**	**6.8**	**NA**
Fire Total	469	6	475	1.3
Mutual aid	54	81	135	60.0
Canceled	131	0	131	0.0
Total	**1,237**	**1,928**	**3,165**	**60.9**
Daily Average	**3.4**	**5.3**	**8.7**	**NA**

Observations:

- Overall, 75 percent of EMS calls to which OFD responded involved transporting patients.
- On average, OFD responded to 6.8 EMS calls per day, and 5.0 involved transporting patients.
- Cardiac and stroke calls had the highest transport rates, averaging 84.8 percent.
- Among the 673 illness and other transport calls, 62 were described as inter-facility transfer calls.

TABLE 6-22: Call Duration by Destination Hospital and Jurisdiction

Hospital	City of Oneonta		Town of Oneonta	
	Duration	Number of Calls	Duration	Number of Calls
Bassett at Cooperstown	114.2	158	117.9	59
Fox Memorial Hospital	47.4	934	52.4	620
Total	**57.0**	**1,092**	**58.1**	**679**

Note: A total of 70 EMS transport calls are not included, among which 64 are missing district information, and 6 involved transporting patients to other hospitals.

Observations:

- The average duration for EMS transport calls in the city of Oneonta or town of Oneonta did not differ much.
- In the city of Oneonta, EMS transport calls averaged 3.0 per day.
- In the town of Oneonta, EMS transport calls averaged 1.9 per day.

TABLE 6-23: Call Duration by Transport and EMS Call Type

Call Type	Nontransport		Transport			
			Fox		Bassett at Cooperstown	
	Duration	Number of Calls	Duration	Number of Calls	Duration	Number of Calls
Cardiac and stroke	44.0	42	53.5	192	118.8	40
Seizure and unconsciousness	31.6	67	50.6	193	118.2	17
Breathing difficulty	42.5	57	50.5	191	121.9	20
Overdose and psychiatric	37.0	25	45.3	53	89.8	7
MVA	33.3	57	62.0	52	40.8	1
Fall and injury	33.3	173	48.7	358	129.8	41
Illness and other	55.7	203	47.0	566	107.3	104
EMS Total	**42.1**	**624**	**49.4**	**1,605**	**114.6**	**230**

Note: Duration of a call is defined as the longest deployed time of any of the OFD units responding to the same call.

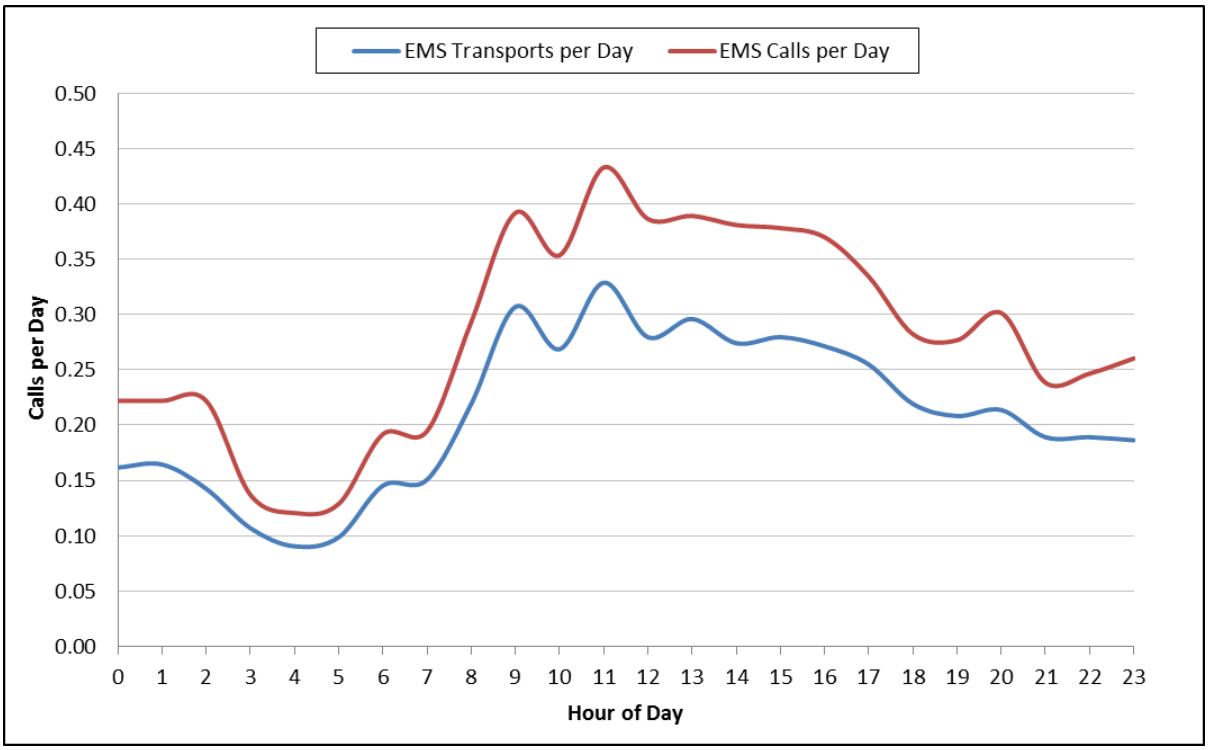
Observations:

- The average duration was 42.1 minutes for a nontransport EMS call.
- The average duration was 49.4 minutes for an EMS call which transported a patient to the Fox Hospital.
- The average duration was 114.6 minutes for an EMS call which transported a patient to the Bassett Hospital at Cooperstown.
- A total of six calls which transported patients to other hospitals were not included, and the average duration was 78.4 minutes.

TABLE 6-24: Total and Number of EMS Transport Calls per Day, by Hour of Day

Hour	Number of EMS Transports	Number of EMS Calls	EMS Transports per Day	EMS Calls per Day	Transport Rate
0	59	81	0.16	0.22	72.8
1	60	81	0.16	0.22	74.1
2	52	81	0.14	0.22	64.2
3	39	50	0.11	0.14	78.0
4	33	44	0.09	0.12	75.0
5	36	47	0.10	0.13	76.6
6	53	70	0.15	0.19	75.7
7	55	71	0.15	0.19	77.5
8	80	107	0.22	0.29	74.8
9	112	143	0.31	0.39	78.3
10	98	129	0.27	0.35	76.0
11	120	158	0.33	0.43	75.9
12	102	141	0.28	0.39	72.3
13	108	142	0.30	0.39	76.1
14	100	139	0.27	0.38	71.9
15	102	138	0.28	0.38	73.9
16	99	135	0.27	0.37	73.3
17	93	122	0.25	0.33	76.2
18	80	103	0.22	0.28	77.7
19	76	101	0.21	0.28	75.2
20	78	110	0.21	0.30	70.9
21	69	87	0.19	0.24	79.3
22	69	90	0.19	0.25	76.7
23	68	95	0.19	0.26	71.6

FIGURE 6-16: Number of EMS Transport Calls, by Hour of Day



Observations:

- Overall, 75 percent of EMS incidents to which OFD responded involved transporting patients.
- On average, OFD ambulances responded to 6.8 EMS calls per day, and provided 5.0 EMS transports per day.
- OFD-responded EMS call rates and transports were highest between 9:00 a.m. and 6:00 p.m., averaging between 0.27 and 0.33 EMS transports per hour.

Deployed time is the interval from unit dispatch time through unit clear time. The on-scene time is the interval from the unit arriving on-scene time through the time the unit departs the scene for the hospital. Travel to hospital time is the interval from the time the unit departs the scene to travel to the hospital through the time the unit arrives at the hospital. The travel back to station time is the interval from the unit arriving at hospital time through unit clear time. The travel back to station time includes patient turnover time at the facility.

TABLE 6-25: Time Component Analysis for Ambulance Transport Runs

Hospital	Average Deployed Minutes per Run	Average On Scene Time	Average Travel to Hospital Time	Average Travel back to Station Time	Sample Size
Bassett at Cooperstown	114.1	18.5	31.7	61.6	231
Fox Memorial Hospital	49.2	13.5	6.6	23.6	1,612

Note: This analysis only includes ambulance runs that can be identified as transport runs.

Observations:

- The travel time to the Bassett Hospital at Cooperstown was 32 minutes, whereas the travel time to the Fox Memorial Hospital was 6.6 minutes.
- A transport run to the Bassett Hospital averaged 114.1 minutes, which is 65 minutes longer than a run to the local Fox Memorial Hospital.

Attachments

These attachments use NFIRS data. Table 7-26 reports property and content loss for structure and outside fire calls in Oneonta Fire Department's jurisdiction. Table 7-27 analyzes primary extinguishment actions taken of all OFD units to mitigate structure and outside fire calls in Oneonta Fire Department's jurisdiction.

TABLE 6-26: Property and Content Loss Analysis for Structure and Outside Fire Calls

Call Type	Property Loss		Content Loss	
	Loss Value	Number of Calls	Loss Value	Number of Calls
Structure fire	$120,500	5	$7,000	2
Total	**$120,500**	**5**	**$7,000**	**2**

Note: This analysis only includes calls with property loss or content loss greater than 0. Mutual aid structure and outside fire calls are not included.

Observations:

- Out of 41 structure fire calls, 5 calls (12.2 percent) had recorded property loss, with total recorded loss value of $120,500. Total content loss was $7,000.
- No outside fire call had recorded property or content loss.

TABLE 6-27: Actions Taken Analysis for Structure and Outside Fire Calls

Action Taken	Number of Calls	
	Structure fire	Outside fire
Fire control or extinguishment, other	3	1
Extinguishment by fire service personnel	15	13
Remove hazard	0	1
Ventilate	6	0
Shut down system	1	0
Investigate	9	8
Investigate fire out on arrival	4	7
Standby	1	0
No Action Recorded	2	2
Total	**41**	**32**

Observations:

- A total of 18 structure fire calls were extinguished by fire service personnel, which accounted for 44 percent of structure fire calls in OFD's jurisdiction.
- A total of 14 outside fire calls were extinguished by fire service personnel, which accounted for 44 percent of outside fire calls in OFD's jurisdiction.

Appendix I

Oneonta Fire Department

Fire Apparatus Study

December 2014

Executive Summary

The Center for Public Safety Management, LLC (CPSM) was retained by the city of Oneonta to complete an abridged operational and administrative analysis of the city's fire department fleet. Specifically, CPSM was tasked with providing recommendations and alternatives regarding the replacement of the current aerial apparatus as well as other fire department vehicles currently scheduled for replacement.

During the study, CPSM analyzed performance data provided by the Oneonta Fire Department (OFD) and also examined firsthand the department's operations and current fleet. Fire departments tend to deploy resources utilizing traditional approaches, which are rarely reviewed. To begin the review, project staff asked the city for certain documents, data, and information. The project staff used this information/data to familiarize themselves with the department's structure, assets, and operations. The provided information was also used in conjunction with information collected during the on-site visit to determine the existing performance of the department, and to compare that performance to national benchmarks. These benchmarks have been developed by organizations such as the National Fire Protection Association (NFPA), Center for Public Safety Excellence, Inc., (CPSE), and the ICMA Center for Performance Measurement.

Project staff conducted a site visit on November 3-4, 2014, for the purpose of observing fire department and agency-connected supportive operations, interviewing key department staff, and reviewing preliminary data and operations. Telephone conference calls as well as e-mail exchanges were conducted between CPSM project management staff, the city, and the OFD so that CPSM staff could affirm the project scope, and elicit further discussion regarding this operational analysis.

Recommendations and considerations for continuous improvement of services are presented in the summary and conclusion at the end of this report.

Oneonta Fire Department

The OFD provides fire and emergency medical services (EMS) transport to both the city and town of Oneonta (approximately fourteen square miles) from one fire station located in the city (Figure 1). The OFD employs twenty-six full time employees, of which twenty-four are assigned to fire operations and two serve in senior management capacities (fire chief and assistant fire chief). There is also one part-time employee (civilian dispatcher) who provides administrative and noncombat operational support, and seven call/part-time combat firefighters.

The OFD operates with a traditional scalar organizational structure (Figure 2) and is led by a fire chief who also serves as the city's emergency management coordinator. One assistant chief manages the day-to-day operations and assists the fire chief with various administrative components. Operationally the OFD has four platoons, each led by a captain. Each shift has five firefighter positions for a total of six operational personnel assigned to each shift. Staff is certified to either the basic life support or advanced life support level (all new hires must have advanced life support certification). Operational shifts work a schedule of 24-hours on and 72-hours off for an average workweek of forty-two hours. The minimum staffing each day is six, which means the department operates with a constant staffing model; thus, when an operational vacancy occurs as a result of scheduled or unscheduled leave, or a staff members terminates their employment, the vacancy is filled utilizing overtime or part-time personnel.

Figure 1: OFD Fire Station Location

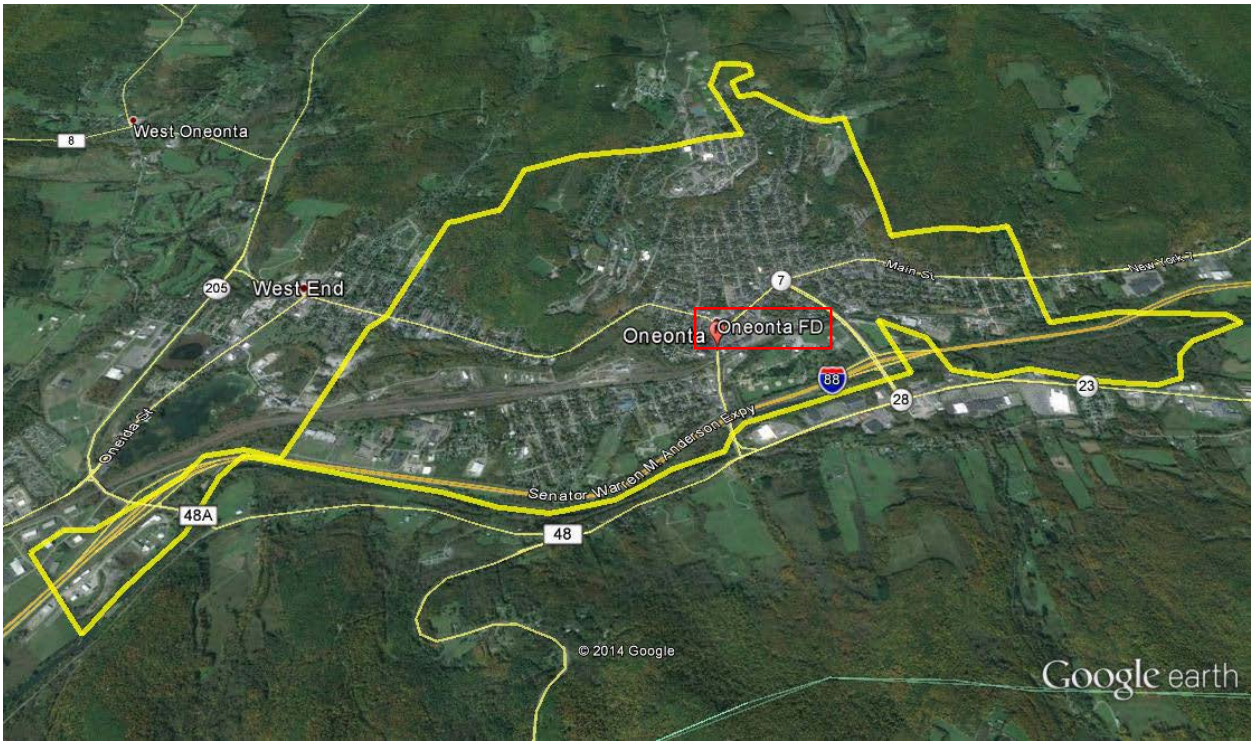
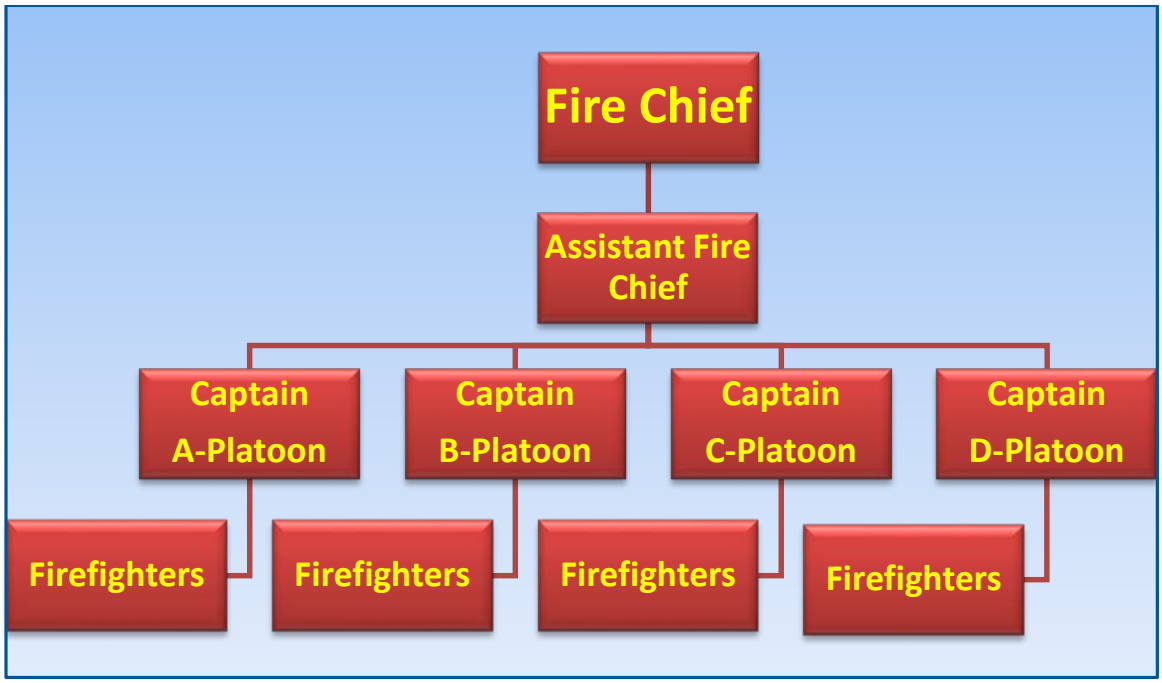


Figure 2: OFD Organizational Structure



Oneonta Response Matrix and Incident Responses

The OFD has a conservative approach when deploying apparatus to the myriad of calls for service to which it responds. The OFD has a response matrix that outlines the deployment of resources (apparatus and staffing) for EMS, motor vehicle accidents, fire, and hazardous material responses. In each of these categories, the type of call, initial equipment to deploy, staffing, and the trigger for staff call-back is indicated. For EMS responses the matrix calls for a single resource with a staffing of three. Otsego Dispatch Center will adjust call priorities and recommend response modalities on the basis of determinations made through an emergency medical dispatching process (EMD). These are utilized in adjusting the number of units responding and the manner in which they respond (emergent or non-emergent). All motor vehicle accidents call for a two-vehicle response (rescue engine/ambulance or ambulance/ambulance) and five to six staffing (aggregate of both vehicles). Fire responses are either a one-apparatus response (three-four staffing) or a two-apparatus response (engine/engine; engine/aerial; engine/ambulance) with five to six staffing. As noted, call-back of off-duty career staff is triggered either by the type of call or initial size-up or request of the first arriving officer-in-charge or incident commander. Typically, the off-duty career staff will respond to the station and respond the most appropriate type of apparatus.

CPSM requested a one-year breakdown of incidents from the OFD for the period July 1, 2013–June 30, 2014. Table 1 is a compilation of this information.

Table 1: OFD Call Types

Call Type	Number of Calls	Calls per Day	Call Percentage
Medical Assist	2,427	6.6	75.3
MVA	106	0.3	3.3
Rescue or EMS Standby	29	0.08	7.9
EMS Other	4	0.01	1.1
Technical Rescue	7	0.02	1.9
EMS/Rescue Total	**2,573**	**7.0**	**79.9**
Structure fire	14	0.04	.43
Outside fire	25	0.07	.78
Hazard	129	0.4	4.0
False alarm	182	0.5	5.6
Good intent	201	0.6	6.2
Public service/Citizen	75	0.2	2.3
Fire Total	**626**	**1.7**	**19.4**
Weather Related	22	0.06	**.68**
Other	1	Negligible	**.02**
Total	**3,222**		**100**

Table 2 breaks down EMS transport calls as either basic life support (BLS) or advanced life support (ALS). It is CPSM's experience that ALS calls typically have longer overall incident times (dispatch time to hospital clearing time).

Table 2: OFD EMS Transport Call Breakdown

Type of EMS Transport	Number
Advanced Life Support	920
Basic Life Support	1,180
Total	**2,100**

Table 1 shows that EMS calls represent the largest percentage of calls for service at almost 80 percent; this is the case in all CPSM fire department analyses. While fire call types represent 19.4 percent of the calls for service, actual fire calls (structural and outside) represent 6 percent of the fire call types and 1.2 percent of the overall calls for service (less than .25 calls per day or one actual fire-type call every nine days). Hazard, false alarms, and good intent represent the largest percentage of fire type calls for service, which is also typical in CPSM data and workload analyses of fire departments.

Table 2 tells us that 44 percent of the EMS transports are coded as ALS, which can be varying levels of advanced care provided to the patient. CPSM broke this out, as typically ALS transports have longer at-hospital time and may, due to the nature of the call, have longer on-scene times. These factors can create longer overall on-call times, which will keep the crew unavailable for other calls (fire or EMS). This is not to say some BLS calls won't produce extended on-call times as well, they can.

Factors Contributing to Deployment of Fire Apparatus

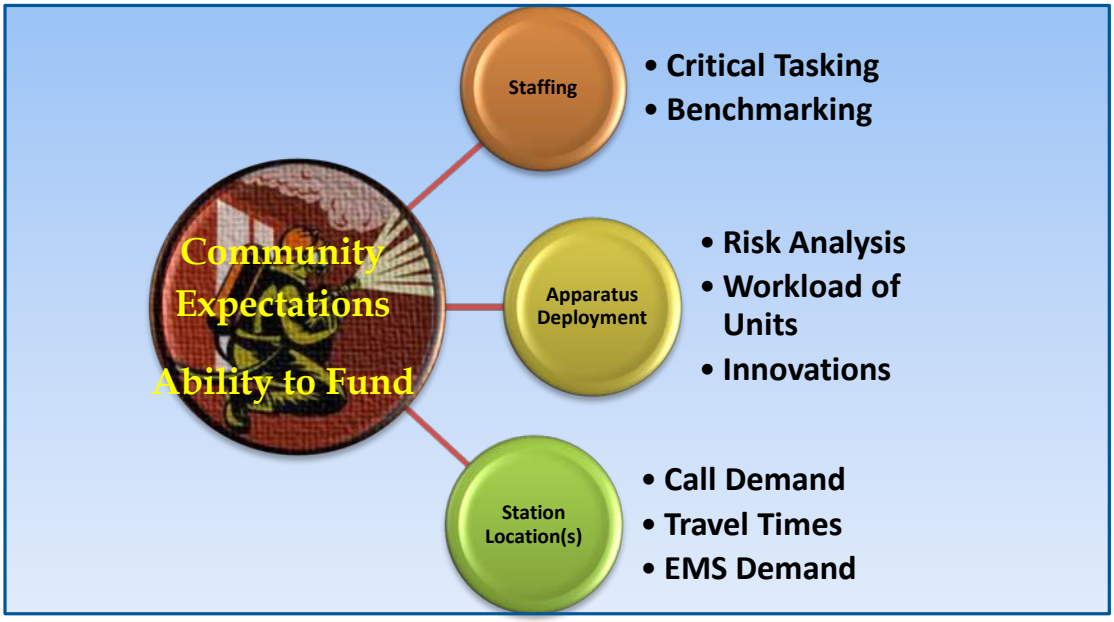
There are many factors that contribute to staffing and deploying fire and EMS departments. Staffing is one component and the type of apparatus the staff is deployed on and from where (station locations) are the other two components that create how fire and EMS service is delivered. Linked to these components of staffing and deployment are ten critical factors that drive various levels and models from which fire and EMS departments staff and deploy. These factors are:

- **Fire Risk and Vulnerability of the Community**: A fire department collects and organizes risk evaluation information about individual properties, and on the basis of the rated factors then derives a "fire risk score" for each property. The community risk and vulnerability assessment evaluates the community as a whole, and with regard to property, measures all property and the risk associated with that property and then segregates the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard, and the potential fire flow, staffing, and apparatus types required to mitigate an emergency in the specific property. Factors such as fire protection systems are considered in each building evaluation. *Included in this assessment should be both a structural and nonstructural (weather, wild land-urban interface, transportation routes, etc.) analysis.*
- **Call Demand**: Types of calls to which units are responding and where the calls are occurring. This drives workload and station siting considerations.
- **Workload of Units**: Types of calls to which units are responding and the workload of each unit in the deployment model.
- **Travel Times from Fire Stations**: Ability to cover the response area in a reasonable and acceptable travel time when measured against national benchmarks. Links to demand and risk assessment.
- **NFPA Standards, ISO, OSHA requirements (and other national benchmarking).**
- **EMS Demand:** Community demand; demand on available units and crews; demand on non-EMS units responding to calls for service (fire units); availability of crews in departments that utilize cross-trained EMS staff to perform fire suppression.
- **Critical Tasking:** The ability of a fire and EMS department to comprise an effective response force when confronted with the need to perform required tasks on a fire or EMS incident scene is its ability to provide adequate resources to mitigate each event. Department-developed and measured against national benchmarks. Links to risk and vulnerability analysis.
- **Innovations in staffing and deployable apparatus:** The fire department's ability and willingness to develop and deploy innovative apparatus (combining two apparatus functions

into one to maximize available staffing, as an example). Deploying quick response vehicles (light vehicles equipped with medical equipment and some light fire suppression capabilities) on those calls (typically the largest percentage) that do not require heavy fire apparatus.

- **Community Expectations:** Measuring, understanding, and meeting community expectations.
- **Ability to Fund:** The community's ability and willingness to fund all local government services, and understanding how the revenues are divided up to meet the community's expectations.

Figure 3: Staffing and Deploying Fire and EMS Departments



Community risk and vulnerability assessment are essential elements in a fire department's planning process. ***The OFD has not completed a formal comprehensive community risk and vulnerability assessment, although target hazard preplanning has been completed on certain buildings and staff has a general knowledge of the buildings in the city.*** However, this is an extremely important process to complete, given the number of moderate- to potentially high-risk structures located in the city and the risk and threat they pose.

According to a National Fire Protection Association (NFPA) paper on assessing community vulnerability, fire department operational performance is a function of three considerations: resource availability/reliability, department capability, and operational effectiveness.[20] These elements can be further defined as:

> **Resource availability/reliability:** The degree to which the resources are ready and available to respond.
>
> **Department capability:** The ability of the resources deployed to manage an incident.

[20] Fire Service Deployment, Assessing Community Vulnerability, National Fire Protection Association, from http://www.nfpa.org/assets/files/pdf/urbanfirevulnerability.pdf.

Operational effectiveness: The product of availability and capability. It is the outcome achieved by the deployed resources or a measure of the ability to match resources deployed to the risk level to which they are responding.[21]

The community risk and vulnerability assessment evaluates the community as a whole, and with regard to property, measures all property and the risk associated with that property and then segregates the property as either a high-, medium-, or low-hazard depending on factors such as the life and building content hazard, and the potential fire flow and staffing required to mitigate an emergency in the specific property. According to the NFPA *Fire Protection Handbook*, these hazards are defined as:

High-hazard occupancies: Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life-hazard or large fire-potential occupancies.

Medium-hazard occupancies: Apartments, offices, and mercantile and industrial occupancies not normally requiring extensive rescue by firefighting forces.

Low-hazard occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies.[22]

It is strongly recommended the OFD complete a fire and community risk assessment as a component of future department and city planning. This assessment should be linked to all staffing and apparatus deployment plans, department operating guidelines, and incident critical tasking development.

Oneonta Fire Apparatus

The provision of an operationally ready and strategically located fleet of mission-essential fire-rescue vehicles is fundamental to the ability of a fire-rescue department to deliver reliable and efficient public safety within a community.

The procurement, maintenance, and eventual replacement of aging response vehicles is one of the largest expenses incurred in sustaining a community's fire-rescue department. While it is the personnel of the OFD who provide emergency services within the community, the department's fleet of response vehicles is essential to operational success, delivering responders and the equipment/materials they employ to the scene of dispatched emergencies.

The OFD operates and deploys an array of fire and EMS apparatus and equipment from a single fire station located in the south-central part of the city. This apparatus is described in Table 3.

[21] National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011.
[22] Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), 12.

Table 3: OFD Fire and EMS Apparatus

Apparatus Type	Year of Manufacture	OFD Unit Identifier	Number or Responses July 1, 2013-June 30, 2014
Engine	2009	1614	358
Engine	2004	1612	96
Engine-Rescue	2000	1613	87
Engine-Telesquirt (75')	1992	1611	3
Aerial Ladder (95')	1987	1641	12
Ambulance	2006	1691	1,324
Ambulance	2009	1692	859
Ambulance	2010	1693	14
Brush-Utility (F-350)	2001	1652	145
Light Rescue (F-350 4x4)	2001	1631	28
Expedition (Command)	2006	1651	60

In addition to the apparatus listed in Table 3, the OFD deploys one Zodiac inflatable boat, one Avon inflatable boat, one technical rescue trailer, four trek EMS bikes, and one Yamaha Rhino ATV.

As noted, the OFD deploys all apparatus from a single station. Figure 4 illustrates the station location along with 240-second (indicated by the red overlay), 360-second (indicated by the green overlay), and 480-second (indicated by the blue overlay) travel time benchmarks. The small concentric circle represents a 1.5 mile radius from the station and the large concentric circle represents a 2.5 mile radius from the station; these demonstrate the Insurance Services Office's (ISO) grading schedule benchmarks for engine company placement (within 1.5 road miles of built-upon area) and aerial ladder company placement (within 2.5 road miles of built-upon area).

CPSM utilizes this mapping, as according to NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Departments, 2010 Edition*, travel time shall be less than or equal to 240 seconds for the first arriving engine company 90 percent of the time. The standard further states the initial first alarm assignment should be assembled on scene in 480 seconds 90 percent of the time. Additionally this standard states that travel time shall be less than or equal to 240 seconds for the first responder basic life support (BLS) 90 percent of the time. ***NFPA 1710 response time criterion is utilized by CPSM as a benchmark for service delivery and in the overall staffing and deployment of fire departments, and is not a CPSM recommendation.***

Figure 4: OFD Station Location and Travel Times

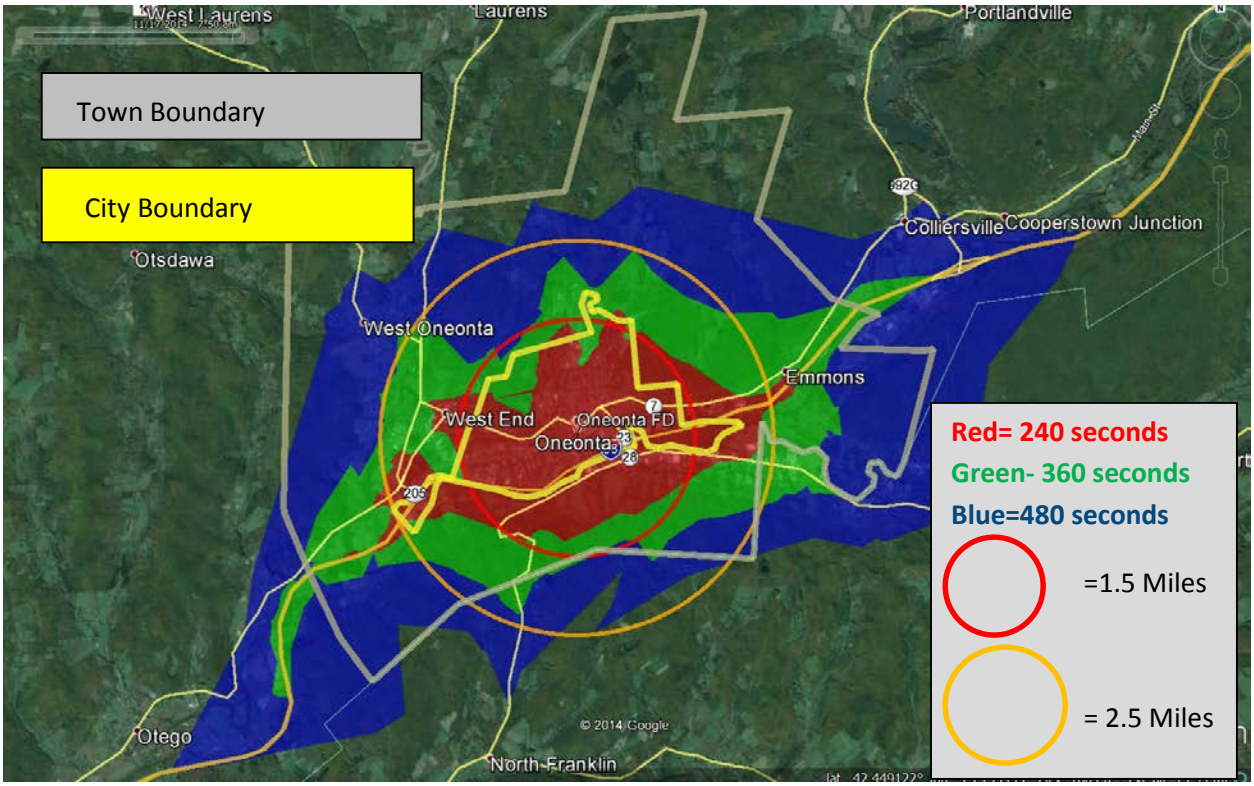


Figure 4 shows that the city is almost 100 percent covered under the 240-second benchmark, and is 100 percent covered under the 360- and 480-second benchmarks. Further, the greatest percentage of the city is within the 1.5 mile radius for engine companies and is within 100 percent of the 2.5 mile radius for aerial ladder apparatus. The town, because of its larger size, is largely outside of the 240-second benchmark (northwest and southwest), with improvement under the 360- and 480-second benchmarks. The area of the town that is largely commercial and more built upon is, however, well within the 240- and 360-second benchmarks as well as the 1.5 and 2.5 mile radius circles(east-central and southeast). Areas not covered under the travel time benchmarks are beyond a ten-minute travel time; however, these areas are not built upon by and large and are more rural then the more central portions of the town, to include the city.

NFPA 1901 Standard

NFPA 1901: *Standard for Automotive Fire Apparatus*, serves as a guide to the manufacturers that build fire apparatus and the fire departments that purchase them. The document is updated every five years, using input from the public/stakeholders through a formal review process. The committee membership is made up of representatives from the fire service, manufacturers, consultants, and special interest groups. The committee monitors various issues and problems that occur with fire apparatus and attempts to develop standards that address those issues. A primary interest of the committee over the past years has been improving firefighter safety and reducing

fire apparatus crashes. Currently the 2009 edition of the standard is in effect with the next edition slated for implementation in 2016.

The Annex Material in NFPA 1901 contains recommendations and work sheets to assist the decision making involved in vehicle purchasing. With respect to recommended vehicle service life, the following excerpt is noteworthy:

> *"It is recommended that apparatus greater than 15 years old that have been properly maintained and that are still in serviceable condition be placed in reserve status and upgraded in accordance with NFPA 1912, Standard for Fire Apparatus Refurbishing, to incorporate as many features as possible of the current fire apparatus standard. This will ensure that, while the apparatus might not totally comply with the current edition of the automotive fire apparatus standards, many improvements and upgrades required by the recent versions of the standards are available to the firefighters who use the apparatus."*

The impetus for these recommended service life thresholds is that, despite good stewardship for maintaining emergency vehicles in sound operating condition, advances in occupant safety reflected in each revision of NFPA 1901 provide safer response vehicles for those providing emergency services within the community, as well those "sharing the road" with these responders. Recent advances include fully enclosed cabs, enhanced rollover protection and air bags, three-point restraints, antilock brakes, higher visibility, cab noise abatement/hearing protection, and a host of other improvements.

There are no published standards for ambulance replacement. NFPA 1917, *Standard for Automotive Ambulances*, serves the same principles as NFPA 1901 but only for new ambulances contracted to be built on or after January 1, 2013, and it is not retroactive. In departments CPSM has reviewed and have knowledge of, the general rule of thumb for ambulance replacement is from five to eight years, depending on chassis demand, which is generally measured in miles and maintenance costs. When replaced, the ambulance usually serves as a reserve for another two to five years, depending on the year replaced and serviceability at the time of replacement. The OFD ambulances do not come under this standard.

OFD Fleet Replacement

The OFD has a replacement plan that is included in the city's capital improvement budget. This plan, however, is only for immediate and planned replacement for a given five-year period, subject to appropriations, and can be changed from year to year. This is normal fiscal management of the CIP budget. The OFD has a longer-term plan that identifies vehicles to be replaced; however, this is an internal plan and has not been vetted and approved by the common council (approval in this case does not suggest the plan is funded; it suggests the council has reviewed and approved a plan depending on available funding, that is, a plan shows that due diligence has occurred).

Likewise, the OFD has no formal strategic planning document that identifies future goals and objectives or more specifically that outlines capital equipment and vehicle replacement. The senior staff has developed justification for the purchase of two aerial apparatus and which provides the

technical information needed in the decision-making process. However, the critical component of a formal strategic plan that outlines this and future replacements with justification that is benchmarked against identified community risk, demand for services, apparatus and equipment workload, and the staffing and deployment components that policy makers need to make a more informed decision is lacking. ***Therefore, CPSM recommends the fire department, in conjunction with the finance and fleet director, develop a formal vehicle strategic replacement plan that is benchmarked against national fire and fleet standards as well staffing and deployment components listed in this report, is realistic for the city in terms of vehicle use, maintenance, and ability to provide safe and reliable transportation and service for fire crews. CPSM further recommends this plan be approved by the common council.***

The current and adopted CIP budget (fiscal years 2014-2018) includes funding for fire department replacement vehicles as follows:

- Unit #1641: Tower Ladder ($200,000 per year for a total of $1,000,000).
- Unit #1652: Brush Truck ($60,000 in FY 2015).
- Unit #1631: Light Rescue ($250,000 in FY 2016).
- Unit #1691: Ambulance ($170,000 in FY 14 utilizing Reserve Funds).

The total five-year CIP (2014-2018) for the fire department is $1,310,000.

CPSM staff reviewed the OFD apparatus during the on-site visit. ***CPSM agrees with the brush truck replacement as scheduled in the CIP budget.*** The current vehicle does not have the equipment, water, and pump capacity modern brush trucks have. The OFD response district has a brush/wild fire risk, as well as a wild land-urban interface risk that requires specialized apparatus to combat. The OFD is proposing a 4-wheel drive chassis vehicle (pick-up style or slightly larger) with a pump, water tank, and accessories on a skid that loads in the bed area of the vehicle. This arrangement also provides flexibility for future replacement as the skid load of equipment can be removed and loaded onto a new chassis when that is required (and if the skid load of equipment remains in serviceable condition), or vice-versa should the skid load or specific components need to be replaced. Figure 5 illustrates this type of vehicle.

Figure 5: Brush Truck

CPSM staff was advised that the city does not currently fund and has not funded the replacement of ambulances. This is done through the gracious philanthropy of the Dewar family. As such, the funding for the ambulance replacement in the current CIP budget is shown as being financed reserve funds, meaning no local tax funding is needed for this replacement.

The replacement of the light rescue truck in FY 2016 should be evaluated with more scrutiny when the CIP budget is reviewed and implemented for that fiscal year. The current vehicle is utilized as a back-up to the rescue-engine apparatus, which is the primary vehicle utilized for motor vehicle and technical rescue incidents. The light rescue unit is also utilized in specific circumstances such as on the Interstate and during inclement weather. *This unit does not have a heavy workload, as it made twenty-eight responses in a one-year period (July 1, 2013-June 30, 2014), or on average one response every thirteen days.* There is $250,000 budgeted for the replacement of this vehicle, which points to a more substantive unit than is currently in service. Additionally, this unit is scheduled to be reprogrammed to a recreation department vehicle in the current CIP budget, indicating there is service life left.

Replacement Considerations for 1987 Aerial Apparatus and 1992 Engine-Telesquirt

The 1987 aerial apparatus is scheduled for replacement in the current CIP budget with a similar type of aerial apparatus. This budget designates $200,000 per year over the five year period (2014-2018). ***CPSM agrees with the replacement of this apparatus and recommends the process for this continue so that a more contemporary aerial device is procured and placed into service as soon as practical.*** The age of the vehicle as benchmarked against NFPA 1901, maintenance costs ($32,291 from January 1, 2009-June 30, 2014), and general wear and tear support this scheduled replacement.

It is proposed by the OFD that the 1992 engine-telesquirt be replaced as well with an additional aerial apparatus. This apparatus is not listed in the current CIP budget. An internal OFD fleet replacement plan (circa 2007) has this apparatus listed for replacement in 2014. OFD staff communicated to CPSM staff that this unit was discussed with the finance committee at a September 2014 meeting, along with the replacement of the 1987 aerial apparatus. Regardless, the unit is not currently in the CIP budget, which suggests that if this unit were to be approved for procurement, funds would either have to be added to the current CIP budget or shifted from other projects to fund this apparatus purchase.

As one can see, these are two separate and distinct apparatus. The 1987 aerial apparatus is commonly referred to as a "tower ladder" in that it has a 95-foot telescoping boom with a platform from which firefighters can be lifted to elevated areas, can rescue/remove citizens from elevated areas, and/or can perform fire suppression with a pre-piped waterway terminating at a large master stream device.

The 1992 apparatus is an engine apparatus with a telescoping boom with a pre-piped waterway that terminates at a large automatically operated master stream device. The ladder assembly attached to the telescoping boom is not intended to be utilized as an aerial apparatus ladder assembly, in that the construction of this ladder assembly along with tip and boom loading restrictions does not lend it to be climbed regularly to perform firefighting functions that include rescue/removal of civilians from elevated areas. Rather, it is designed for a firefighter to climb and operate the master stream device should that be required.

The OFD proposes to replace the 1987 aerial apparatus with a more contemporary "tower ladder." The proposed apparatus is a 100-foot mid-mount platform. This apparatus utilizes the same concept as then 1987 apparatus except the all-steel boom assembly is replaced with a ladder assembly. The platform is attached to the end of the ladder in this concept. This unit has a pre-piped waterway as well that terminates at a large master stream device. In addition, this unit has a fire pump and carries water and hose, which increases the overall effectiveness of the apparatus. In some cases it can and will act independently of other apparatus on scene as long as it has a sustainable water source such as a fire hydrant. Figure 6 illustrates this apparatus.

Figure 6: Proposed Tower Ladder with Aerial Device and Pump

As noted above, in addition to the 1987 aerial apparatus replacement, the OFD proposes to replace the 1992 engine-telesquirt with a larger and more substantial aerial apparatus. The proposed apparatus is a 107-foot rear-mount aerial apparatus. This apparatus utilizes a full ladder assembly and has a pre-piped waterway that terminates at a large master stream device. In addition, this unit has a fire pump and carries water and hose, which matches the effectiveness of the current 1992 apparatus. In some cases it can and will also act independently of other apparatus on scene as long as it has a sustainable water source such as a fire hydrant. Figure 7 illustrates this apparatus.

Figure 7: Proposed Aerial Ladder with Pump

At question is whether or not the city needs two new aerial devices such as proposed. There are several considerations/factors that should be examined as this decision is made:

- Historically, the city has deployed two apparatus with elevated master streams (the 1992 engine-telesquirt apparatus and an aerial apparatus).
- The two next closest aerial apparatus are located in Cooperstown to the northwest (36 minutes/23.7 miles) and Sydney to the southwest (24 minutes/19.8 miles).[23]
- The city and town have structural risk that potentially require the service of an aerial apparatus to include: a downtown corridor with mixed use (business/residential) that are four and five stories (Figure 8), two universities that have dormitory and classroom/office buildings that are three and four stories (Figure 9), and several retail centers and other business complexes that have large buildings and or are multiple stories. Some of these structures are protected (automatic sprinkler systems) and some are not. Some, including most of the downtown corridor have added risk, in that their use and configuration have been changed many times. This adds to the complexity of the buildings, as walls have been changed and openings in concealed spaces have been created, thus adding to the fire propagation factor.

[23] Mapquest time and distance measurements.

- The OFD currently staffs with a crew of six each day and relies on call-back firefighters and call/part-time firefighters to deploy additional equipment. On an initial alarm the on-duty crew, according the response matrix, will deploy one engine and one aerial apparatus.
- In a one-year period (July 1, 2013-June 30, 2014) the 1987 aerial apparatus responded to **fourteen** calls. The 1992 engine-telesquirt responded to **three** calls.
- The second aerial apparatus, if purchased, may be able to serve as both an engine and an aerial apparatus as it is a quint apparatus, meaning it serves five functions (pump, water tank, hose, ground ladders, aerial device). In addition, this unit would carry the normal complement of hand tools. Many fire departments operate with this type of apparatus in order to leverage staffing and apparatus (two units combined into one). In the case of the OFD, if this deployment model is considered and implemented, it could potentially eliminate one engine apparatus, thereby downsizing the fleet.

Figure 8: Downtown Corridor

Figure 9: University Buildings

The 1992 engine-telesquirt apparatus should be strongly considered for replacement due to its age as measured against national benchmarking, and due to the maintenance and mechanical issues as presented by OFD staff. The purchase of the second aerial apparatus to replace this unit now is a policy decision and should be based on the matrix CPSM has provided in this report. This includes:

- The actual risk and vulnerability of the city (structural and nonstructural), some of which is apparent as discussed and illustrated in Figures 8 and 9; however, a formal risk and vulnerability assessment identifying each structure and risk type does not exist.
- The demand for this type of apparatus, or in this case two of this type of apparatus (there were twelve such responses in a one-year period).
- The availability (considering time and distance of mutual aid apparatus) of a second aerial apparatus should the primary OFD aerial apparatus be out of service, or if there is a need for a second aerial apparatus to mitigate an emergency situation.
- The ability to deploy specific apparatus beyond the on-duty crew (this is not measured per se regarding turnout time of unit deployment by recalled staff, although it is an aspect that should be measured).
- The flexibility of funding and/or the ability to fund the additional aerial apparatus. (Is the light rescue unit sound mechanically and can its replacement be pushed out, and can the budgeted amount for this unit be allocated to the second aerial apparatus? Or, is there additional funding that can be allocated?).
- The city's ability to sustain the current fire department fleet, or through the development of a formal vehicle plan and vehicle replacement, plan right-sizing the fleet for efficiencies while maintaining flexibility and effectiveness. This raises questions such as:
    - Does the fire department need a back-up light rescue vehicle or can that equipment be placed on the tower ladder, another engine apparatus, or if purchased, the second aerial apparatus?
    - Can the second aerial apparatus, serving as a Quint, run as an engine, which would allow for the elimination of one engine apparatus from the fleet?
    - Is the second aerial apparatus the right vehicle at the right time?

CPSM recommends all factors outlined in this report be considered before the proposed second aerial device is approved for purchase.

Summary and Conclusion

The Center for Public Safety Management (CPSM) was retained by the city of Oneonta to complete an abridged operational analysis of the city's fire department fleet, Specifically, CPSM was tasked with providing recommendations and alternatives regarding the replacement of the current aerial apparatus as well as other fire department vehicles scheduled for replacement in the current Capital Improvement Budget (CIP) (2014-2018).

Conclusions and recommendations made in this report are the result of an examination of the fire department's planning components and management framework with regards to the procurement of capital vehicles and associated deployment of resources, risk analysis, and the OFD's approach to community protection through its response matrix and deployment of apparatus. Additionally, CPSM compared the "as is" state of the department to best practices and industry standards with regards to the procurement and productive life of capital vehicles and equipment and deployment of resources.

Included in this study is a review of fire department calls for a one-year period (July 1, 2013 to June 30, 2014) as well as the workload (in number of responses) of fire and EMS apparatus. CPSM also mapped travel time benchmarks to illustrate how the OFD response radius compares against national benchmarking. Finally, CPSM reviewed all current apparatus, the current CIP budget, and the proposed purchase of two aerial apparatus.

CPSM staff found that the OFD provides a professional service with regard to fire and EMS service delivery. The department personnel with whom CPSM interacted are truly interested in serving the city to the best of their abilities. The fire chief and assistant fire chief have in-depth knowledge of the city and its associated potential response issues.

Specific recommendations are listed below. These recommendations are based on national best practices and benchmarks, and observations and careful analysis of information provided to CPSM staff. The recommendations can either be accepted in whole or in part, or rejected. In any case CPSM recommends the foundational information in this report be considered for continuous department improvement.

Recommendations and Considerations

- Community risk and vulnerability assessment are essential elements in a fire department's planning process. The OFD has not completed a formal comprehensive community risk and vulnerability assessment, although target hazard preplanning has been completed on certain buildings and staff has a general knowledge of the buildings in the city. However, this is an extremely important process to complete, given the number of moderate- to potentially high-risk structures located in the city and the risk and threat they pose. ***It is strongly recommended the OFD complete a fire and community risk assessment as a component of future department and city planning. This assessment should be linked to all staffing and apparatus deployment plans, department operating guidelines, and incident critical tasking development.***

- The OFD has no formal strategic planning document that identifies future goals and objectives or more specifically that outlines capital equipment and vehicle replacement. The OFD has an informal, longer-term plan that identifies vehicles to be replaced; however, this is an internal plan and has not been vetted and approved by the common council (approval in this case does not suggest the plan is funded; it suggests the council has reviewed and approved a plan dependent on available funding; that is, a plan shows that due diligence has occurred).

  The senior staff has developed justification for the purchase of two aerial apparatus and which provides the technical information needed in the decision-making process., However, the critical component of a formal strategic plan that outlines this and future replacements with justification that is benchmarked against identified community risk, demand for services, apparatus and equipment workload, and the staffing and deployment components so that policy makers can make a more informed decision is lacking. ***Therefore, CPSM recommends the fire department, in conjunction with the finance and fleet director, develop a formal vehicle strategic replacement plan that is benchmarked against national fire and fleet standards as well staffing and deployment components listed in this report, is realistic for the city in terms of vehicle use, maintenance, and ability to provide safe and reliable transportation and service for fire crews. CPSM further recommends this plan be approved by the common council.***

- ***CPSM agrees with the brush truck replacement as scheduled in the CIP budget.*** The current vehicle does not have the equipment, water, and pump capacity modern brush trucks have. The OFD response district has a brush/wild fire risk, as well as a wild land-urban interface risk that requires specialized apparatus to combat. The OFD is proposing a 4-wheel drive chassis vehicle (pick-up style or slightly larger) with a pump, water tank, and accessories on a skid that loads in the bed area of the vehicle. This arrangement also provides flexibility for future replacement as the skid load of equipment can be removed and loaded onto a new chassis when that is required (and if the skid load of equipment remains in serviceable condition), or vice-versa should the skid load or specific components need replacing.

- ***The replacement of the light rescue truck in FY 2016 should be evaluated with more scrutiny when the CIP budget is reviewed and implemented for that fiscal year.*** The current vehicle is utilized as a back-up to the rescue-engine apparatus, which is the primary vehicle utilized for motor vehicle and technical rescue incidents. The light rescue unit is also utilized in specific circumstances such as on the Interstate and during inclement weather. *This unit does not have a heavy workload, as it made twenty-eight responses in a one-year period (July 1, 2013 to June 30, 2014), or on average one response every thirteen days.* There is $250,000 budgeted for the replacement of this vehicle, which points to a more substantive unit than is currently in service. Additionally, this unit is scheduled to be re-programmed to a recreation department vehicle in the current CIP budget, indicating there is service life left.

- The 1987 aerial apparatus is scheduled for replacement in the current CIP budget with a similar type of aerial apparatus. This budget designates $200,000 per year over the five year period (2014-2018). ***CPSM agrees with the replacement of this apparatus and***

recommends the process for this continue so that a more contemporary aerial device is procured and placed into service as soon as practical.

- ***The 1992 engine-telesquirt apparatus should be strongly considered for replacement due to its age as measured against national benchmarking, and due to the maintenance and mechanical concerns as presented by OFD staff.*** The purchase of the second aerial apparatus to replace this unit now is a policy decision and should be based on the matrix CPSM has provided in this report. This includes:
    - The actual risk and vulnerability of the city (structural and nonstructural), some of which is apparent as discussed and illustrated in Figures 8 and 9. However a formal risk and vulnerability assessment identifying each structure and risk type does not exist.
    - The demand for this type of apparatus, or in this case, two of this type of apparatus (there were twelve such responses in a one-year period).
    - The availability (considering time and distance of mutual aid apparatus) of a second aerial apparatus should the primary OFD aerial apparatus be out of service, or if there is a need for a second aerial apparatus to mitigate an emergency situation;
    - The ability to deploy specific apparatus beyond the on-duty crew (this is not measured *per se* regarding turnout time of unit deployment by re-called staff, although it is an aspect that should be measured).
    - The flexibility of funding and/or the ability to fund the additional aerial apparatus. (Is the light rescue unit sound mechanically and can its replacement be pushed out and the budgeted amount for this unit be allocated to the second aerial apparatus? Or is there additional funding that can be allocated?)
    - The city's ability to sustain the current fire department fleet, or through the development of a formal vehicle plan and vehicle replacement plan, right-sizing the fleet for efficiencies while maintaining flexibility and effectiveness. This raises questions such as:
        - Does the fire department need a back-up light rescue vehicle or can that equipment be placed on the tower ladder, another engine apparatus, or if purchased the second aerial apparatus?
        - Can the second aerial apparatus, serving as a quint, run as an engine, which would allow for the elimination of one engine apparatus from the fleet?
        - Is the second aerial apparatus the right vehicle at the right time?

CPSM recommends all factors outlined in this report be considered first before the proposed second aerial device is approved for purchase.