

This Standard of Cover is a document which will help anticipate need and determine a response to all hazardous situations that the Oneonta Fire Department will answer so that we may protect firefighters, residents and visitors from harm.

Standard of Cover

City of Oneonta Fire
Department

Jim Maloney, Assistant Chief

Table of Contents

Introduction/Executive Summary.....	2
Section 1. Description of Service Area	
Description of the Oneonta Community/Service Area.....	3
Figure 1.1 Organizational chart for the city of Oneonta.....	4
Figure 1.2 Diagram of the City of Oneonta political divisions.....	5
Figure 1.3 Town of Oneonta Boundaries	6
History of the Agency.....	6
Figure 1-4 OFD Fire Station Location and Municipal Boundaries	7
Financial.....	7
Area Description.....	7
Topography.....	7
Climate.....	7
Population.....	8
Graphs 1: 1-3: Comparative Age Demographic.....	9
Disaster Potential.....	10
Area Development.....	10
Market Definition.....	10
Figure 1-5 Oneonta Market Area	11
Graphs 1:6-7 Business Types	11
Land Use.....	12
Graph 1-6 City Property Types	12
Graph 1-7 Town Property Types	12
Community Assets.....	13
Critical Infrastructure.....	14
Section 2 Current Service Delivery Model and Community Expectations	
Current Service Delivery Model.....	16
Figure 2.1.....	16
Service Delivery Programs.....	17
Fire Suppression.....	17
Rescue.....	17
Medical.....	17
Hazardous Materials.....	18
Service Calls.....	18
Fire prevention and Education.....	18
Emergency Management.....	20
Current Deployment Resources.....	24
Figure 2-1 Response Matrix	21
Community Response History.....	22
Table 2-1 Non-EMS/Fire Responses	22
Table 2-2 EMS Responses	22
Table 2-3 Total responses	22
Graph 2.1 Calls by Day	23

Graph 2.2 Call Volume	23
Graph 2-3 Use of EMS by age group.....	24
Graphs 2-4-6 Use of EMS by age group specific to City, Town or West Oneonta.....	25
Graph 2-7-8 The payer mix for EMS services provided by the OFD2016-17.....	25
Graph 2-9 Total EMS calls for SUNY campus.....	26
Community Expectations:	
Community stakeholder satisfaction survey.....	27
Section 3. Community Risk Assessment and Risk Levels	
What is risk.....	30
Oneonta Community Risk Assessment Methodology:.....	32
Planning Areas/Zones	33
Graph 3-1 OVAP Risk Level by Zone.....	34
Graph 3-2 OVAP Score Comparasion City and Town	35
Graph 3-3 OVAP Score Ranges	35
Oneonta Community Risk Assessment: Risk vs Experience	36
Risk Management.....	37
Figure 3-1: Risk vs Frequency	39
Factors Contributing to Deployment of Fire Department Apparatus.....	40
Section 4 Fire Department Capabilities	
Fire Suppression Service and NFPA 1710 Benchmarking.....	43
Department Capabilities	45
Table 4-1: Overlapped Call Analysis.....	46
Operational Effectiveness	45
Assessing Operational Effectiveness: Quantitative or Qualitative?.....	47
Graph 4-1: Percent by Type of Total Fire Department Calls National	48
Figure 4-1: Exposure Loss.....	51
National and Regional Comparisons.....	52
Graph 4-2: Average # of career firefighters (ffs) per 1,000 population: National.....	52
Graph 4-3: Average # of career ffs in 24/72 schedules in communities pop. 25,000 and 49,999: National.....	52
Graph 4-4: Average # career ffs covering populations of 10,000 and 24,999 (excluding departments that do EMS: National).....	53
Graph 4-5: Number of Firefighters/1000 population career FDs in NY.....	53
Graph 13-6: Average # calls per ff career FDs NY.....	54

Section 5 Performance Objectives – Baselines

Response time analysis: CPSM.....55

 FIGURE 5-1: Fire Propagation Curve56

 FIGURE 5-2: OFD Station Location and Travel Times.....58

 FIGURE 5-3: Fire Runs Concentration Plots.....59

 FIGURE 5-4: EMS Runs Concentration Plots.....59

 TABLE 5-1: Average Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type.....60

 TABLE 5-2: 90th Percentile Dispatch, Turnout and Travel, and Response Times of First Arriving Unit, by Call Type.....62

Section 6: Current Call Data

City of Oneonta Fire Department Year End Report Statistics.....64

 Graph 6-1 Response types by location.....65

 Graph 6-2 Call Response by Incident Type & Location.....65

 Graph 6-3 Response Totals 2010-2018.....66

 Graph 6-4 Response Totals 2010-2018 by Location.....66

 Graph 6-5 Number of Incidents Day of Week 2018/ 2017.....67

 Graph 6-6 2018 Emergency Medical Services By Location.....68

 Graph 6-7 Call Types by Category & Location.....68

 Graph 6-8, 9 2017/2018 College Responses by Type and Location.....70

 Graph 6-7 Call Comparison by Type of Call 2016-2017.....68

Section 7: Recommendations for Change Overall Evaluation, and Conclusion

Turn out time reduction.....74

Conclusion.....75

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

Jim Maloney
Assistant Chief
Oneonta Fire Department

Introduction

The fire service has historically faced the issue of defining, for external stakeholders, the level of service that it can provide to a community. Over the last several years, the Oneonta Fire Department has made changes in how it operates via resource allocation, resource deployment, training, and emergency management. We feel that this has improved our ability to meet the needs of the community we serve. Some of these changes have resulted in the Insurance Services Offices rating to change from a 4 to a 2, saving our community members money on homeowners and business insurance. These and other changes have allowed us to absorb a significant increase in call volume with no additional full time staff, and the loss of part time and call staff.

Executive Summary

This document is designed to follow and amplify the Community Risk Assessment and inform elected officials and residents about the operations of the Oneonta Fire Department so that they may know what to expect when the fire department responds to an emergency. This Standard of Cover provides an overview of the 2017 Community Risk Assessment, integrates recommendations from the 2015 Center for Public Safety Management *Operational and Administrative Analysis*, and will inform strategic planning so that the Oneonta Fire Department can meet the future needs of the communities we protect.

Description of the Oneonta Community/Service Area

Government:

The City of Oneonta operates under a council/manager form of government¹. This form of government attempts to combine the political leadership of elected officials in the form of the Oneonta Common Council and Mayor with the managerial experience of an appointed city administrator. The City of Oneonta transitioned from a “strong Mayor” form of government and moved to the council/manager form of government in 2012.

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 nonpartisan 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 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.

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. Oneonta operates a separate police and fire department. The City of Oneonta was chartered in 1908 and has had a municipal fire service since then.

¹ Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY Center for Public Safety Management – December 2015

Figure 1-1, organizational chart for the city of Oneonta.

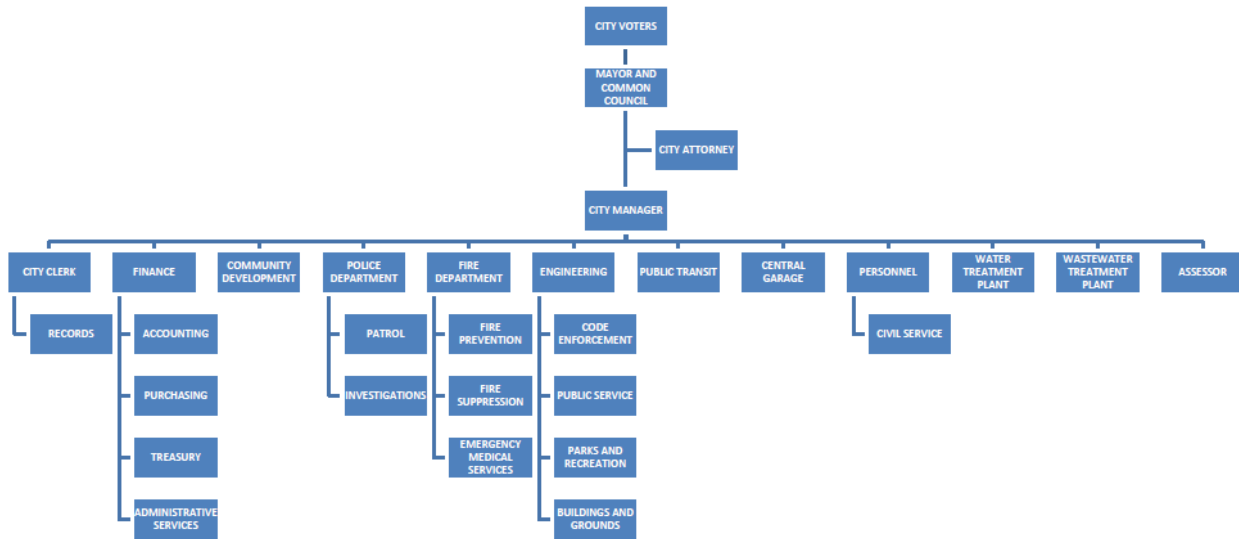
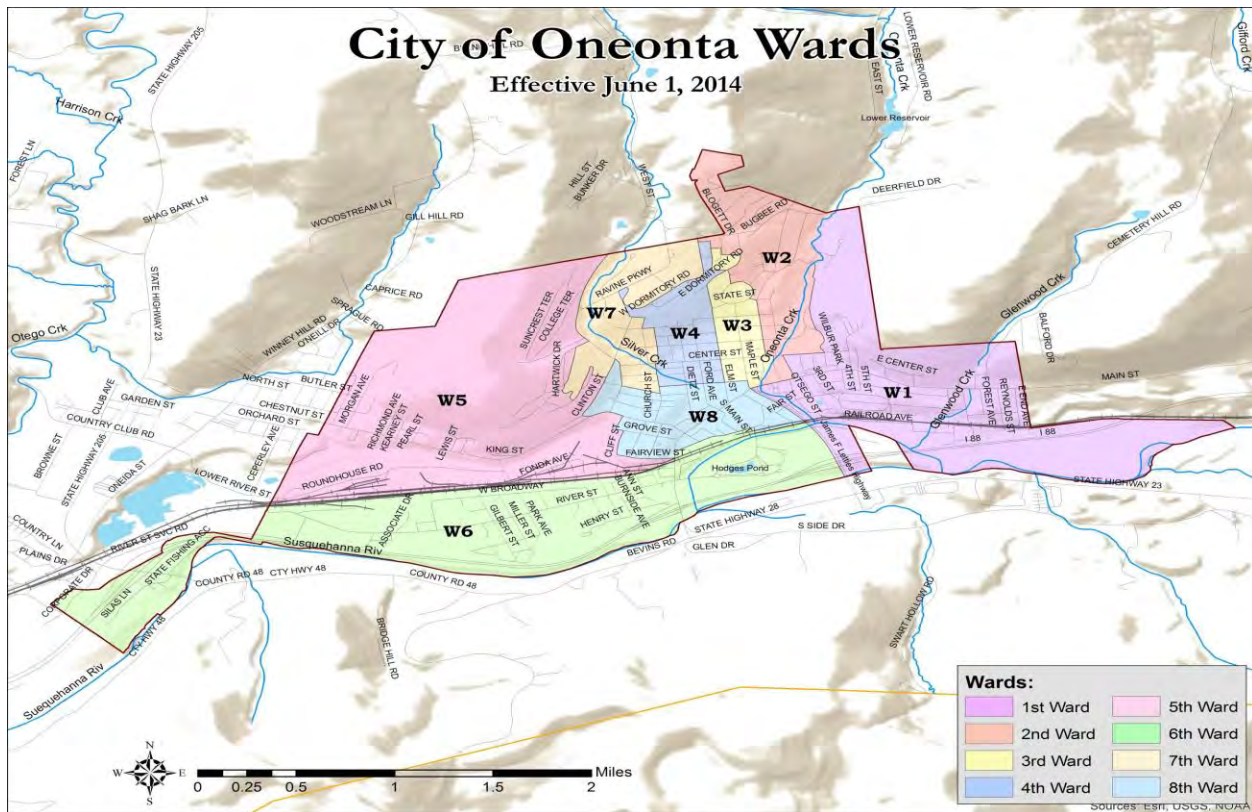


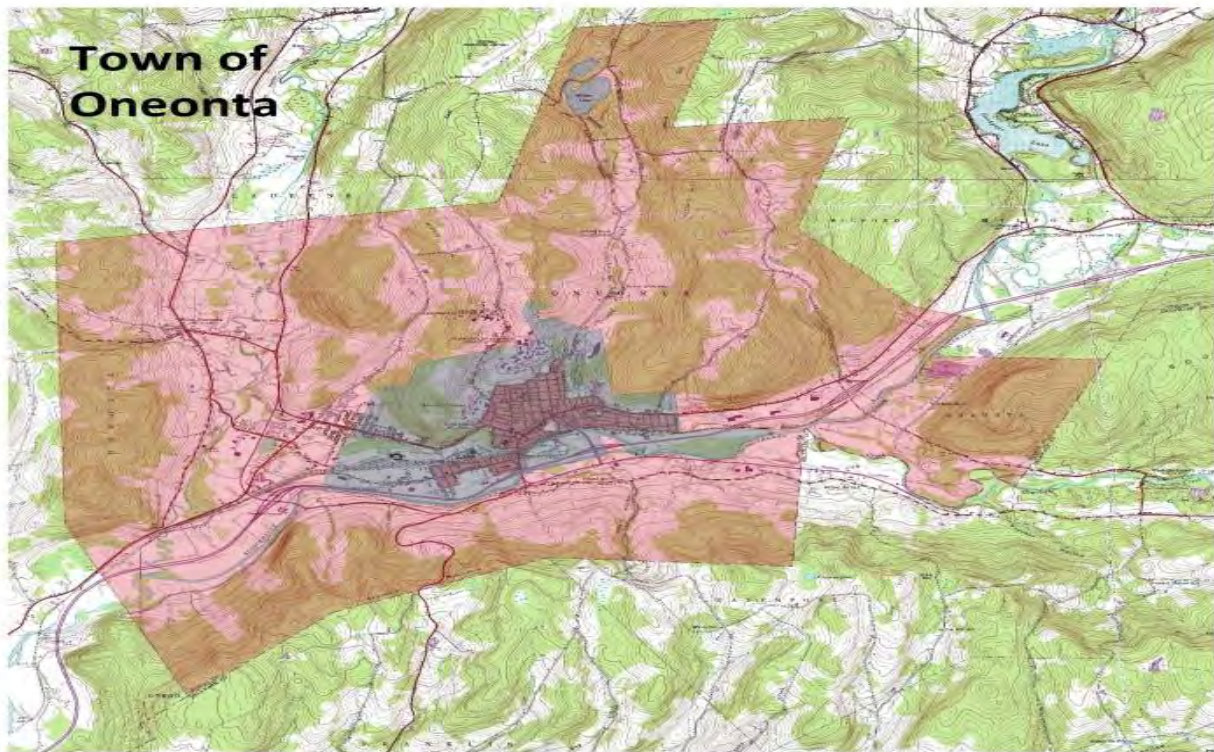
Figure 1-2, Diagram of the City of Oneonta political divisions



The Town of Oneonta contracts with the City of Oneonta for Fire and EMS services. The hamlet of West Oneonta, which is governed by the town, has a volunteer Fire Department that protects a population under 400. The Oneonta Fire Department provides EMS services there, and responds through Mutual Aid to non-EMS calls when requested.

The Town of Oneonta has a town board/ supervisor form of government. The Town Board contracts with the City of Oneonta to provide EMS services to all of its residents (including the hamlet of West Oneonta). The town also has a Fire Protection District. A Fire Protection District is defined as: “a geographical area of a town which is provided fire protection pursuant to contract with any city, village, fire district or incorporated fire company. It is an assessment area within which a town can provide limited services and assess the cost back against the taxable properties within the district”². The Fire Protection District is responsible for the negotiation of contracted Fire (non - EMS) services from the City of Oneonta for its constituents.

Figure 1-3 Town of Oneonta Boundaries



² http://www.dos.ny.gov/lg/publications/fire_district_consolidation.doc

History of the Agency

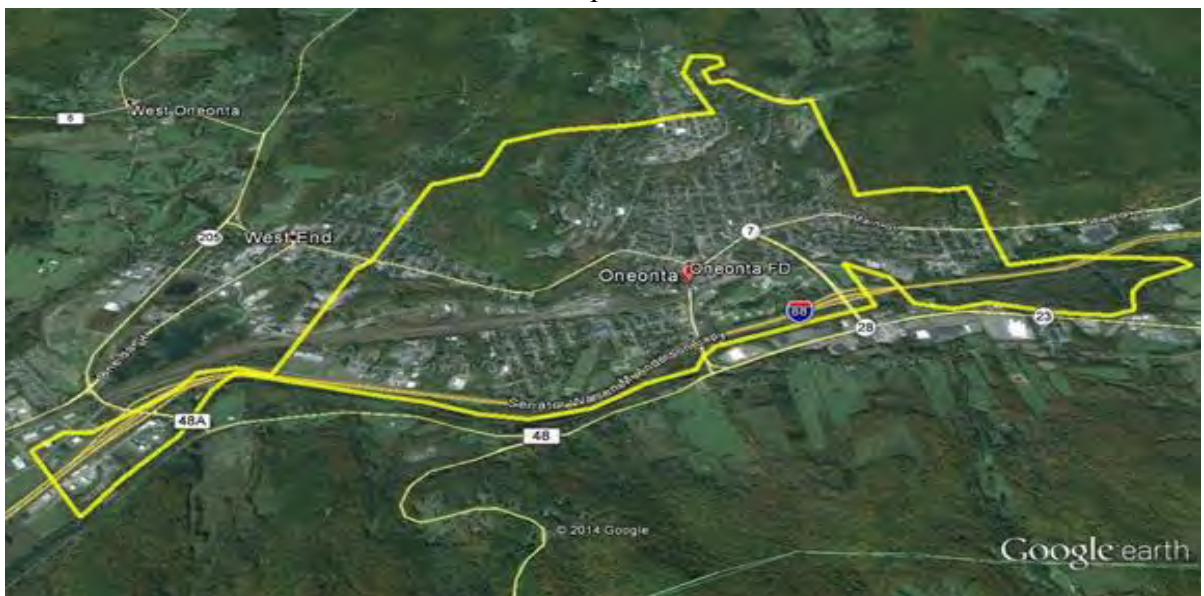
Oneonta's first organized fire company, the Resolute Engine Company No. 1, was organized in 1847 by authority of Village Supervisor E.S. Brown. Disbanded shortly after purchasing an "engine," they were replaced with the old bucket brigade system. Shortly thereafter, another group of men purchased an "engine" from the City of Albany. These two groups formed the basis for the Oneonta Fire Department which was formed in 1876. After the village trustees ordered the purchase of a steamer engine, hose truck, and hook & ladder, a fire house was built at what is now 242 Main Street. Oneonta continued to expand as a commercial draw for the county. Several volunteer hose companies, including a D & H railroad fire company competed with the Oneonta Fire Department to arrive first and to save the day. The competition was so fierce at times that fisticuffs would break out between companies trying to "hook the hydrant" first.

As the City grew so did its aspirations. January 1, 1909 marked the date that the Village of Oneonta incorporated, under a charter, as a city. The charter laid out the plans for a municipal fire department. It was then that a paid fire department was started with a fire chief, and assistant chief, and four firefighters.

Oneonta's first motor-pump apparatus made an appearance in the 1913, a chief's car in 1916, and a motorized hook & ladder in 1917. Paid staffing was minimal with paid on call firefighters and volunteers providing surge staffing during times of need. In 1926 Mr. and Mrs. D.F. Wilber donated an ambulance to perform emergency services to residents of the City of Oneonta and surrounding areas.

In the late 1970's it was realized that the fire department and police department had outgrown their quarters at 242 Main Street and planning began on a new public safety building. Completed in 1985 the new public safety building at 79 Main Street was designed to house the Fire and Police departments and the Oneonta City Court.

FIGURE 1-4: OFD Fire Station Location and Municipal Boundaries



Financial

As a Municipal department, Oneonta bills for EMS services both in the City of Oneonta and the Town of Oneonta. Ambulance billing provides approximately \$1,100,000.00 in revenue. This amount has been relatively stable for the last two years. The contract with the town for fire services (structural firefighting as well as technical rescue), brought in \$1,050,000.00. The operating budget of the Department is \$3,815,115.00 which means that the 2018 net cost to local taxpayers is \$1,665,115.00

In the opening statement of its Operational Analysis of the Oneonta³ Fire Department the Center for Public Safety Management (CPSM) stated the following:

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 inter-municipal 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.

Topography

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 city 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,⁴ the city of Oneonta had an estimated population in 2013 of 13,946. The city’s official 2016 U.S. Census population was 13,804. The city is surrounded by the town of Oneonta, a separate municipal and political jurisdiction. Under the inter-municipal agreement between the City of Oneonta and the Town of Oneonta, OFD provides fire and EMS services to the town. This adds an additional 33.6 square miles of service area and an estimated 5,229 additional residents.

Climate

Climate in the Oneonta area is generally continental in character. During the summer, daytime temperatures can reach a maximum of 90 degrees. Mean temperatures in July are between 70 and 75 degrees. Winters are generally cold, the mean January temperature being 18 to 25 degrees.

Mean temperature for the growing season is between 60 and 62 degrees. The last killing frosts generally end in early May and the first frost generally appears in early October, giving the city an average growing season of 160 days. Mean precipitation for the season is between 18 and 21 inches.

³ Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY Center for Public Safety Management – December 2015

⁴ <http://quickfacts.census.gov/qfd/states/36/3654881.html>

Mean annual precipitation for the City is between 35 and 40 inches. Snowfall ranges from 55 to 60 inches annually. The amount of rainfall received by the City is generally adequate for industrial and domestic functions. Wind velocities in the Oneonta area are moderate. The City receives a southerly prevailing wind from May through November, northerly in January, and westerly during the remainder of the year.

Demographics:⁵

City of Oneonta Data and Demographics:

Population:

Total Population- 13,804
 Population in Households- 9,227
 Population in Families- 4,960
Population in Group Quarters- 4,577
 Population Density (1) - 3,165

Households:

Total Households- 4,242
 Average Household Size- 2.18
 Average Family Size- 3

Housing:

Total Housing Units- 4,807 (100%)
 Owner Occupied HU- 1,750 (36.4%)
 Renter Occupied HU- 2,492 (51.8%)
 Vacant Housing Units- 565 (11.8%)
 Median Home Value- \$144,769
 Average Home Value- \$164,604

Income:

Median Household Income- \$36,053
 Average Household Income- \$55,084
 Per Capita Income- \$18,846

Growth Rates

2010-2015

2015-2020

Population	-0.11%	-0.23%
Households	-0.48%	-0.38%
Families	-0.79%	-0.56%
Median Household Income		1.04%
Per Capita Income		1.65%

Town of Oneonta Data and Demographics:

Population:

Total Population- 5,421
 Population in Households- 5,010
 Population in Families- 3,830
Population in Group Qrtrs- 411
 Population Density (1)- 165

Households:

Total Households- 2,238
 Average Household Size- 2.24
 Average Family Size- 3

Housing:

Total Housing Units- 2,410 (100%)
 Owner Occupied HU- 1,664 (69.0%)
 Renter Occupied HU- 574 (23.8%)
 Vacant Housing Units- 172 (7.1%)
 Median Home Value- \$162,672
 Average Home Value- \$208,143

Income:

Median Household Income- \$59,366
 Average Household Income- \$75,718
 Per Capita Income- \$31,858

Growth Rates

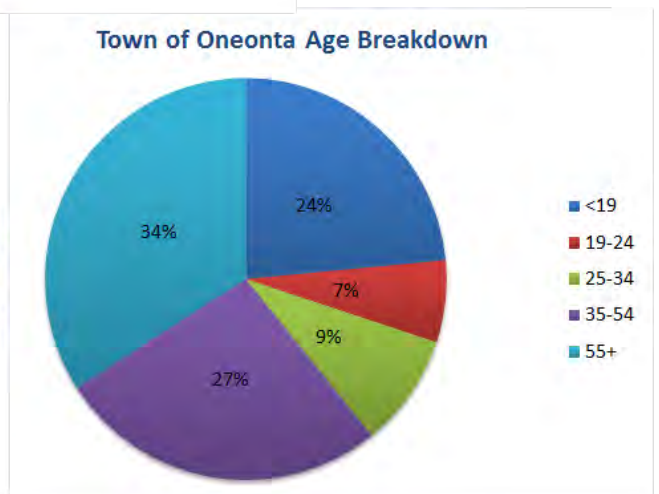
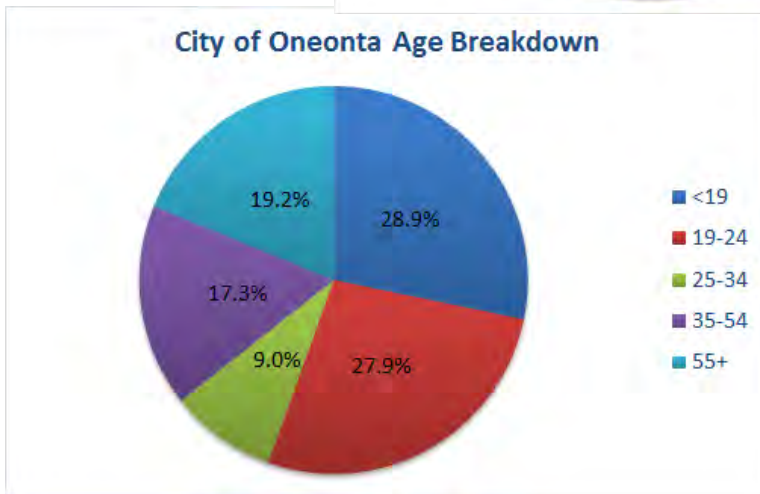
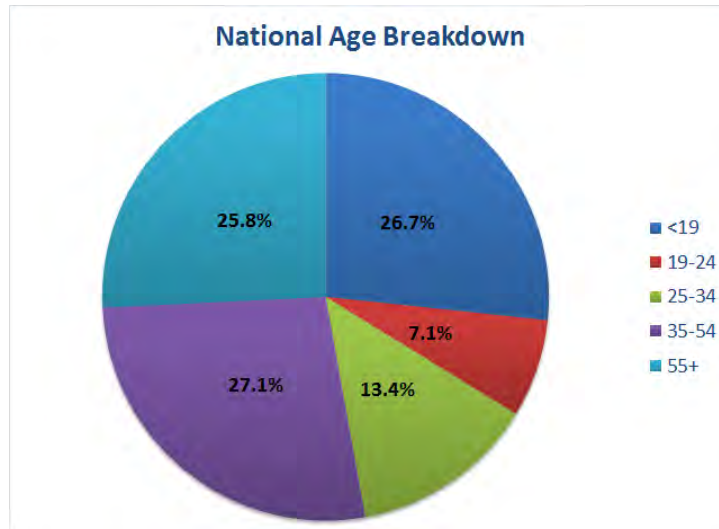
2010-2015

2015-2020

Population	0.58%	0.16%
Households	0.58%	0.18%
Families	0.36%	0.03%

⁵ NY Home Town Locator, July 2016, data and demographics

Graphs 1: 1-3: Comparative Age Demographic⁶



⁶ 10/5/2016

Disaster Potentials

The City and Town of Oneonta experienced two 100-year floods in 2006 and 2011, both times requiring Fire Department responses to hundreds of calls over the course of the emergency period. OFD has the personnel and maintains an equipment cache to help move displaced people to safety, pump water from basements, do well checks on people stranded in their homes, remove trees from roads, assist the electric and gas companies to restore those services lost in a storm. The City of Oneonta Fire Department must maintain a readiness for this type of emergency at all times as the frequency of high intensity storms has increased

The Otsego County Emergency Preparedness Assessment (CEPA) identified the following four areas as having the highest risk and the highest consequences: cyberattack, flooding, major transportation accident, and Haz Mat releases from facilities, pipelines, and road and rail transit corridors. Otsego County and Oneonta have both state and interstate highways and a major rail line that run through them. The hazard assessment's assignment of high risk and consequence to these events is based on local experience as well as regional and national statistics. Other high risk but moderate or low consequence events are weather related and they include major snowstorms, and extreme temperatures.

Area Development

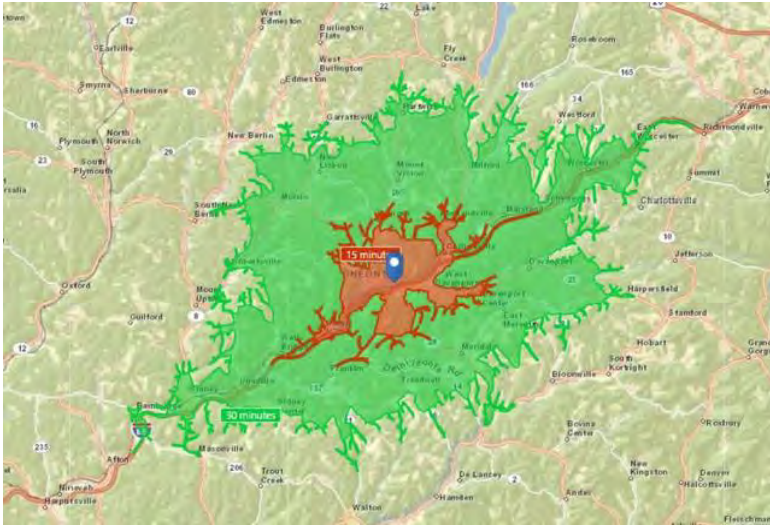
The Local Area encompassing the City and Town of Oneonta functions as a unified economic place in the region. Downtown Oneonta is the historic employment center and shopping area, whereas, the Southside (of the railroad, river and the interstate highway) contains the Southside Mall and other large format, big box retail stores and restaurants. Downtown and Southside businesses compete with one another for local and regional consumer expenditures. Southside stores are more accessible from the highway, but many local area employers are located Downtown. It is notable that the colleges are on the north side of the local area, giving Downtown additional visibility among commuters traveling to and from the highway interchanges to the campuses.⁷

Market Area Definition

The Resident Market Area for the project is defined as the area within a 30-minute drive of Oneonta. The Resident Market Area is further delineated into primary and secondary market areas; the primary market area is defined as the area within a 15-minute drive of downtown Oneonta, and the secondary market area is defined as the area beyond a 15-minute drive, but within a 30-minute drive of Oneonta. The definition is based on an informal survey of downtown businesses and economic developers' perceptions of where customers are coming from. According to downtown businesses, most customers come from within the Oneonta Resident Market Area. However, many businesses, especially restaurants, report having a good portion of customers from places such as Delhi, Sidney and Milford, which are up to 30 minutes away. Businesses in downtown Oneonta also benefit from tourist traffic, which peaks during the summer. Figure 1-5 shows the Resident Market Area for Oneonta.

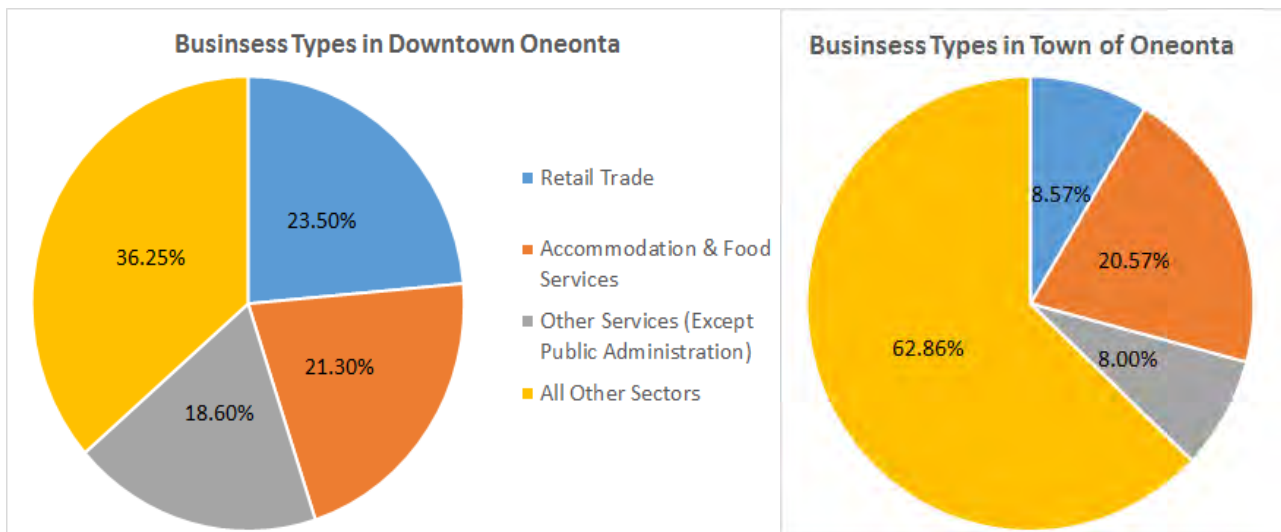
⁷ Focus on the Future of Main Street An Economic Development Planning Study Oneonta NY May 2016 Prepared by LA Group

Figure 1-5: Oneonta Market Area



Oneonta contains a number of significant employers, including A.O. Fox Hospital, Hartwick College, SUNY Oneonta, the Oneonta Job Corps Center, NYSEG, Verizon, Corning Corporation, Community Bank, the Arc, NBT Bank, Astro-com Electronics, F.N. Burt Company, Custom Electronics, Ioxus, Medical Coaches, The Daily Star, Key Bank, and the Mold-A-Matic Corporation. The retail and service sectors also employ a large number of people at major retailers such as Home Depot, Lowe's, Sears, T.J. Maxx, Petco, Dick's Sporting Goods, Harbor Freight, Hannaford, Price Chopper, BJs, Wal-Mart, and J.C. Penney. There are 184 businesses in Oneonta that employ a total of 11,174 people. The business district in Oneonta brings in about 55,373 people per day. The Primary Market Area contains about 23,603 people daily and the Secondary Market Area contains 31,770 people. Of the Total Resident Market Area, 19,225 are local Oneonta residents. Therefore, the fire department is protecting a population that is 36,148 people greater than the City/Town residential population.

Graphs 1:6-7: Business Types

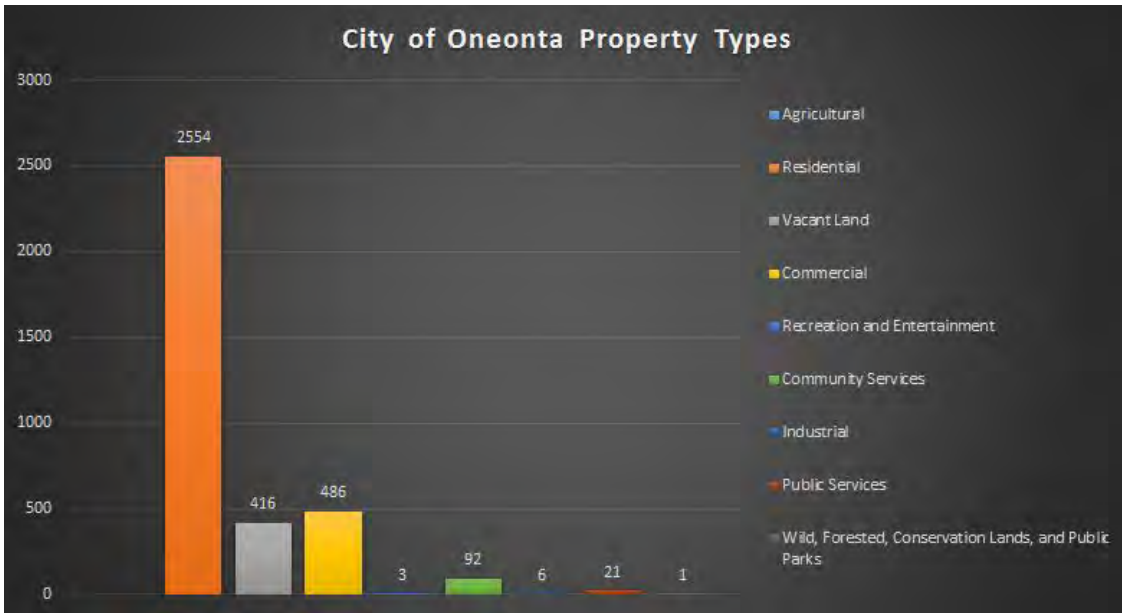


Land Use:

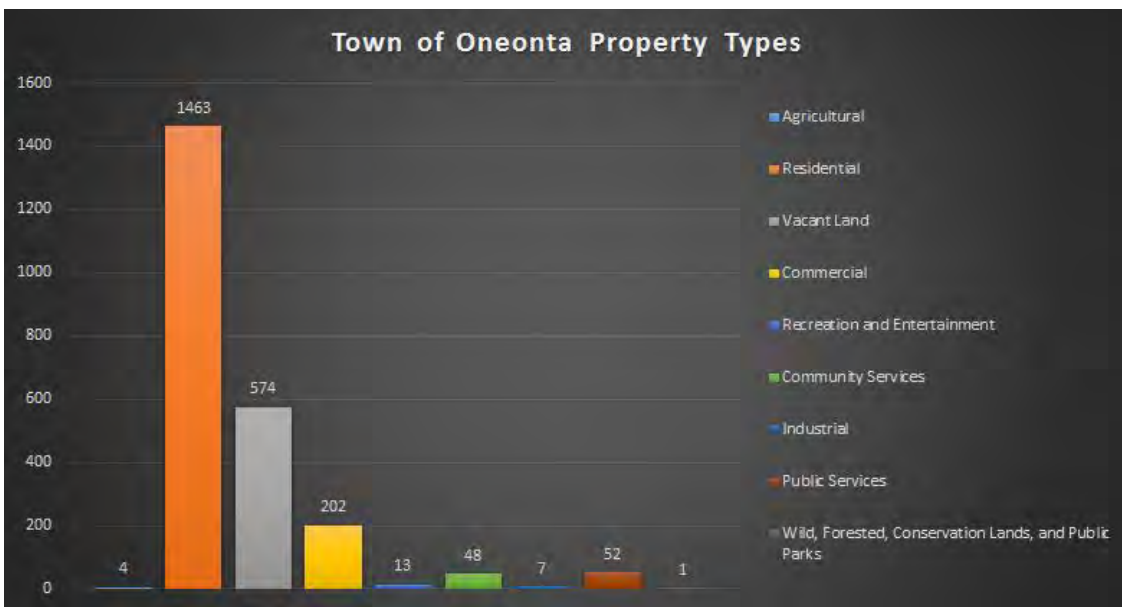
Land use in the city and town are broken down into categories provided by NYS Codes. The Large groups include;

- Agricultural
- Residential
- Vacant
- Commercial
- Recreation and entertainment
- Community Services
- Industrial
- Public Services
- Wild land

Graph1-6: City Property Types



Graph 1-7: Town Property Types



Community Assets:

Schools:

Elementary:

- Greater Plains
- Riverside
- Valleyview

Middle/ High School:

- Oneonta Middle School
- Oneonta High School

Hospitals/ Homes for the Aged:

- Fox Hospital
- St. James' Retirement Community
- Robynwood Home for Adults
- Hampshire House Assisted Living
- Heritage at the Plains at Parish Homestead

Universities:

- Hartwick College
- State University of New York at Oneonta

Special Schools and Institutions:

- Oneonta Job Corps
- Springbrook School and residences
- ARC Otsego employment centers and residences
- Opportunities for Otsego

Subsidized Living Accommodations:

Oneonta Housing Authority

- Nader Towers
- Academy Arms Apartments
- James F. Lettis Apartments

Due to the high population concentrations in these facilities, and the populations served our activity at natural disasters, structure fires, and other hazards will be impacted due to the higher than normal life safety hazards. The Oneonta Fire Department has worked successfully in the past with other City and Town agencies to move people away from hazards or help them shelter in place. As hazardous scenarios are very dynamic it is difficult to have a plan for every type emergency. The Oneonta Fire Department's Emergency Management team has partnered with many of these organizations to train with them so that we may shape our response to whatever type of emergency they may experience. More information is available in the "Community Risk Reduction" section.

Critical Infrastructure:

NYS Division of Homeland Security & Emergency Services Office of Fire Prevention (NYS DHSES OFPC) and Control has the following criteria for “critical infrastructure” As seen below there are several thresholds that need to be met to be on the state’s list. For cities, towns and villages it becomes a local decision as to what is critical infrastructure.

NYS DHSES OFPC has prepositioned one of nineteen foam trailers in Otsego County, due to the increased frequency and increased volatility of fuels, such as Bakken Crude that are transported by rail though New York state. Recently in order to enhance natural gas levels supplied by the DeRuyter natural gas line , XNG trucks carrying compressed natural gas from Pennsylvania fracking fields have been passing through Oneonta enroute to a Little Falls NY decompression plant. While there have been several accidents involving the trucks none have resulted in a release of hazardous materials.

Critical Infrastructure Criteria:

1. State government facilities that house State leadership personnel that have the responsibility or authority to pass State legislation.
2. County government facilities that serve a population of over 100,000 people or more and that house County elected leadership with the responsibility or authority to pass County legislation.
3. City, village or town government facilities that serve an overall population of 50,000 or more people and that house City elected leadership with the responsibility or authority to pass City legislation.
4. National Guard facilities that serve as command and control nodes for elements of a Brigade (1,000 personnel) or higher or that have traditionally served as large-scaled logistical hubs during State emergencies.
5. All federal military Main Operating Bases which have permanently stationed operating forces.
6. All Federal courts; NYS Court of Appeals; and State Supreme Courts located in Counties that serve a population of over 100,000.

Criteria for the Transportation Sector:

1. Road: Average Daily Traffic (ADT) Above 50,000 (Combined for two road intersection)
2. Road-Bridge: Average Daily Traffic (ADT) Above 50,000.
3. Road-Tunnel: Average Daily Traffic (ADT) Above 50,000.
4. All Bridge-Road Crossings to Canada.
5. Aviation: Annual Enplanements above 50,000.
6. Bus: Determined by DHSES.
7. Maritime: Major Ports in New York.
8. Mass Transit: Determined by DHSES.
9. Mass Transit - Bridge-Tunnel: All
10. Railroad (incl. Bridge and Tunnel): Determined by DHSES.
11. HQ: Determined by DHSES - Major Transp. HQs.

Overall, the National Office of Homeland Security has identified 16 critical infrastructure sectors that compose the assets, systems, and networks, whether physical or virtual, so vital to the operation of the City and Town of Oneonta that their incapacitation or destruction would have a debilitating effect on security, economic security, public health or safety, or any combination thereof. These are:

- **Commercial Facilities Sector:** Southside Commercial Corridor, Main Street
- **Communications Sector:** Access to the internet, cell signal towers, Verizon
- **Critical Manufacturing Sector:** Corning, Mold-a-matic, Custom Electronics, Ioxus, Burt Rigid Box, Apple Converting Medical-Coaches (to name a few)
- **Dams Sector:** Reservoir dams, Southside low-head dam, Goodyear Lake Dam
- **Defense Industrial Base Sector:** Several industries in the area supply parts for military applications
- **Emergency Services Sector:** Oneonta Police and Fire, SUNY University Police, Hartwick Security, NYS Police, Oneonta Town Constable, Otsego County Sheriff, DEC, ECO, Rangers.
- **Energy Sector:** Enterprise Propane Terminal and transmission lines, NYSEG's DeRuyter Natural Gas Line, and substations, Electrical lines and substations
- **Financial Services Sector:** Morgan Stanley, Wells Fargo, Edward Jones, Holmes, Miller, Benson, Banks
- **Food and Agriculture Sector:** farms, farmer's market, Innovation Center, grocery stores, food pantries
- **Government Facilities Sector:** City and Town halls, road and highway departments, public works, Central Garage, Post Office, OGS at Homer Folks
- **Healthcare and Public Health Sector:** A.O. Fox, Fox Care Center, other satellite facilities Bassett facilities including Dialysis, United Health Services, Well Now, and MD and DDS offices, SUNY and Hartwick Health centers
- **Information Technology Sector:** Fiber Optic Trunk line, Communications Sector
- **Nuclear Reactors, Materials, and Waste Sector:** N. S. Railway, Stericycle, Casella's Logan's, Hospitals and Radiology diagnosis (MD and DDS)
- **Sector-Specific Agencies:** SUNY Oneonta, Hartwick College, Job Corps, BOCES, Salvation Army emergency community shelter
- **Transportation Systems Sector:** Interstate 88, State Routes 205, 28, 23, and 7, various County roads, Oneonta Airport, Bus terminals(local and regional), Bridges, Norfolk Southern Railway and Rail yards
- **Water and Wastewater Systems:** City of Oneonta's reservoirs, water storage tanks, municipal wells, wastewater treatment plant, Town of Oneonta planned water supply system

Section 2 Current Service Delivery Model:

The Oneonta Fire Department (OFD) provides fire, rescue 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 1-3). 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 (civilian dispatcher) who provides administrative and non-combat operational support.

The OFD operates with a traditional fire department organizational structure (see Figure 6-1). 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.

FIGURE 2-1: Oneonta Fire Department Organizational Structure



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 by utilizing the call-back of an off-duty person (utilizing overtime), OFD has adopted a six-person minimum staffing level and on-duty personnel strength typically never drops below this level.

Service Delivery Programs:

Fire Suppression

As seen in the Response Matrix (Figure 8-1), the OFD has codified response staffing based on call need and available daily staffing. We believe that four firefighters on the first out engine can start fire suppression activities while two firefighters on the next apparatus can secure a water supply, and then begin truck company operations. Usually within 12-15 minutes of the alarm we can meet NFPA guidelines on staffing for a moderate risk single family house structure fire by utilizing crew recall and mutual aid. During the interim the staffing matrix and aggressive tactics that we employ, can prevent the small to moderate sized fires from getting out of control or reduce the severity of the fire until more work forces can be deployed.

Rescue

The Oneonta Fire Department encourages its firefighters to pick a technical rescue specialty that they have an aptitude for and pursue advanced training. All firefighters have taken and completed Accident Vehicle Extrication Training, through New York State Office of Fire Prevention and Control (NYS OFPC). We have yearly in house refresher training in order to keep up firefighter skills and to adjust our tactics to new developments in automotive construction and new technologies. We have members who have completed NYS OFPC training in swift water, and water rescue, ice rescue; high and low angle rope rescue, collapse and confined space rescue, and entanglement rescue. These firefighters have taken extra courses in these specialties so that the Oneonta Fire Department is prepared to reduce the risk of negative outcomes for people exposed to or trapped in these situations. At the same time the department must maintain a cache of specialized equipment to meet the risk of these events. The Susquehanna River runs through Oneonta and is used three seasons out of the year for fishing and boating, as well as the General Clinton Canoe Regatta. There are numerous bodies of water, lakes, and ponds as well as streams and creeks that are used four seasons of the year for fishing, boating and other recreational uses. Industry located in the City and Town of Oneonta has elevated (up to 180 feet high) work spaces, and permit required confined spaces, that employees enter for maintenance and repair purposes, and complex machinery used in manufacturing. We have assisted at the scene of confined space entries, and have had to do at least one recovery from an elevated tower. We continue to maintain readiness and equipment to rescue people in all of these circumstances.

Medical

Staffing for any ambulance put in service by the City of Oneonta Fire Department consists of at least one ALS provider and two other certified EMS technicians trained to at least the EMT-B level (Figure 8-1). This staffing is an important component of our service. In this manner every patient transported is under the care of two trained care providers. The OFD believes that due to the possibility of a patient's condition deteriorating during transport, a minimum of two care providers is essential to quality patient care.

The OFD and the Adirondack - Appalachian Regional Emergency Medical Services Council (AAREMS) consider the transport of patients to the closest appropriate medical facility a treatment and an important component of our response. Our ALS and BLS providers train to apply their treatment skills while enroute to the hospital. In most serious medical emergencies or most trauma situations the arrival at a medical facility that offers appropriate medical or trauma care is the key to patient recovery or survival. It should be noted that most patients are transported to the A.O. Fox Memorial Hospital Emergency Department in Oneonta. However as M. I. Bassett hospital, located in Cooperstown, N.Y.,

has a trauma center, as well as advanced cardiac care facilities, our care providers frequently transport directly to this facility.

Hazardous Materials

In 2017 The Oneonta Fire Department responded to 131 hazardous conditions calls. These ranged from carbon monoxide calls, to natural gas or propane leaks, and other hazardous materials releases or spills. All firefighters in Oneonta are currently trained to the Hazardous Materials Operations level which incorporates training in hazardous materials identification, transport vehicles and their associated dangers, personal protective equipment and its limitations and containment procedures. There are 8 businesses in the City (including Hartwick and SUNY Oneonta) and 11 businesses in the Town that have hazardous materials stock, and there is a constant flow to and through Oneonta on the interstate highway, local roads, and the railway. The department must be ready to respond to these types of emergencies at all times.

Service Calls

As the City of Oneonta Fire Department is an “All Hazards Response Agency” and a “public good” service we receive calls for service on a wide variety of non-emergency problems, especially after business hours. These calls include water leaks, flooded homes, electrical problems, other utility issues, unattended carbon monoxide or smoke alarms, water main breaks, sewer line issues, frozen pipes, animal problems, lock outs at houses and automobiles, welfare checks, and helping move displaced people and people with physical disabilities. The City of Oneonta Fire Department must maintain a readiness for this type of emergency at all times as the frequency of high intensity storms has increased.

The Oneonta Fire Department provides non-emergency EMS coverage for special events throughout the year in both the City and Town of Oneonta. We provide EMS coverage for the Pit Run, and other footrace events. Other large public events such as the Fourth of July, Catskill Area Hospice Concert and OH Fest are covered by the City of Oneonta Fire Department utilizing ambulances, our all-terrain vehicle and our Bicycle EMS team. The department has EMTs who deploy with the Police Department’s tactical team. Our Tactical EMTs were involved in twelve 8 hour training sessions and ten emergency deployments in 2017.

Fire and Life Safety: Prevention and Education:

In 2018 the Fire Department staff provided the community with numerous fire and life safety prevention and education classes. Throughout the year OFD staff provided classes, lessons and station tours to schools, daycare centers, and colleges, fraternities and sororities, local businesses and other City Departments. 35 presentations were delivered. Training was provided to the three elementary, and both middle and high Schools, during fire prevention week. Senior class members at the high school receive fire and life safety education to prepare them for living in a college setting or on their own, including a live fire demonstration. School groups, home schoolers and Community groups from throughout the region came to the Oneonta Fire Station for tours and safety education. Several local businesses were provided with fire safety education and hands on fire extinguisher training. , 2156 children and 987 adults received this very important education and training. Yearly the fire department’s Fire Prevention activities reach 10-16 % of the population in the City and Town of Oneonta. In 2018 the Oneonta Fire Department’s Fire and Life Safety staff worked with 27 donors, partnered with the New York State Fire Chief’s Association, the Firemen’s Association of New York our local Board of Cooperative Educational Services(BOCES) and built a live fire burn trailer the can compare sprinklered and un-sprinklered room fires side by side. This trailer will be used locally and across NYS for fire safety demonstrations.

Red Cross Smoke Alarm Campaign:

In 2017 the City of Oneonta Fire Department, in partnership with the American Red Cross Association, offered free smoke alarm installations in the City and Town of Oneonta. This one-day community-wide event helped local families prepare for fires that can occur in the home. The event was an effort to provide fire safety education to hundreds of people. 302 free smoke alarms were installed for families in need. As well as installing alarms, Red Cross volunteers and Oneonta firefighters helped citizens complete fire safety checklists and create fire escape plans.

Campus Fire Fatalities 2000-2015:

A national study was conducted analyzing fatal fires occurring in college residences. There were 85 fatal fires in dormitories, fraternities, sororities, and off-campus housing; which resulted in 118 fatalities. Of these fires, 94% took place in off-campus housing. In 58% of the fires, smoke alarms were missing or had been tampered with. In 85% of the fatal campus fires, sprinklers were not present. 70% of fires occurred on Friday, Saturday, or Sunday; and 75% of fires occurred between midnight and 6am. Males made up 67% of the overall fire fatalities. Another major factor was alcohol use. In 76% of the fires, alcohol was seen to be present. The causes of the fires varied from smoking (29%), intentional actions (16%), electrical (11%), and cooking (9%). 18% of causes were undetermined.⁸

The Oneonta Fire Department and the New York State Office of Fire Prevention and Control responded to this study by offering Hartwick and SUNY Oneonta's Residential Advisors life safety education classes which have included fire extinguisher, Get Out Alive!, and fire safety training. This educational series includes classroom and skills training. The City of Oneonta Codes Department has been instrumental in making off campus housing safer. The City of Oneonta suffered an off campus college student fire fatality in 1993 and has not had one since.

Fire Investigation:

New York State General Municipal Law Section 204-D states "The fire chief of any fire department or company shall, in addition to any other duties assigned to him by law or contract, to the extent reasonably possible determine or cause to be determined the cause of each fire or explosion which the fire department or company has been called to suppress."⁹ This has steered the Oneonta Fire department to develop a robust fire investigation cadre including Oneonta Police Department detectives, are led by the Fire Chief. The investigation team is activated; often during initial fire suppression, activates for all fires in our response area, and has been seconded to mutual aid fire investigations.

Code Enforcement:

The Oneonta Fire Department works closely with the City of Oneonta and Town of Oneonta Codes offices. When the fire department encounters dangerous situations in any of the occupancies it visits on emergency calls, or on district familiarization building walkthroughs it notifies the respective Codes office of its findings. The Chief's office works with The Codes offices providing input for site plan reviews, emergency evacuation plans, and by identifying and labeling dangerous properties.

⁸ <http://highered.gradguard.com/fema-report-campus-fire-fatalities-2000-2015>

⁹ General Municipal (GMU) Section 204-D Duties of the fire chief

Emergency Management (E/M):

The Emergency Management (E/M) team is headed by the Fire Chief and seconded by the Assistant Chief. These executive officers oversee the planning for and mitigation of large scale events and emergencies. The E/M works with City of Oneonta leadership, external and internal stakeholders to ensure that the department and the community are ready to face any large emergency whether natural or man-made.

E/M participates with local agencies and businesses, in tabletop exercises, meetings, construction site plan reviews, and preparation for events - Including;

- NYS Eastern District Emergency Management Team
- Otsego County E/M
- Otsego County 911
- Otsego County Traffic Safety Committee
- Otsego County Fire and EMS Advisory Boards
- Goodyear Lake Dam Emergency Response
- Adirondack - Appalachian Regional Emergency Medical Services Council (AAREMS)
- State University College at Oneonta
- Hartwick College
- Oneonta City School District
- A.O. Fox Hospital and Bassett Medical Center Emergency Management Team.

E/M has continues to work closely with the City and Town Codes Offices on vacant / abandoned & unsafe buildings. E/M has implemented a signage program based on national standards to identify vacant, abandoned and unsafe buildings for first responder safety.

E/M has advocated for and is involved in the review and approval of all new or renovated high and medium hazard occupancies in order to improve fire safety and fire suppression systems. These have included

- SUNY Oneonta –Science 1 completion, Health Center, new building at the Hunt Union, new Welcome Center and other building projects.
- Housing Visions projects – West, Columbia and Spruce Streets & Silver Creek.
- Westgate Plaza , Holiday Inn Express, Catskill Eye Care,

E/M reviewed and updated emergency action and evacuation plans, and provided fire and life safety education for area mobile home parks and ARC residential homes.

E/M planned for and participated in event coverage for community events including; Snommegang, OH-FEST, Tuff-ENuff, 4th of July, Balloon Fest, Hospice concert event, Pit Run, graduation for both Colleges, Lower Deck Dash, Turkey Trot, Frost-Bite 5K and First Night Oneonta.

E/M previously used Code Red to send out messages for emergency notification to the public. The City of Oneonta has now changed over to the “Nixle” system, which offers more user flexibility.

E/M attended training / meetings with - Pipeline Emergency Response and Planning and Constitution Pipeline installation project.

E/M updated the Emergency Action Plans for Goodyear Lake Dam, and the City of Oneonta.

Current Deployment: Resources

Figure 2-1 Response Matrix

Call Type:	Equipment		Personnel	Call back
EMS				
BLS	Ambulance		3	not for single call
ALS	Ambulance		3	not for single call
Inter-facility Transport	Ambulance		2 to 6	back fill
Rescue:				
MVC City	Rescue, Ambulance		5 to 6	location dependent
MVC Town	Rescue, Ambulance		5 to 6	location dependent
MVC West Oneonta	1 to 2 Ambulances		3 to 6	opposite
MVC Interstate 88	Rescue, Ambulance, Traffic Control		5 to 6	opposite
Specialized rescue	Rescue, Ambulance, Rescue trailer, Utility vehicles		6+	call type dependent
Fire:				
Carbon Monoxide Call	Engine		2 to 3	none
Carbon Monoxide Call Symptoms	Engine, Ambulance		5 to 6	location dependent
Odor call	Engine/ Pick up		2 to 3	odor dependent
Fire Alarm: Single detector activation	Engine		3 to 4	occupancy dependent
Fire Alarm: Multi- detector activation	Engine		4	occupancy dependent
Fire Alarm Confirmed Fire:				
City	Engine, Truck, Command		4 and 2+	Initially opposite crew
Town: Non Hydrant	Engine, Engine, Command		4 and 2+	Upon arrival OIC may
Hydrant	Engine, Truck, Command		4 and 2+	call 66 and/or MA
Hazardous Materials	Rescue, Ambulance Command Vehicle		3 and 3+	call type dependent

Community Response History

The City of Oneonta Fire Department operates as an all-hazards response agency, and as such responds to a myriad of emergencies. While our call volume suggests that the bulk of our work is EMS, we maintain a readiness to respond to structure fires, motor vehicle crashes (MVC), technical rescues, weather emergencies, hazardous materials incidents, and/or any other emergencies. We have an emergency response force that equates to 1.35 firefighter/EMTs per 1000 residential population. Using raw data and easy math we perform over **130** calls for service per firefighter per year. If we look at staffing per call i.e., three firefighters per EMS call or 5 firefighters per MVC or more for a structure fire, the number of calls per firefighter jumps dramatically. In 2016 and 2017, the average number of responses per firefighter was **453**.

Table 2-1: Non-EMS/Fire Responses

Year	City	Town	West Oneonta	Mutual Aid	Total Non-EMS
2018	592	249	41	100	982
2017	583	255	33	69	940
2016	546	258	36	126	966
2015	558	231	17	91	897
2014	482	203	32	51	768

Table 2-2: EMS Responses

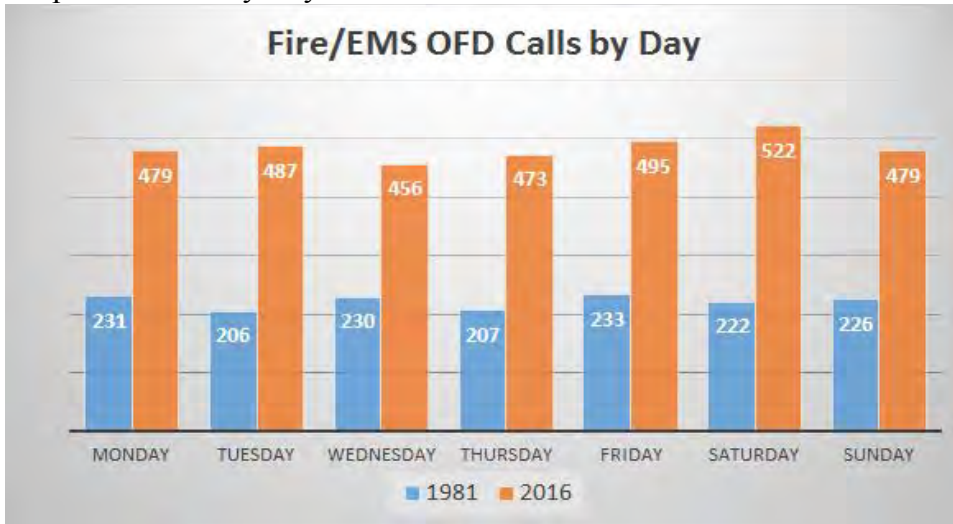
Year	City	Town	West Oneonta	Mutual Aid	Total EMS
2018	1506	682	237	110	2535
2017	1492	708	239	94	2533
2016	1428	676	204	116	2424
2015	1432	643	200	121	2396
2014	1577	663	153	111	2504

Table: 2-3 Total responses

Year	Total Responses
2018	3517
2017	3473
2016	3390
2015	3293
2014	3272

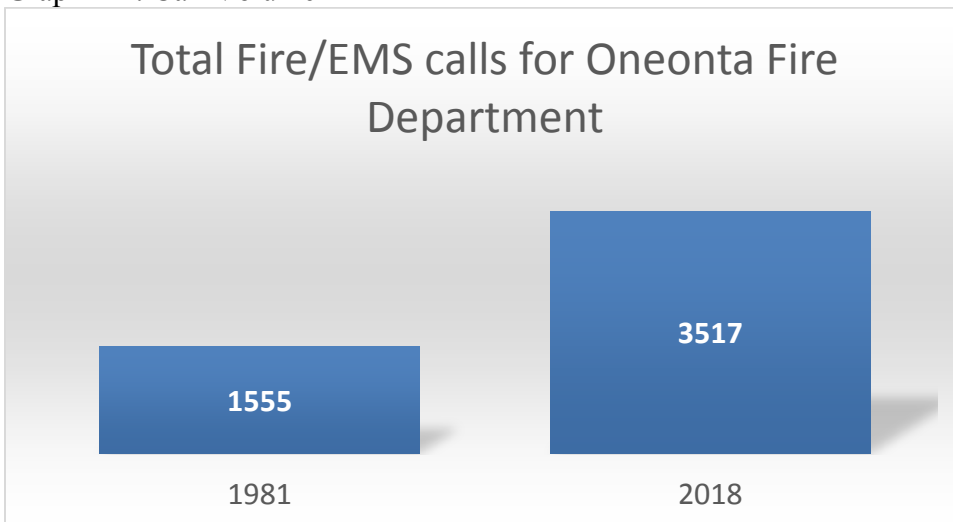
Historic Call Volume Comparison

Graph 2-1: Calls by Day



The Oneonta Fire Department call volume is in line with national trends. The spread of calls has not changed, however the number of calls has doubled. This is consistent with the rising demand for Emergency Medical Services nationwide.

Graph 2-2: Call Volume



In 1984 a manpower study was done by the executive staff of the fire department. Based on call volume at the time, 1573 calls for service in 1983; it was decided to increase the platoon strength from 5 to 6. In 2018 the Oneonta Fire Department had 3517 calls for service.

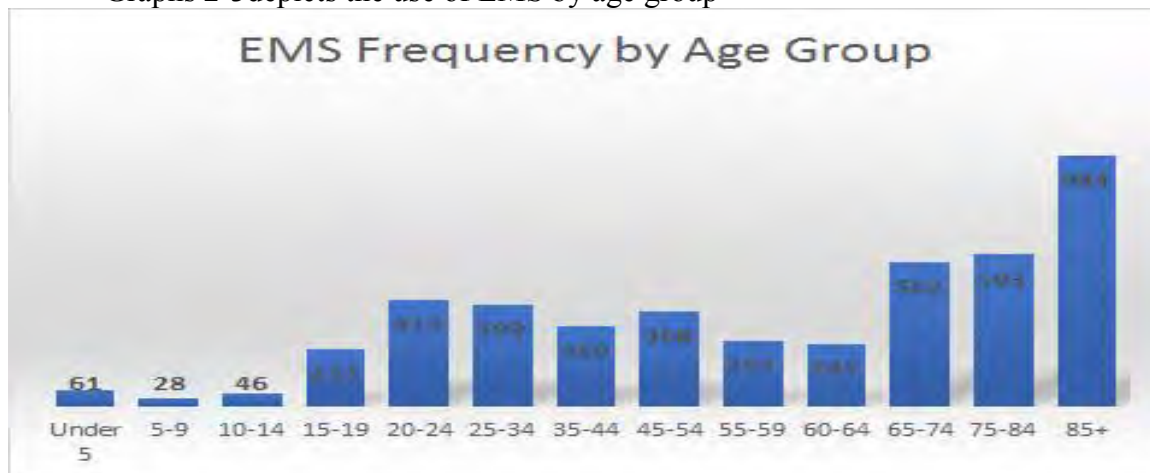
Calls for EMS Service:

People are the drivers of calls for EMS. The Oneonta Fire Department has been providing this service to the residents of and the visitors to the City and Town of Oneonta, including the two colleges, since the 1926. Our call volume has grown dramatically since then. Several known factors and perhaps some unknown have contributed to the increased calls for EMS service over the last two decades.

Recent academic studies indicate that certain demographic groups have a tendency towards the increased use of Emergency Medical Services. The elderly utilize EMS for several reasons, including sudden onset of acute medical problems and the debilitating effects of chronic medical problems. The underprivileged are more likely to use EMS due to self-transportation issues and access to free medical care. . In Oneonta, there were 1,167 calls for service to people covered by Medicare. According to an EMS study, those who use Medicare are far more likely to use an ambulance. In Oneonta, there were 408 calls for service by people covered by Medicaid. A study on who uses an ambulance shows that Medicare patients are far more likely to use an ambulance.¹⁰ According to a Boston, MA study, the rising use of Medicaid leads to increases in call volume. People are less tentative to call 911, knowing they will be covered. Also, because of the cost of healthcare increasing, people choose to wait and go to an emergency room rather than regular doctor's visits to treat the acute effects of preventable or chronic illnesses. Lastly, it has been seen that some people choose to call an ambulance in an effort to skip the emergency department waiting room.¹¹

A 2015 study¹² done in the regional municipality of Waterloo, Ontario, Canada, which hosts three institutes of higher education, suggests that college age people are becoming more likely to call for EMS. The Oneonta Fire Department's dramatic increase in call volume vs the lack of change in overall population can be seen to be affected by the two different age demographic profiles of the City and Town. These two cohorts are also seen by insurance agencies as two "high risk" groups.

Graphs 2-3 depicts the use of EMS by age group

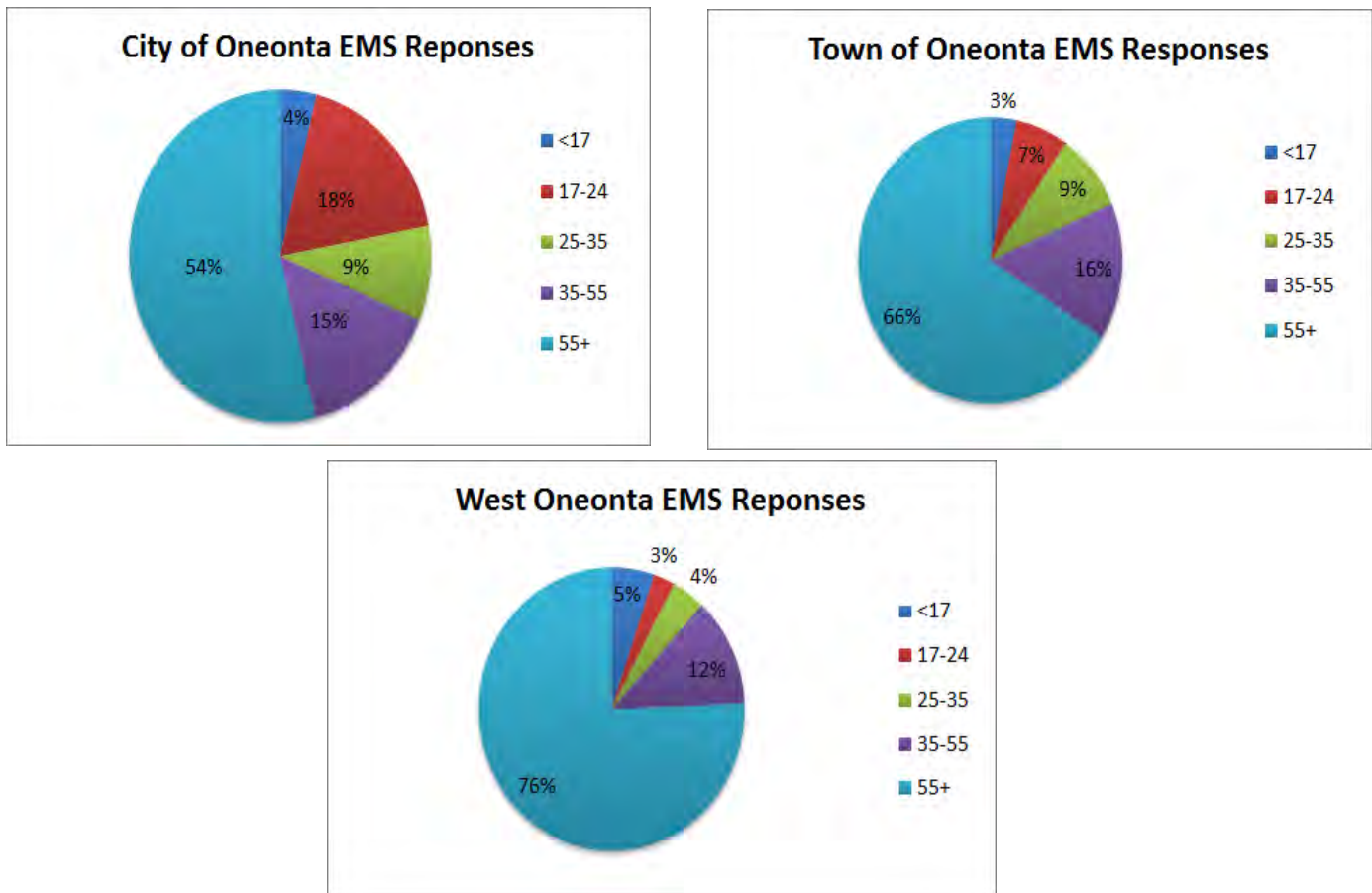


¹⁰ <http://kff.org/medicare/state-indicator/medicare-beneficiaries-by-raceethnicity/?dataView=1¤tTimeframe=0&selectedRows=%7B%22nested%22:%7B%22new-york%22:%7B%7D%7D,%22wrapups%22:%7B%22united-states%22:%7B%7D%7D%7D>

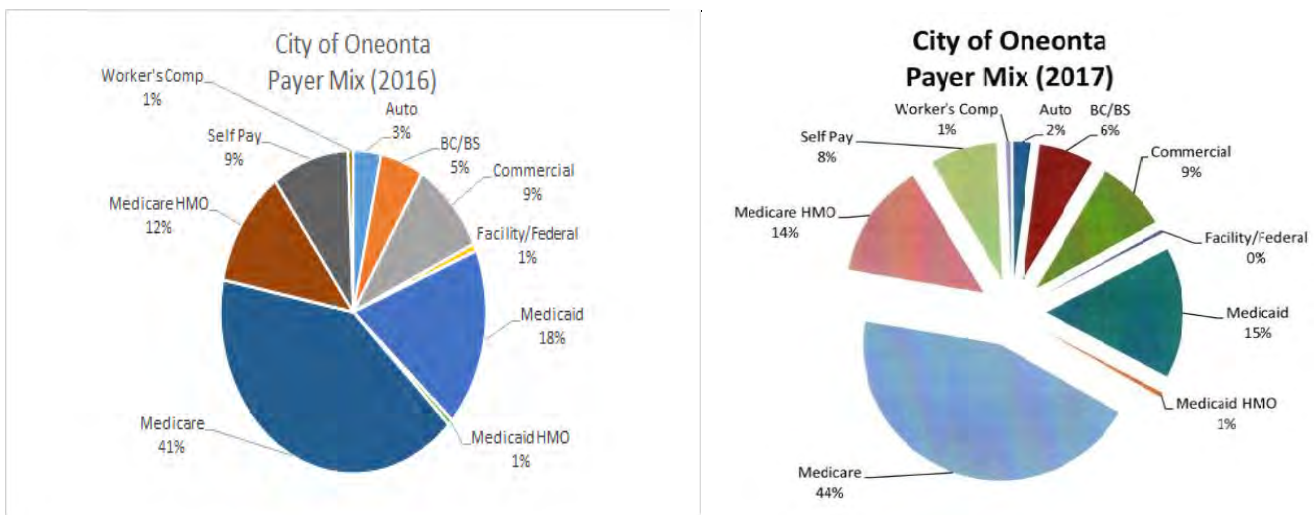
¹¹ <https://www.bostonglobe.com/metro/2015/11/29/surge-medical-calls-and-one-quite-knows-why/H0Ym0Rbach0jEAo4gxOqXO/story.html>

¹² Totzke, Karen J. (2015), "EMS Use by the Young Adult Population in the Region of Waterloo". Theses and Dissertations (Comprehensive). Wilfrid Laurier University. Paper 1734.

Graphs 2-4-6 depicts the use of EMS by age group in the different political areas covered by the Oneonta Fire Department



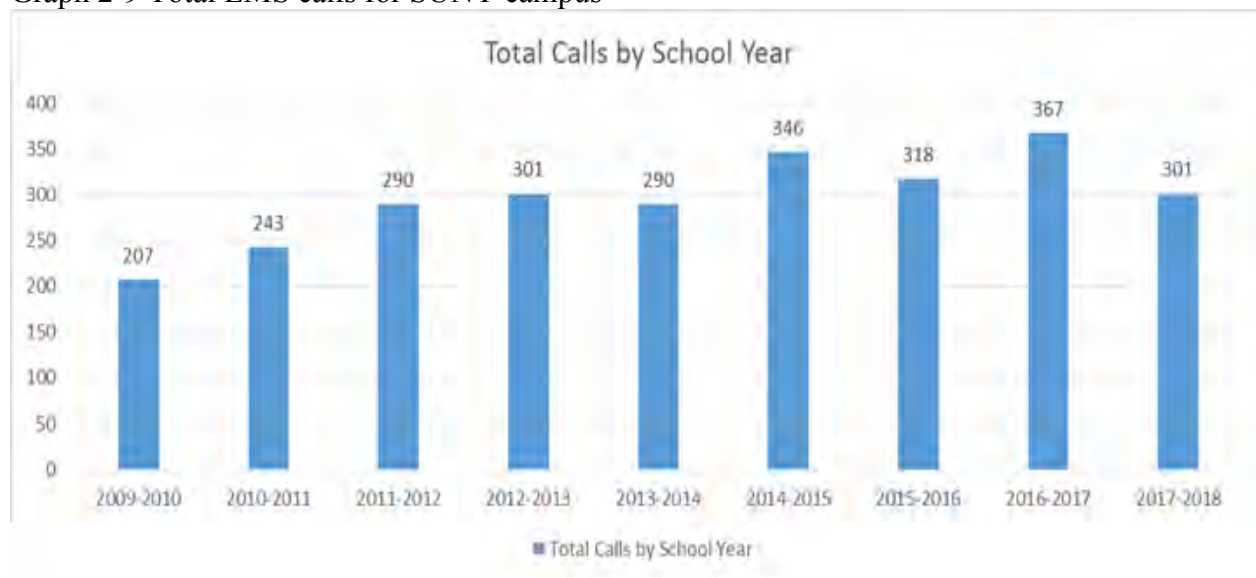
Graph 2-7-8 Payer mix for EMS services provided by the Oneonta Fire Department 2016-17



SUNY Oneonta has a student run EMS first response team, the Oneonta State Emergency Squad (OSES). They are staffed by BLS EMT's and cannot transport patients. The call volume that OSES

experiences while fluctuating over the last 8 years has steadily increased. During the 2016-17 school year OSES responded to 57.3 calls per 1000 population. During the 2016-17 school year 34% calls required the transfer of care to the Oneonta Fire department and transport to a hospital, and in the 2017-18 school year 25.6% required transport.

Graph 2-9 Total EMS calls for SUNY campus



The Waterloo, Ontario Study found an increased tendency for EMS use among young adults. When comparing the university in the study to surrounding community, it was found that university calls were 2.6 times more likely to be alcohol related, 1.2 times more likely to be less urgent, 1.9 times more likely to be picked up at a bar, and 1.4 times more likely to refuse transport. From 2006 to 2011, EMS pickups from the university increased from 19% to 27%. Overall, EMS responded to 20.3- 23.3 calls per 1,000 population in the university and 28.9-32 calls per 1,000 population in the community.¹³

Due to the relatively low number of EMS responses to Hartwick College, 14 in 2016 we did not do the exhaustive data collection for Hartwick College's population.

¹³ Totzke, Karen J. (2015), "EMS Use by the Young Adult Population in the Region of Waterloo". Theses and Dissertations (Comprehensive). Wilfrid Laurier University. Paper 1734.

Community Expectations:

Mission Statement

It is the mission of the Oneonta Fire Department to prevent injury and loss of life or property from accidental or illegal fires; to provide emergency ambulance and general emergency prehospital medical assistance in life threatening situations; to assist citizens threatened with property loss in emergency situations; to mitigate the loss of life and property resulting from hazardous materials incidents or other man-made or natural disasters; and to maintain a reasonable cost of the public protection system for fire and life safety in our community.

Performance Goals

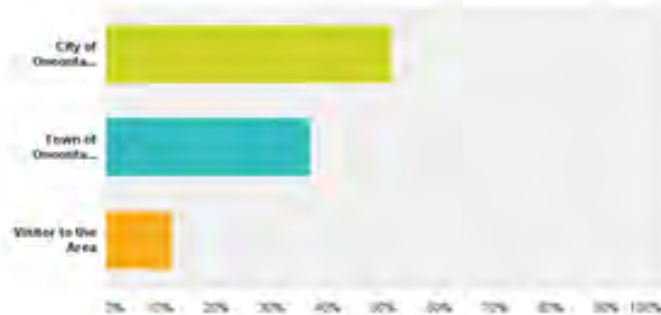
Safety, both of our employees, and our customers is our chief priority. We believe that by operating from within a cultural framework of safety we can provide the best value service in Fire, EMS, Rescue and Hazardous Material Mitigation.

Community Service Expectations:

Community Stakeholder Satisfaction Survey:

Q1: Are you a resident of the City of Oneonta, the Town of Oneonta, or a visitor to the area?

Answered: 185 Skipped: 0

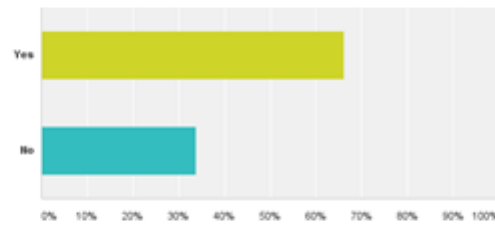


Powered by SurveyMonkey

Answer Choices	Responses
City of Oneonta Resident	51.35% (95)
Town of Oneonta Resident	36.76% (68)
Visitor to the Area	11.89% (22)
Total	185

Q2: Have you ever used any of the services provided by the City of Oneonta Fire Department? (Yes or No) If "No" go to Question # 5. If "Yes", continue on to #2.

Answered: 183 Skipped: 2

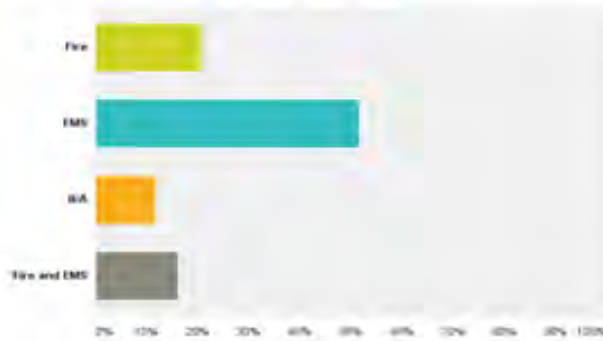


Powered by SurveyMonkey

Answer Choices	Responses	Count
Yes	66.12%	121
No	33.88%	62
Total		183

Q3: Did you call for Fire, EMS or other services?

Answered: 136 Skipped: 49



Powered by SurveyMonkey

Answer Choices	Responses	Count
Fire	20.59%	28
EMS	51.47%	70
N/A	11.76%	16
Fire and EMS	16.18%	22
Total		136

Q4: Rate your satisfaction with the service you were provided.

Answered: 127 Skipped: 58



Rounded to 2% SurveyMonkey

Answer Choices	Responses
Very Satisfied	83.46% 106
Satisfied	12.60% 16
Somewhat Satisfied	3.15% 4
Unsatisfied	0.00% 0
Very Unsatisfied	0.79% 1
Total Respondents: 127	

Section 3 Community Risk Assessment and Risk Levels:

What Is “Risk”?¹⁴

To discuss risk management, we must first define what we mean by “risk.” Unfortunately, the term “risk” has come to be used interchangeably in widely disparate settings. As a result, its meaning can be blurred in the minds of many.

Webster defines “risk” as

- 1: The possibility of loss or injury: Peril
- 2: Someone or something that creates or suggests a hazard
 - A: the chance of loss or the perils to the subject matter of an insurance contract; also : the degree of probability of such loss
 - B: a person or thing that is a specified hazard to an insurer
 - C: an insurance hazard from a specified cause or source <war risk>

Determining factors:

Three interrelated determining factors are intrinsic in all the definitions above:

1. The probability that an undesired event might occur
2. A harmful or undesirable consequence
3. The severity of the harm that might result

Describing risk: The probability of an occurrence can be described in subjective terms such as “rare” and “high,” or in numerical terms such as “one in a million,” “one in three,” and “twenty percent.” In the same way, harmful consequences are often expressed in descriptive terms like “death,” “incapacitation,” “injury,” “disaster,” and “destruction,” or in more concrete terms such as “loss of a \$1.5 million facility” and “the combined costs of medical payments, compensation, pension benefits, and lost productivity” (in the event of a worker’s injury).

Probability and consequence can be combined and expressed mathematically as the product of loss and probability. An insurance company, for example, might describe a facility as a ten million dollar risk with a two percent probability of loss. A financial analyst might calculate a ten million dollar investment that has a two percent probability of loss as a \$200,000 risk.

The probability: The “probability” of risk is two-pronged. It relates not only to the chance that something undesirable might happen, but also to the probable outcome as rated on a scale of negative or positive consequences.

Assessing risk: The integration of “probability” and consequence helps us plan our lives and guides many of the routine personal and professional decisions we make every day.

Relative risk: We judge the consequences of specific unpleasant events on a broad, sometimes subjective scale of relative undesirability.

¹⁴ FA-166 / December 1996

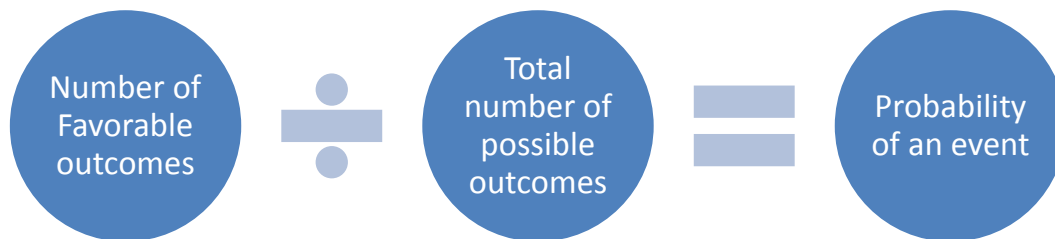
Insurance risk: An insurance company refers to the item, object, or person insured as “the risk.” When we buy fire insurance, we make value judgments about how much we are willing to pay to be compensated for a loss if our property is damaged or destroyed by fire. When an insurance company sells us that policy, it is making a value judgment about two aspects of probability: the probability that a fire will occur and the probable extent of the loss that will result. Insurers work those factors into a prediction that considers the loss history of similar properties, the level of public fire protection and other influences, such as local climate. The rate is ultimately based on the insurer’s loss experience with similar risks and the probability and the potential scope of loss for the insured property, over time.

Probability: To determine a premium, an insurance company evaluates the probability of a loss occurring and the potential size of that loss. When it establishes the rate of premiums for a fire insurance policy, a company takes into account many of the property’s characteristics, including: the type of structure, size, value, contents, activities that take place there, built-in fire protection systems, and available fire department resources.

Operational Risk Management:

Some risks are unavoidable and are accepted as part of the duty of the fire service. Firefighting, technical rescue, and other hazards mitigation responses are inherently dangerous and carry different levels of risk that the general public would find unacceptable if they were put into similar situations. Firefighters undergo rigorous training in all aspects of their duties, and learn the levels of inherent risk associated with those duties when they undergo their initial training as a recruit firefighter. Firefighters also must complete at least 100 hours of annual in-service training in a variety of hazard mitigation topics.

Managing risk and the “probability” of emergent or non-emergent events that the fire department must respond to, require two very different paradigms of operations that are interconnected. We have discussed what risk is, and the following sections will describe how the Oneonta Fire Department manages risk. Probability however, is more difficult to define in relation to all hazards mitigation and possible outcomes. Probability is a measure of how likely an event is. How likely is it that a home will have a fire event, or a business will have a hazardous material spill? How likely is a positive outcome? Probability is usually expressed as an equation:



The problem with using probability as an inherent part of predictive analytics in the fire service to determine probability of events and their outcomes stems from the interpretation of the probability formula. The formula only works when the total numbers of outcomes are identified. In the course of hazard mitigation there are so many variables, small and large, known and unknown, that predicting outcomes becomes a guessing game, that can only be informed by the use experiential learning and application of accepted and best practices.

Oneonta Community Risk Assessment methodology:

The VISION system is a tool that allows a municipality to analyze and categorize risks present in their community, and generate an Occupancy Vulnerability Assessment Profile (OVAP) score for all occupancies within their response area. The Occupancy Hazards page allows for the input of data for calculating an Occupancy OVAP score. The Occupancy Vulnerability Assessment Profile (OVAP) score is a way to analyze and categorize the risk present in a particular occupancy. Based on an earlier program RHAVE (risk, hazard, and value evaluation) VISION gives different weights to 20 variables for each structure in the fire district.

General

- **Number of Employees:** Total number of people employed by the business.
- **Avg. Exposure Separation (ft):** The distance, in feet, to the nearest building.
- **Number of Floors:** Number of stories present in Occupancy.
- **Square Footage:** Number of total square feet (ft²) for Occupancy.
- **Property Value:** Indicate that which best represents the value of this property to the community. The number of employees and sales revenue should be considered when trying to differentiate between a business' losses, moderate economic or severe economic impact. Also consider those businesses with few employees and small storefronts that generate a large amount of sales tax revenue. Information can be obtained from Community Development and Economic Development representatives for your jurisdiction.

Life Safety

- **Occupancy Load:** Indicate the occupant load of the building. For buildings that have more than one occupancy type, indicate the occupant load of the occupancy that has the highest occupant load.
- **Occupancy Access:** Indicate the appropriate number of sides that there is fire department access. This is relative to the ability to advance interior attack lines, and not the placement of apparatus. However, the ability to place an apparatus close enough to support the attack line must be considered. Most fire codes reference the ability to place fire apparatus within a certain distance of exterior walls.
- **Occupant Mobility:** Indicate the mobility characteristics of the occupants relative to building height or relative to the freedom to exit the building. For buildings not normally occupied, indicate that occupant mobility is not a factor. Buildings primarily used for the storage of equipment and only occupied at times when the equipment needs servicing would be rated as Not a Factor.
- **Warning Alarm System:** Indicate the appropriate installed warning alarm. For buildings with more than one occupancy type, indicate no alarm system unless all occupancies are protected by a warning alarm.
- **Exits:** Indicate if the existing system is conforming or nonconforming to applicable exit requirements.
- **Construction Type:** Identify the type of construction. Reference the applicable building code for a description on the different types of construction.

Risks

- **Regulatory Oversight:** Degree of enforcement activity upon the premise.
- **Human Activity:** Human activity relative to the ability to access the premise.
- **Experience:** Experience refers to the frequency of incidents at this particular Occupancy. More frequent incidents equates to more familiarity with the Occupancy and slightly less risk, while less frequent incidents equate to less familiarity with the Occupancy and slightly increase risk. Reference local/regional fire statistics on an annual basis to determine shifts in frequencies for the type of occupancy.
- **Capacity to Control:** The degree of difficulty that can be expected during a fire fighting activities in this building.
- **Hazard Index:** The appropriate type of hazards present.
- **Fire Load:** The appropriate fire load characteristics of the Occupancy.

Fire Protection

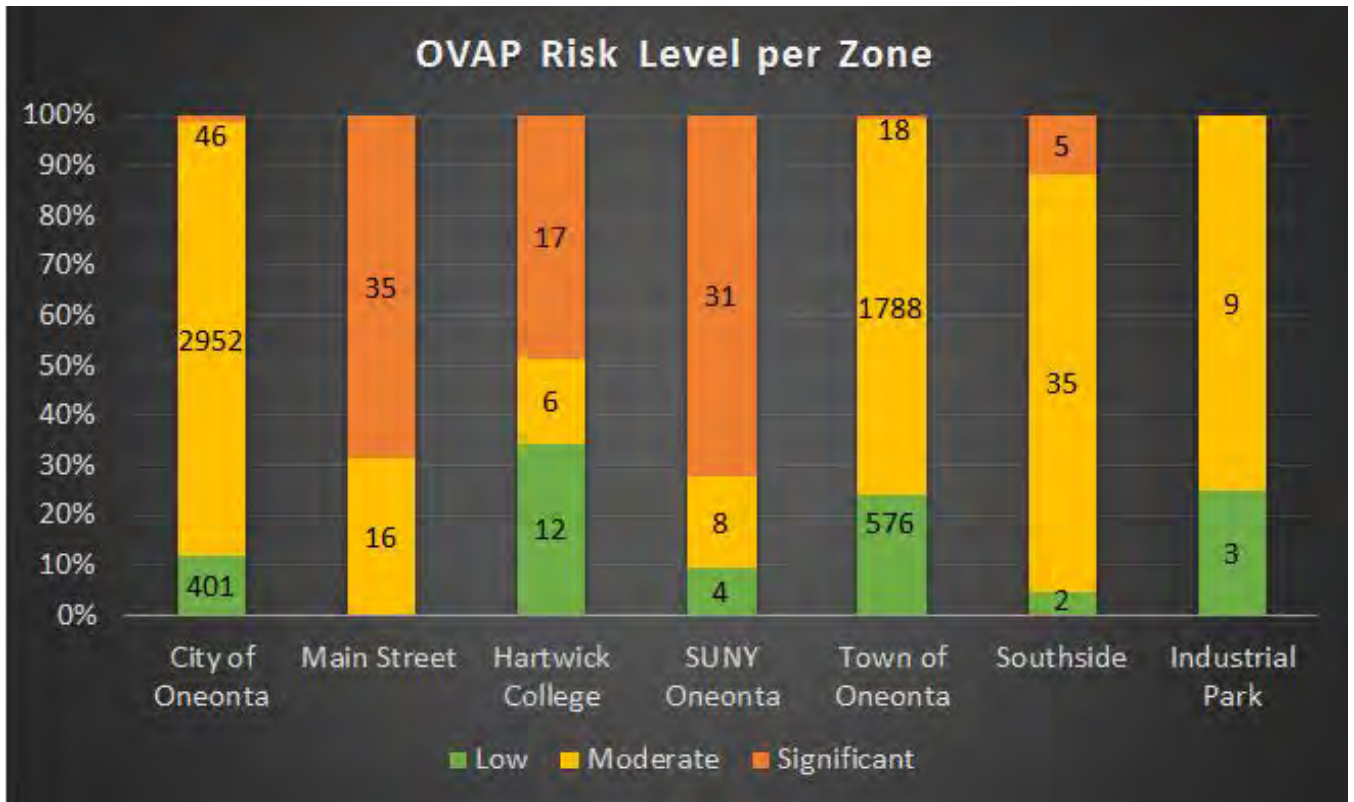
- **Needed Fire Flow:** Indicates the needed fire flow for a fire involving 100% of the building.
- **Available Water Flow:** Indicate the available fire flow from the municipal water system for 100% fire involvement for the first floor only, in gallons per minute (GPM). The end calculation is the total amount of water that can be delivered to the building. Take into account various factors, such as multiple available hydrants and/or the water delivery method, such as tanker shuttle versus tender shuttle.
- **Fire Sprinklers:** Indicate whether the sprinklers present meet NFPA requirements for design and maintenance.

Planning Areas/Zones

During the course of completing the first Community Risk Assessment it became evident that in order for internal and external stakeholders to more fully understand the distribution of OVAP scores, and how it would affect the operation of the OFD at a fire emergency scene, it would become necessary to split the City of Oneonta and the Town of Oneonta into geographical risk areas or zones. As seen in Graph 11-1 OVAP Zones were created along geographical areas that have, over time been separated into de-facto economic zones as well.

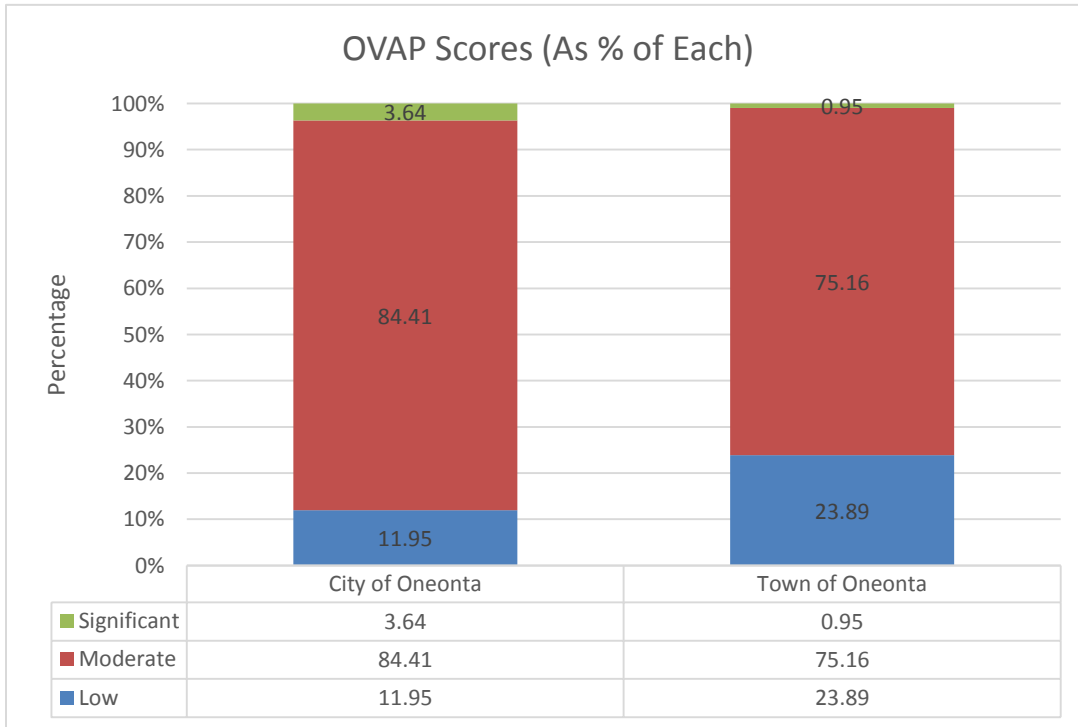
The City of Oneonta was divided into three risk zones. The Main Street corridor was considered a separate area due to high density four- to five-story common construction buildings that had multiple uses, commercial and residential, as well as access issues for fire apparatus. The two colleges were separate from the rest of the City as they contain high density housing and because classroom buildings, some of which contain hazards and hazardous materials that are intrinsic to the educational mission, have different and identifiable hazards. There are also fire apparatus access issues for buildings at both colleges. The Town of Oneonta has a sprawling retail corridor that is situated along State Highway 28, which draws thousands of shoppers and workers daily, a light industry industrial park that has hazards inherent to each type of manufacturing there, and suburban and rural residential areas.

Graph 3-1: OVAP by Zone



Risk Level	OVAP Score	# of Occupancies	Percent	Zone: SUNY Oneonta				
Significant	59.99-40.00	46	0.77%	Significant	59.99-40.00	31	0.52%	
Moderate	39.99-15.00	2952	49.50%	Moderate	39.99-15.00	8	0.13%	
Low	14.99-00.01	401	6.72%	Low	14.99-00.01	4	0.07%	
Zone: City of Oneonta				Zone: Town of Oneonta				
Significant	59.99-40.00	35	0.59%	Significant	59.99-40.00	18	0.30%	
Moderate	39.99-15.00	16	0.27%	Moderate	39.99-15.00	1788	29.98%	
Zone: Main Street Historical District				Low	14.99-00.01	576	9.66%	
Significant	59.99-40.00	17	0.29%	Zone: Southside Commercial District				
Moderate	39.99-15.00	6	0.10%	Significant	59.99-40.00	5	0.08%	
Low	14.99-00.01	12	0.20%	Moderate	39.99-15.00	35	0.59%	
Zone: Hartwick College				Low	14.99-00.01	2	0.03%	
Significant	59.99-40.00	35	0.59%	Zone: Industrial Park				
Moderate	39.99-15.00	16	0.27%	Moderate	39.99-15.00	9	0.15%	
Zone: SUNY Oneonta				Low	14.99-00.01	3	0.05%	
Significant	59.99-40.00	31	0.52%	Number of Occupancies				
Moderate	39.99-15.00	8	0.13%				5964	100%
Low	14.99-00.01	4	0.07%					

Graph 3-2: OVAP comparison City/Town



Graph 3-3: OVAP Score Ranges

		OVAP Ranges			
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	LOW	1001	16.4	16.8	16.8
	MODERATE	4796	78.8	80.6	97.5
	SIGNIFICANT	151	2.5	2.5	100.0
	Total	5948	97.7	100.0	
Missing	System	138	2.3		
Total		6086	100.0		

Oneonta Community Risk Assessment: Risk Vs Experience

Using the VISION program the City of Oneonta Fire Department has determined that there are:

- 152 significant risk properties
 - 3.66% in the City
 - .94% in the Town
- 4814 moderate risk properties
 - 84.52% in the City
 - 75.53% in the Town
- 998 low risk properties
 - 11.68% in the City
 - 24.01% in the Town

Below are examples of property types in their risk groups, and the frequency of fire events according to research done by NFPA.

Examples of **significant risk properties** are:

- Main Street corridor (Annually)
- Hospitals/ Homes for the Aged (Rare)
- Industrial sites (Rare)
- Churches (Rare)
- Schools/ Colleges (Weekly)
- Hotels (Annually)
- Strip Malls (Annually)

Examples of **moderate risk properties** are:

- Single Family Homes/ Residential (Weekly)
- Apartments (Monthly)
- Offices (Annually)
- Warehouses (Annually)
- Restaurants (Annually)

Examples of **low risk properties** are:

- Vacant Lands (Rare)
- Parks (Rare)

The VISION OVAP system analyses and categorizes risk based on a preprogrammed matrix. That matrix is built upon the interpretation of data collected on the 20 variables aggregated into the OVAP framework. The “risk” of fire is then calculated based on how the variables are weighted and national historical frequency of fire events in the different types of occupancies. Scores generated are based on the national average of events.

However for the external stakeholder or the layperson, interpretation is necessary. Stakeholders must trust the interpretation of the local risks given by local Emergency Services Managers. The program cannot address the question of local frequency of events or quantify impact of fire prevention activities, code enforcement, changes in fire codes, changes in occupancy and their effect on frequency of fire events.

How the Oneonta Fire Department Manages Risk:

A fire department's mission is risk management including managing risk for others. Its goal is to minimize the impact of those risks. The community is always at risk from an endless number of potential hazards or sources that could cause harm. The mission of the fire department is to reduce the probability of harm to the community that could result from different harmful situations and circumstances. The fire department must manage its internal (organizational) risk while it performs its mission of managing external (community) risk.

A fire department's matrix of risk management for any emergency is based on three concepts: **Life Safety** (firefighters and civilians), **Incident Stabilization**, and **Property Conservation**. In every mission statement of every fire department you will find these three elements. These three principals have been our doctrine in firefighting and all other hazard mitigation assignments.

Some risks are unavoidable and are accepted as part of the duty of an emergency response organization. When one's mission is to save the property and lives of people in danger, one must expect to encounter danger. Emergency responders are willing to accept risks the general public finds personally unacceptable. Training, theoretical as well as skills based, prepares an emergency responder to recognize and respect dangerous situations and to work safely in a dangerous environment. It provides a considerable amount of counterbalance to the risk inherent in the work itself. Advances in technology and its application in firefighting equipment make it possible to survive in hostile environments and safely perform required fire ground, technical rescue or hazardous waste mitigation actions.

City of Oneonta fire fighters undergo initial training in Fire and EMS. From basic foundational training in firefighting equipment and tactics, emergency medicine, technical rescue, hazardous materials incident mitigation to incident command, fire prevention and life safety education, each Oneonta firefighter is trained in all aspects of all hazards response. We do this so that they can function independently or as part of a larger group towards the mitigation of hazards and emergencies large and small.

These two training foundations when combined with the on the job experiential learning allow firefighters, fire officers and fire chiefs to make informed decisions, assess risk and develop mitigation strategies at evolving emergencies. Emergency managers and incident command officers make decisions at emergency scenes based on years of cumulative training and more importantly, applying real world experiential learning to new scenarios. These decisions are often made through the lens of the theoretical foundation of initial and ongoing education, a career of "learning through reflection on doing"¹⁵ by using the small amount of information that is available as an emergency unfolds and evolves.

Different activities that are performed by the Oneonta Fire Department involve exposure to different kinds of risks. The primary mission of a fire department is to reduce the probability that the community will be damaged or destroyed by fire and the probability that deaths or injuries will result from fires. Reducing the probability of fire occurrence is addressed through building code enforcement, fire prevention and public education activities, which are relatively low risk activities.

¹⁵ Felicia, Patrick (2011). [*Handbook of Research on Improving Learning and Motivation*](#). p. 1003. ISBN 1609604962.

High risk activities like fire suppression and technical rescue are conducted to limit the damage and other negative consequences; such as the uncontrolled growth of an emergency or increased risk to life, which results when a fire or rescue need does occur. These activities involve significantly higher risk to the service providers.

Emergency medical services reduce the risk of death or disability when citizens are injured or have acute medical emergencies. Hazardous materials response teams address the risk that is created by harmful substances that have escaped from their normal containment. Confined space and technical rescue teams conduct high risk tasks that require the highest level of risk management when responding to incidents that other people or organizations are not prepared to manage.

A significantly higher level of risk management is involved in directing emergency operations and in regulating the overall exposure of responders and citizens to the risks of an incident. Emergency incident risk management expands the standard approach to directing and conducting emergency operations by incorporating risk evaluation and the assessment of optional approaches to the problems at hand. Doing this serves as the basis for determining what levels of risk are acceptable in different situations and guides incident commanders as they make strategic decisions. To deliver emergency services with an appropriate concern for the health and safety of the personnel who provide those services, and to those citizens who are or might be affected, an incident manager or incident commander must balance the approaches he or she takes.

Career firefighters in New York State undergo an initial training, usually at the New York State Academy of Fire Science that follows NYCRR PART 426 *Minimum Standards for Firefighting Personnel* (which closely follows standards set by the National Fire Protection Association). This entails over 500 hours of cognitive learning and psychomotor skills in all theoretical and operational topics associated with firefighting. During the course of a firefighter's career they must maintain 100 hours of in-service training per year on a variety of topics based on their initial training. In 2016 Oneonta firefighters received an average of 141 hours each of on and off duty training.

All firefighters employed by the City of Oneonta Fire Department are also trained as Emergency Medical Technicians (EMT). While there were optional levels of training in the past ranging from 190 hours for Basic Life Support (BLS) to 1,200 hours for Paramedics, all employees hired after January 1 2012 have to be certified as Advanced Life Support. NYS Department of Health is phasing out one level of ALS and moving towards a National Standard of two levels of technician EMT-Basic and Paramedic. This will increase the hours of initial training and when combined with the requirement for all members to be ALS will ultimately increase our effectiveness in supplying the needs of the community. Each level of EMT is also required to do 24 hours of Continuing Medical Education yearly. We also recertify in First Responder CPR every two years.

Fire Suppression Services

Experience, the frequency with which we do a task, or have an incident at a particular type of occupancy informs the risk that we incur. Due to the overwhelming preponderance of single family residential structures, and the human activity inside them that causes fires, we can look at risk in two ways. Residential structure fires are the most common type of fires for two reasons. Human action or inaction is the most common cause of fires. The most common structure across the country is a single- or two-family home. Therefore the most common type of fire is a contents or structure fire in this type of occupancy. However, the decrease in frequency of fires due to prevention, and advanced detection and suppression has increased the risks involved in firefighting as there has been a net loss of experiential learning.

The frequency of this type of event balances out risk, which is where we get the most practice, and the most experience. As Oneonta Fire Department provides EMS services in the community we are familiar with a great number of occupancies in the City and Town and therefore have a built in pre-plan ability. This, along with training in building construction and fire behavior in legacy(old dimensional lumber held together with nails) and new construction(light weight new growth lumber and truss construction), reduces the risk of firefighter and civilian injury and death, and fire spread to adjacent structures because we are able to respond faster, with the general knowledge of the building construction and in some cases layout of the building.

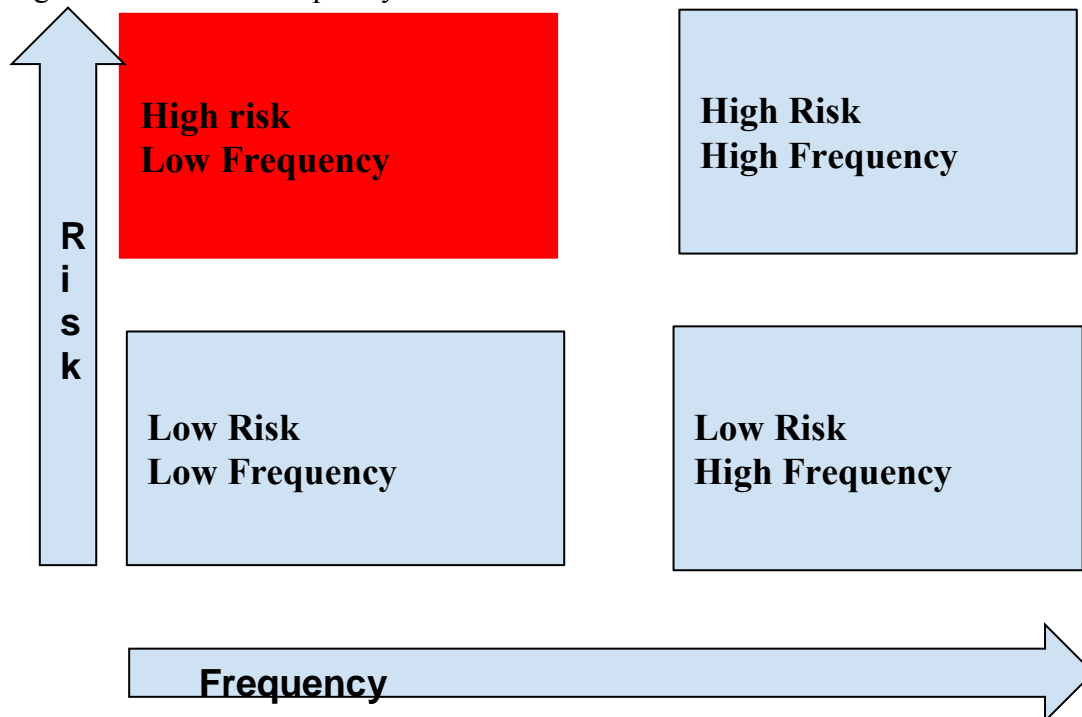
Emergency Medical Services

The Oneonta Fire Department experiences a call volume that has exceeded 3000 calls per year since 2010. 70-73% of those calls are for Emergency Medical Services. As these calls make up the bulk of our work, we see them as High Frequency/Low Risk. We are usually minutes from a hospital based Emergency Department at A.O. Fox which can at least stabilize most medical or trauma issues. We can also, within 30 minutes, be at a Class III trauma center, as well as advanced orthopedic, neurological and cardiac care. We have a pre-designated landing zone for air medical services 2 minutes from Fox E.D. All of these assets increase the chance of a positive outcome for the patient.

Hazardous Materials Services and Technical Rescue

The opposite of experience is ignorance or unfamiliarity. While the Oneonta Fire Department has familiarity with hazardous materials responses and technical rescue through yearly training, due to the infrequency of these events we have limited experience. The High Frequency/Low Risk occurrences carry more risk due to that lack of experience. This is why we train yearly and have a more cautious approach to these incidents. This also adds to risk in the OVAP scoring matrix.

Figure 3-1: Risk vs Frequency



Factors Contributing to Deployment of Fire Department Apparatus: ¹⁶

There are many factors that contribute to developing staffing and deployment matrices or models for Fire and EMS departments. Staffing is one component and the type of apparatus the staff is deployed on and from where are the other two components that create how fire and EMS services are delivered. Linked to these components of staffing and deployment are critical factors that drive the various levels of staff and apparatus deployment.

These factors are:

- Fire Risk and Vulnerability of the Community
- EMS Demand
- Non-Fire Risk and Vulnerability
- Total Call Demand
- Workload of Units
- Travel Times from Fire Station
- NFPA Standards, ISO, PESH, OSHA requirements (and other national benchmarking)
- Critical Tasking on Emergency and Non-Emergency calls
- Innovations in staffing and deployable apparatus
- Community Expectations
- Community's Ability to Fund
- Historical Trends
- Future Growth

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.**

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 fire fighting forces.

Low-Hazard Occupancies: One-, two-, or three-family dwellings and scattered small business and industrial occupancies.¹⁷

¹⁶ Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY Center for Public Safety Management
– December 2015

¹⁷ Cote, Grant, Hall & Solomon, eds., *Fire Protection Handbook* (Quincy, MA: National Fire Protection Association, 2008), 12.

The deployment of fire and EMS personnel and apparatus is a dynamic process. At the direction of the on-duty captain, and through the use of the Oneonta Fire Department's Standard Operating Guidelines and Procedures, 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 using a matrix that has been developed and based upon historic applications and best practices. The on-duty Captain or crew leader (if the Captain is off) is responsible for making personnel assignments to the various apparatus and will change this deployment on the basis of the needs of the service request. Full time staffing at the Oneonta Fire Department has remained static for the last 30 years. The call and Part-time department staffing has at the time of this writing disappeared and thus we have lost our ability to apply this type of staff as the force multiplier that it has been in the past.

As discussed previously in the Fire Department Organizational statement, the Oneonta Fire Department has 26 full time staff with four Captains and twenty firefighters working through four shifts. This allows for 6 staff members to be on duty at any time. The Chief and Assistant Chief work a 40 hour work week, Monday through Friday 08:00-16:00, and respond to all large emergencies while on duty or during their off hours.

The Oneonta Fire Department operates out of one fire station that is located at 79 Main Street. This gives the department access to main thorough fares that reach all population concentrations as well as the South Side Commercial District, Interstate 88, New York State Routes 7, 23, 28 and 205. The response time analysis in Section 6 excerpted from the 2015 CPSM Operational and Administrative Analysis discusses station location and its effect on travel time. Utilizing a concentric ring overlay on the map of our response area CPSM discusses nationally benchmarked response time standards and compares OFD to those.

The department must maintain a fleet of apparatus that is appropriate to the types of risk that are present in the City and Town. Different types and magnitudes of emergencies require different staffing and apparatus deployment. The Oneonta Fire Department maintains a fleet of the following apparatus:

- 1 Command Vehicle
- 1 Brush Truck/utility vehicle
- 1 All-Terrain Vehicle
- 1 Light Rescue
- 1 Heavy Rescue with fire pump
- 2 Fire Suppression Apparatus (engines)
- 1 Aerial Apparatus with a fire pump (truck)
- 3 Ambulances
- 2 Inflatable boats with motors
- 1 Rescue Trailer
- 4 EMS Bikes

The department's apparatus fleet has changed over time from horse drawn apparatus to motor driven apparatus. Changes in technology, community size, population, demographics, building construction, and local economy have influenced fire service personnel and equipment needs, and how the department responds to different types of emergencies. The number of pieces of apparatus has increased as risk and type of risks in the community and understanding of those risks has changed.

The Oneonta Fire Department tries to meet NFPA standards on the deployment of fire apparatus and personnel at structure fires and all other emergencies, when possible. Obviously the higher the risk potential and the larger the area or number of people affected, the more personnel and apparatus needs to be used. Larger occupancies or larger scale emergencies (multiple casualty incidents) require more apparatus and more personnel be deployed and operated to control the emergency. Once on the scene and the emergency is sized up, the officer in charge has the power to call for more assistance to the scene from internal as well as external sources(Mutual Aid).

Section 4 Fire Department Capabilities

Fire Suppression Services Program

The OFD response for “Fire Suppression Services” attempts to follow the NFPA 1710 as well as total department staffing and mutual aid responses allow. NFPA 1710 recommends an initial response of 15 firefighters to a confirmed single family residential structure fire as a methodology to ensure that all fire ground tasks are accomplished in a safe and coordinated manner. This is called an effective response force.

The OFD uses “call back”¹⁸ and Mutual Aid to provide surge staffing in times of need and extraordinary need, and or specialized equipment not owned by the City of Oneonta. When the station staff is depleted due to single or multiple calls, additional crews are called in for station coverage, or to provide additional staffing for the current call. A confirmed structure fire will generate a department-wide call back, where all staff will be called in for assignment to the incident, and depending on location and occupancy type mutual aid may be requested. As our response district includes urban, suburban, and rural population densities, and hydrant and non-hydrant, residential, commercial and industrial areas our calls for mutual aid will include equipment specific to the needs of the area or occupancy and the type of emergency.

Apparatus initial response to a confirmed structure fire as seen in the response matrix is a one engine, one truck and command vehicle for the hydrant response areas and two engines, and command response in those areas without hydrants. Staffing for those apparatus is 3 firefighters and a Captain on the first apparatus, and two firefighters on the second. In most cases both the Chief and Assistant Chief will respond to perform Incident Command, safety and/or back up functions as needed.

Effective Response Force¹⁹

The National Fire Protection Association (NFPA) conducted a series of empirical studies with the help of community stakeholders, business interests such as insurance companies and construction experts, the National Institute of Standards, Technology and Underwriter Laboratories and the Fire Service to develop a national *Standard of Cover* for various types of structures. This standard is used to maximize effectiveness of firefighting operations and citizen safety on the fire scene. NFPA 1710 states that for a moderate risk property (single family residential households) there must be a minimum of **15** firefighters dispatched in the initial alarm. For an open air strip mall, shopping center or apartment fire, there must be a minimum of **28** firefighters dispatched in the initial alarm. Lastly, for fires in high-rise buildings at least 7 stories tall, there must be a minimum of **43** firefighters dispatched in the initial alarm. Additional firefighters should be sent to situations that are beyond the capabilities of the crew established at the initial alarm.²⁰

¹⁸ Response Matrix, Oneonta Fire Department

¹⁹ 10/5/2016 City and Town of Oneonta Community Risk Assessment

²⁰ NFPA 1710

Fire department operational performance is a function of three considerations: resource availability/reliability, department capability and overall operational effectiveness.

- 1) **Resource Availability/Reliability** is the degree to which the resources are ready and available to respond.
- 2) **Department Capability** is the ability of the resources deployed to manage an incident.
- 3) **Operational Effectiveness** is 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

Resource Availability

The probability of any given unit's availability (or unavailability) is one indicator of the fire department's response reliability. Response reliability is defined as the probability that the required number of competently prepared staff and properly equipped apparatus will be available when a fire or emergency call is received. As the number of emergency calls per day increases, the probability that a needed piece of apparatus or staff will be busy when a call is received also increases. Consequently, if the right amount of redundancy is not built into the system so that timely and adequate response to emergency calls can be maintained, the department's response reliability decreases.²²

This brings up the question of efficiency vs. effectiveness. Efficiency is functioning in the best possible manner with the least input and maximum output. Effectiveness is the degree of success in reaching the desired result irrespective of input. To make a system the most efficient leaves the system fragile, weak and unable to adapt to changes or increases, both acute and chronic, in workload. Effective systems rely on availability, capability, and dependability. This is a system of resilience which can better withstand temporary or permanent increases in response workload because they are overbuilt and redundant.

Fire Departments operate on a response model, not a production model²³. Metrics meant for production models are often applied to fire department activities which results in the incorrect conclusions that any time not doing hazard mitigation duties is "excess capacity". In the production model excess capacity means a lack of efficiency and results in cutting input in the system to match the needed output. The problem for the response vs production model is in how we quantify efficiency. Input is an easy measurement; it is our annual budget, what the costs are for salaries, benefits, equipment, and facilities. Our output is more difficult to measure.

A "public good" service is defined as an item whose consumption is not decided by the individual consumer but by the society as a whole, and which is financed by taxation. A public good (or service) may be consumed without reducing the amount available for others, and cannot

²¹ National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011

²² Fire Service Deployment, Assessing Community Vulnerability, National Fire Protection Association, from <http://www.nfpa.org/assets/files/pdf/urbanfirevulnerability.pdf>.

²³ Saylor, Eric January 2016. Fire Departments are Response Models, Not Production Models. *elitecommandtraining.com*

be withheld from those who do not pay for it.²⁴ The City of Oneonta has a finite “supply” of “public good” service. This is determined by staffing, number of apparatus, and scope of work. Since it is a “public good” service the individual requesting service shares this with all others. When an individual receives a service we assume they get a fraction of the service available. This is an incorrect assumption. As this is a “public good” service you cannot consume a fraction but the user consumes the whole. This is why there is no such thing as “excess capacity”.

How do we measure output? Do we count the number of lives saved at fires or on EMS calls, property saved or hazards mitigated? Do we measure catastrophes averted due to input in the planning process of new construction, fire prevention and life safety activities? All of these “non-firefighting” activities add an inestimable value to the service provided by the fire department. While we cannot staff for the worst possible scenario we can staff for “risk”. We can use risk assessment, historical data and local knowledge to estimate future trends and what the “probable” may look like.

Developing a staffing matrix based on “risk” must be accomplished under a property tax exemption rate of 53%. While there is no data available on all cities a study was done in 2012 that indicated that “A pattern of property disappearing from tax rolls has developed across many of the nation’s urban cores as cities grapple with dwindling tax bases. In 16 of the 20 most populous cities with available data, tax-exempt properties today account for a higher share of the total assessed value than they did five years ago, according to a *Governing* analysis of assessment rolls”²⁵. It should be noted that the total percent of tax exempt properties in the cities studied ranged from 7.1% to 42.9%²⁶. It also should be noted that these are among the larger cities in the United States, some of which can offset that deficit by other means such as wage taxes, sales and bed taxes.

Department Capability

One of the critical aspects in evaluating capacity is the frequency with which calls overlap i.e., multiple responses or emergencies occurring simultaneously. On a frequent basis there are situations in which an emergency call occurs and on-duty OFD units are already on calls. In these cases off-duty personnel are called in at the outset of overlapping calls. This can result in a delay in response and is not an infrequent occurrence. Table 13-1 is an analysis of overlapped calls. This analysis indicates that in 2015 there were 932 occasions OFD had two or more calls in progress at the same time.²⁷ In, 2016 there were 895, in 2017 there were 981 and in 2018 there were 892 overlapped calls.

When the department is dispatched to more than one call at a time or to a large emergency, off duty firefighters are activated systematically to fill the station to respond to the next emergency. We start with the “opposite crew” (the firefighters who are on their second day off). If this is not sufficient to manage the call volume, depending on the time of day, we call the

²⁴ <http://www.businessdictionary.com/definition/public-good.html>

²⁵ Maciag, Mike | November 2012 Tax-Exempt Properties Rise as Cities Cope with Shrinking Tax Bases
Governing The State and Localities

²⁶ Property Tax Exemption Data for U.S. Cities, *Governing The State and Localities*

²⁷ Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY CPSM 12/2015

previous or next day’s crew. For large emergencies like structure fires, Multiple Casualty Incidents (MCIs) or long duration emergencies we try to meet NFPA Effective Response Force 1710 standards by activating a departmental recall, for everyone who is available.

When we recall firefighters from their time off there can be a delay in response from the Oneonta Fire Department as we wait for staff to respond to the station. In order to keep that response time reasonable the Oneonta Fire Department has a residency requirement for staff. They must reside within a 5 mile radius from the firehouse.

This call back system has been in place for decades; however, as call volume increases, we may find it difficult in the future to fulfill the response needs of the community with the staffing that we currently have.

Table 4-1: Overlapped Call Analysis

	TOTAL CALLS	OVERLAPPING	% OF OVERLAPPING CALLS
2015	3294	93	28.30%
2016	3388	89	26.40%
2017	3473	98	28.30%
2018	3517	89	25.36%

The City of Oneonta Fire Department participates in the Otsego County’s Mutual Aid system for both Fire and EMS. In 2018 the OFD responded to 24 mutual aid structure fires, 124 mutual aid EMS calls, and were activated then cancelled 87 times. The OFD received mutual aid at 18 structure fires (times of extraordinary need) over the course of 2018, and requested and received EMS mutual aid 37 times, mostly for stand by coverage while all three ambulances were on emergency calls. Three of the thirty eight times EMS mutual aid were called for resulted in a patient being transported by the mutual aid company.

The City of Oneonta maintains an automatic mutual aid plan for two high risk areas in its response district. This plan activates departments from Otsego and Delaware Counties for surge staffing and specific equipment to respond to confirmed fire emergencies in the City on the Main Street corridor or the Southside Mall located in the Town. These preplans can be implemented by Otsego County dispatch on request of the first arriving responder. They can also be activated for other occupancies in the district which would require a similar response matrix.

Operational Effectiveness

Several influences contribute to the Oneonta Fire Department's effectiveness in controlling fire spread during contents or structure fires. Response time, training, district familiarity, working closely with the City and Town Codes offices, enhanced access to buildings, availability of a firefighting water sources and emergency management all contribute to increasing the operational effectiveness of our limited staff. Fire officers and firefighters are very familiar with the fire district. Having grown up in the City or Town, or through district familiarity training and fire education, or through the course of their fire, rescue and EMS duties, all firefighters are acquainted with factors in the fire district that can help or hinder operational effectiveness on the fire ground. Elements, such as building construction, occupancy type, location, access to water, exposures and access to utilities, are known amongst the members of the fire department.

The Oneonta Fire Department works closely with the City and Town of Oneonta Codes Departments on site plan reviews for new construction projects, and large renovation projects to ensure that State Building and Fire codes are met and sometimes to ask that they be exceeded for EMS access and efficient fire suppression and firefighter safety. We make sure Oneonta Fire Department crews do walkthroughs of the building during the different phases of construction to acquaint them with building layout and location of fire suppression systems. We also ask property owners to install Knox lock boxes. Knox lock boxes are steel boxes that are mounted to a building that only the fire department can access. Knox lock boxes can be installed on any type of building, where building or businesses owners install keys to the occupancy to allow for quicker fire department access during emergencies and non-emergencies.

The City of Oneonta has a robust water distribution system with fire hydrants distributed evenly throughout the city and parts of the Town of Oneonta. The Oneonta Fire Department has mapped the location of static water sources (ponds, rivers streams and creeks), and installed dry hydrants (pre-plumbed access to static water sources) in several key locations. Further development in the Town of Oneonta will require the additional dry hydrants or the expansion of the hydrant system. The town of Oneonta has undertaken an ambitious project that is expected to be completed in 2019 and will bring a hydrant system to the commercial corridor along State Highway 28. We work with both the City and the Town Codes Offices to ensure that new construction and renovations include resilient fire suppression systems by asking developers to exceed NYS codes where applicable.

Fire prevention is a large part of our mission. The Oneonta Fire Department does fire and life safety training and fire extinguisher training for small to large businesses, school age children, and college students through the special use permit program²⁸, ARC and Springbrook homes, and Residential Advisors of both colleges. The Emergency Management Office, the Chief and Assistant Chief, enhance safety throughout the community by working with the local

²⁸ Students residing in fraternity and sorority houses have higher residential occupancies and their permitted public assembly aspects are known to be of higher risk.

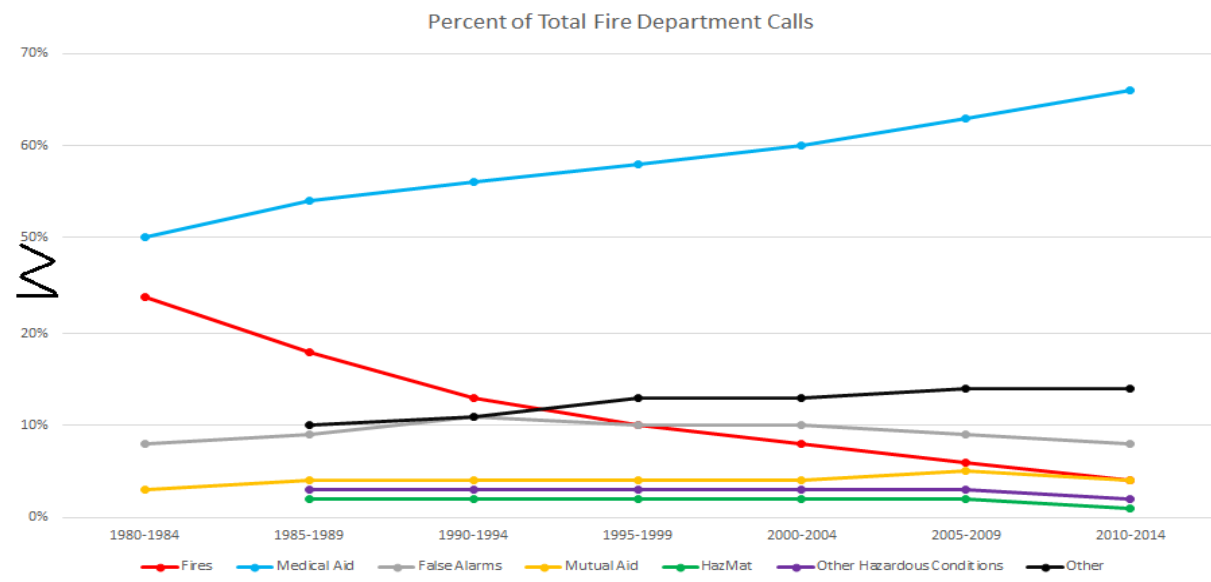
colleges, A.O. Fox Hospital, the City School system and others with tabletop and practical exercises in a variety of emergency scenarios. We, along with the Oneonta Police Department, coach these area employers and service industries in the utilization the National Incident Management System (NIMS) during these training sessions so that in the case of an actual emergency we can seamlessly integrate these stakeholders into the safe management, mitigation, recovery, and conclusion of the event.

The Oneonta Fire Department participates in the Otsego County Mutual Aid system for large emergencies. Average response times by mutual aid fire companies to a structure fire in Oneonta, based on 2016 statistics, is 22.9 minutes. The number of personnel and apparatus received during a Mutual Aid emergency is affected by variables such as time of day, and day of the week, and local weather. The Oneonta Fire Department is still committed to aggressive interior fire attack when appropriate to protect life and prevent the worsening of the emergency.

Assessing Operational Effectiveness: Quantitative or Qualitative?

Responses to Fire and Non-fire emergencies (EMS calls are our more frequent calls for service) are often compared to each other quantitatively. We look at the number of EMS calls vs the number of fire calls when trying to determine staffing in an all hazards response agency. As seen in the following table, the nature of fire department responses has changed dramatically since 1980. National demand has risen from 10.8 million to 33.6 million calls for service annually. Structure fire responses have dropped over 50% while EMS responses have increased over 26%. If we look at these figures quantitatively we would think it best if fire departments became EMS departments with a fire response capability that only matched numerically, the probability of a fire in their given community. That would be a correct assumption. However if we look at these numbers qualitatively as they are not equal events we would see a different story.

Graph 4-1: Percent by Type of Total Fire Department Calls National



According to an NFPA survey²⁹(see Graph 13-1), the total number of calls to fire departments nationally in 1980 were 10,819,000. That number went up by about 2,000,000 every five years. In 2014, the total number of calls was 31,644,500. Between 1980 and 1984, there was an average of 10,792,900 total fire department calls. Fire calls made up 24% of total calls with 50% for medical aid. Between 2010 and 2014, there was an average of 30,689,200 total calls per year. This is a drastic 35% increase in total call volume in a 34 year span. However, between 2010 and 2014, only 4% of the calls were fire related. Overall, there was a 50.7% decrease in total fire calls between 1980 and 2014. This is mainly due to preventative measures put in place such as building codes and fire safety instruction, states the NFPA. Also, during the span between 2010-2014, medical aid calls made up about 66% of total calls. Therefore, there was a 26.3% increase in medical aid calls. This could be attributed to the rising demands for Emergency Medical Services and fire departments taking over a lot of this service.

There were some other notable changes to the fire call statistics over this time span. In the five year period between 1980 and 1984, 347,300 (about 3%) of the total calls were mutual aid. In 2010-2014, the total number of mutual aid calls grew to 1,302,500 (about 4%). This comes out to a 26.7% increase in mutual aid calls. This jump in numbers is largely associated with the decrease in staffing among fire departments across the nation. Small volunteer fire departments become reliant on others around them in order to effectively respond to and protect their jurisdictions.

Furthermore, between 1980 and 1984, there was an average of 897,900 false alarm calls which made up 8% of the total calls for that time span. Between 2010 and 2014, there was an average of 2,327,800 false alarm calls. While this still makes up about 8% of the total calls, there was a 38.6% increase in the amount of false alarm calls. This effect is seen because of the introduction of fire codes with which buildings must comply. There are more false alarms solely due to the fact that there are more alarms being put into occupancies.

Lastly, there were significant changes over this time span in all other call types, including Haz-Mat. The data for these types of calls was not collected until 1986; therefore the five year span used to analyze the changes over time began with 1985 to 1989. During this five year span, there was an average of 1,845,250 calls labelled as Haz-Mat/Other, making up about 15% of the total call volume nationally. This number grew to 5,416,000 in 2010-2014. While this type of call makes up 1% less of the total call volume, there was a 34.1% increase in the total amount of Haz-Mat/Other calls since 1986.

²⁹ <http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/the-fire-service/fire-department-calls/fire-department-calls>

Quantifying the Negative:

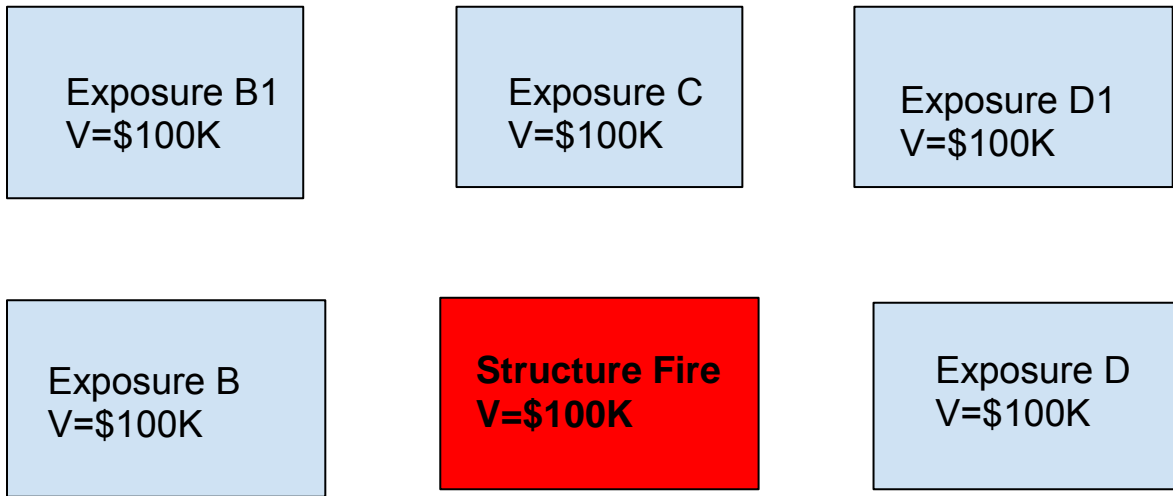
An EMS call usually affects one person at a time, the patient. The Oneonta Fire Department sends at least three firefighters and an ambulance to intercede medically. Were there no intervention from EMS or emergency physicians during the medical emergency the negative impact would still only affect the person having the medical emergency and their family. The positive impact to the patient is immediate treatment and transfer of care to higher trained medical personnel for their current medical emergency. The positive impact to the community would be the value of the extension of the patient's life and the monetary gain to the system for billing for this service.

In the case of structure fires there are is a wider spread of positive and negative impacts. Those could be saving entrapped lives, saving businesses that occupy the building as well as saving surrounding buildings. Fire does not act as an isolated event. A fire continues to grow until it consumes all of the available oxygen, or all of the available fuel. If left alone, a fire can grow into a conflagration. History has shown that if a fire were to go unchecked, or the responding department were unable to stabilize the incident, the negative impact of the initial fire would go beyond affecting the individual or business but could affect a larger portion of the community. This requires many more firefighters to bring it under control. Having an effective response force has been a “best practice” for over a century and empirically proven “best practices” more recently. NFPA, NIST and UL have worked together to scientifically study firefighting techniques and staffing to observe outcomes of different variables. These reports have backed up recommendations by NFPA on the effective response forces needed for different levels of fire events. These recommendations ensure best practices to achieve **life safety, incident stabilization, and property conservation**.

One of the things that goes unaccounted for in fire reporting is the value of the lives saved and the value of the surrounding buildings. We only report a dollar loss value as a measure of success. This is problematic because we are using a measure of “what happened.” We “quantify a negative³⁰.” What if we look at the value of what was saved, say in the event of a house fire? If the structure fire building is wholly or partially consumed by fire we normally would report its loss as a quantified negative. In a dollar amount we would record the assessed value of the property plus an amount for the contents multiplied by the percentage of loss as the “fire loss”. What we can look at instead is the value of the saved properties called the exposure properties. This would offset the dollar loss by a factor of 5. Instead of a dollar loss of \$100,000.00 we would have a save value of one-half million dollars.

³⁰ Saylors, Eric. (December 2015) Quantifying a Negative: How Homeland Security Adds Value. *The Journal of the NPS Center for Homeland Defense and Security*

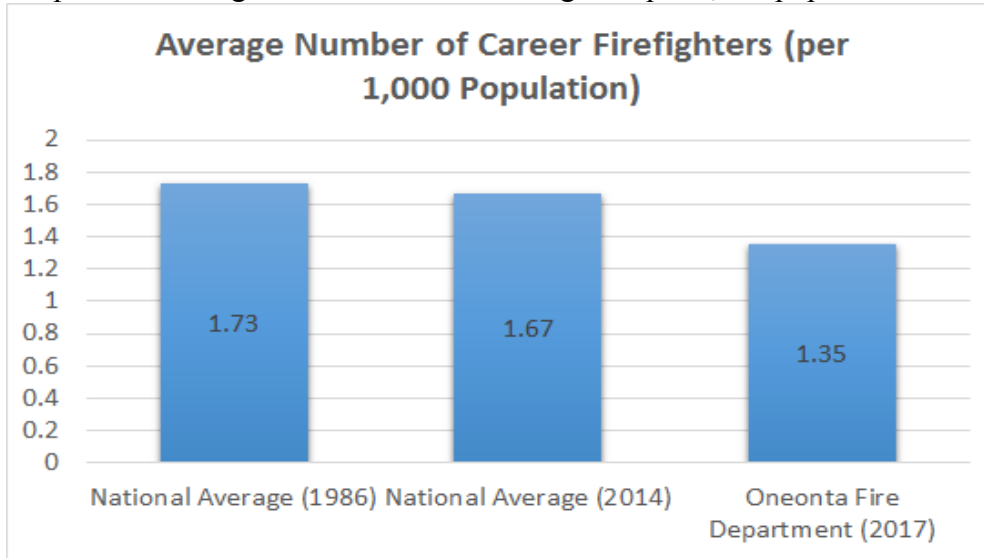
Figure 4-1: Exposure Loss



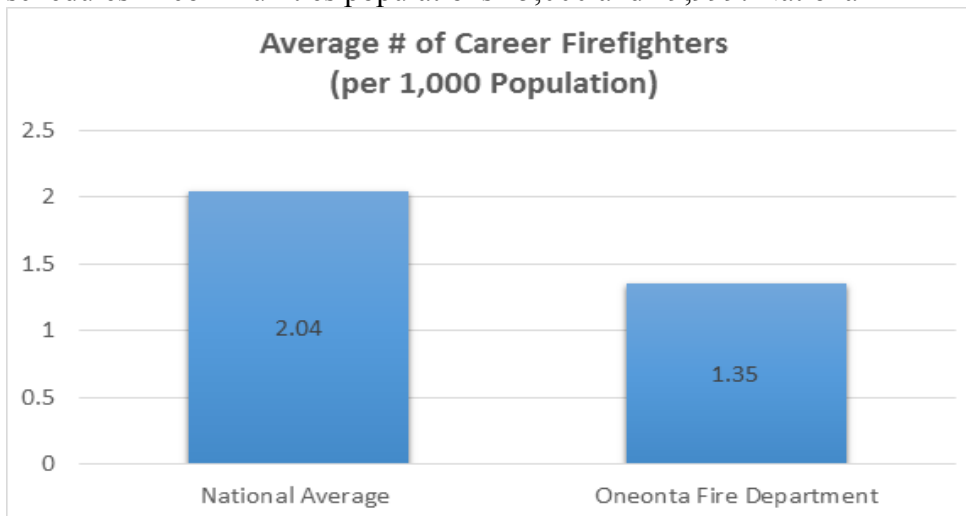
Comparing Oneonta Fire Department to National and Regional Statistics³¹:

According to an NFPA Fire Analysis, fire departments protecting communities of 10,000 people or more had median rates of 1.01 to 1.32 career firefighters per 1,000 people. However, they state that “Departments face great variation in their specific circumstances and policies, including length of workweek, unusual hazards, geographical dispersion of the community, and scope of services provided (e.g. whether the department handles emergency medical calls).” This can explain why the city of Oneonta is above the national average (in terms of community size).

Graph 4-2: Average number of career firefighters per 1,000 population: National

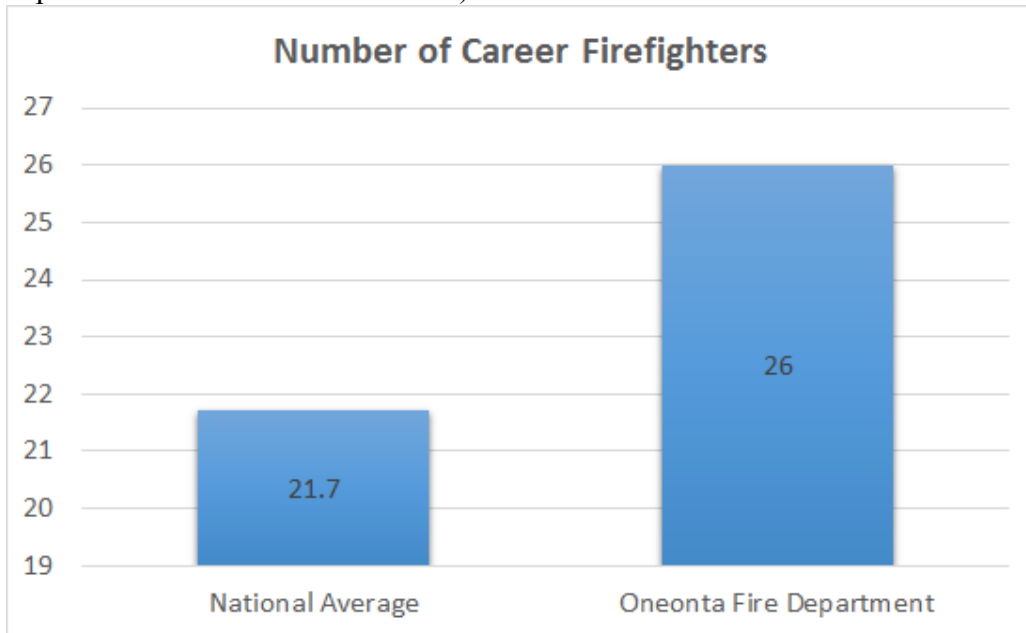


Graph 4-3: Average number of career firefighters in career departments on a 24/72 work schedules in communities populations 25,000 and 49,999: National

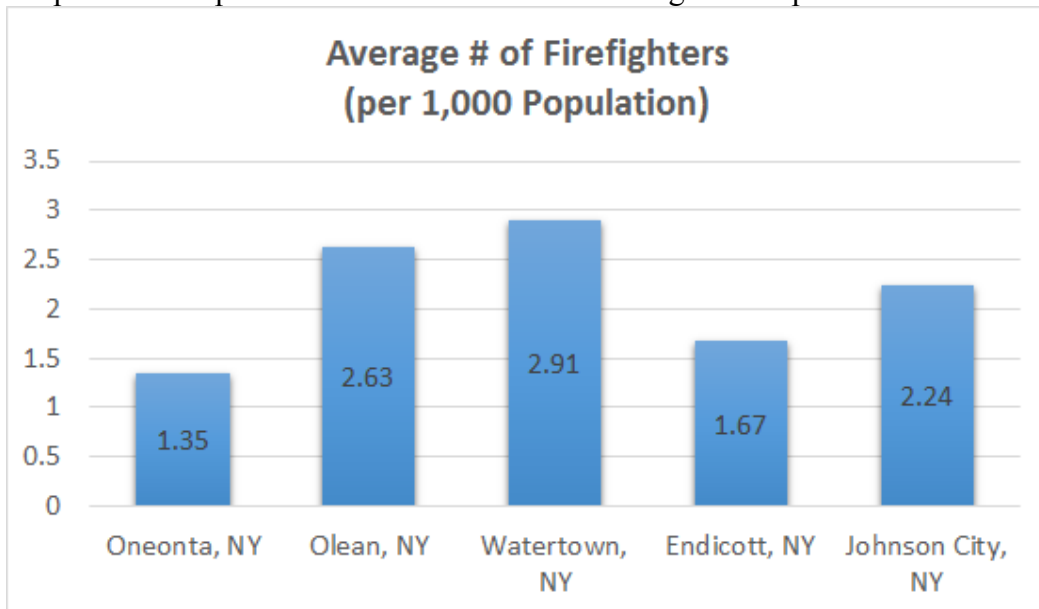


³¹ U.S. Fire Department Profile- 2015, 4/17 NFPA Research, Quincy, MA

Graph 4-4: Average firefighters covering populations of 10,000 and 24,999 (excluding departments that do EMS: National)

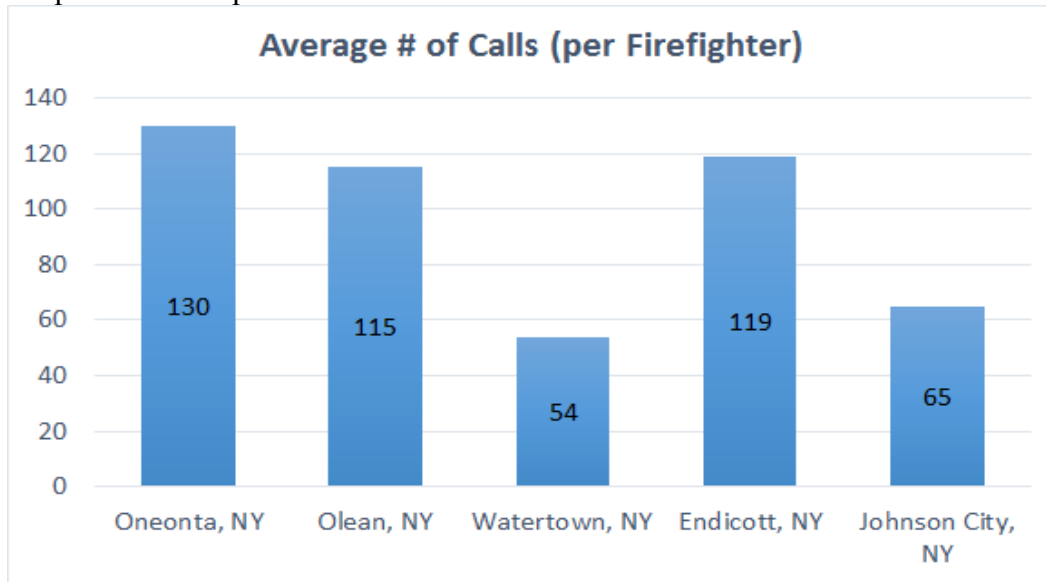


Graph 4-5: Comparative Statistics Number of Firefighters Departments in NY



The Olean Fire department is the only other department that does EMS transports and has a similar call volume.

Graph 13-6: Comparative Statistics Call Volume



Please note that these graphs reflect call volume for the 2015. The difference in call volume between 2015 and 2018 is 224 calls or an increase of 6.36%

The Oneonta Fire Department is staffed below average when comparing number of firefighters/population to cities in upstate New York with similar call volumes and populations. In order to meet the average number of firefighters per 1,000 population of all comparison cities, the Oneonta Fire Department would need to **staff 44 firefighters**. In order to meet the average calls per firefighter of the above cities, the Oneonta Fire Department would have to **staff 35 firefighters**.

Fulltime staffing has remained static since 1985 when on duty crew strength was increased from five to six. This was based on the 1984 a manpower study that was done by the executive staff of the fire department. At that time the OFD also had a paid on call staff number between 30 and 40 members. These firefighters were used as surge staffing for large scale incidents or times of extraordinary need such as structure fires, weather related calls, or multi-car crashes and train derailments. The paid on call firefighters would handle support positions on scene, be tasked with direct involvement in the emergency incident mitigation or provide coverage for the response area for other emergencies. The Oneonta Fire department, because of training requirements, and other external and internal forces, no longer has paid on call staffing.

Section 5 Performance Objectives – Baselines

An operational analysis was done of the Oneonta Fire Department by the Center for Public Safety Management in 2015 which provided us with a valuable external look at our operations. Included in their report, and excerpted here are some of their findings with regards to our response times. For the purposes of self-study and this Standard of Cover I will include their findings and recommendations as the baseline for our performance objectives. While CPSM reports that “There have been no documented studies that have made a direct correlation between response times and outcomes in fire and EMS events” anecdotal evidence, and recent studies by NIST, UL and the American Red Cross do indicate that the speed at which firefighters can apply initial hose streams to a fire impacts survivability of people trapped in the building that is on fire, and the quickness with which EMS can arrive on the scene of a cardiac arrest and start CPR and other medical interventions effects survival rates of those in cardiac arrest.

Response Time Analysis³²

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.³³ 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 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.

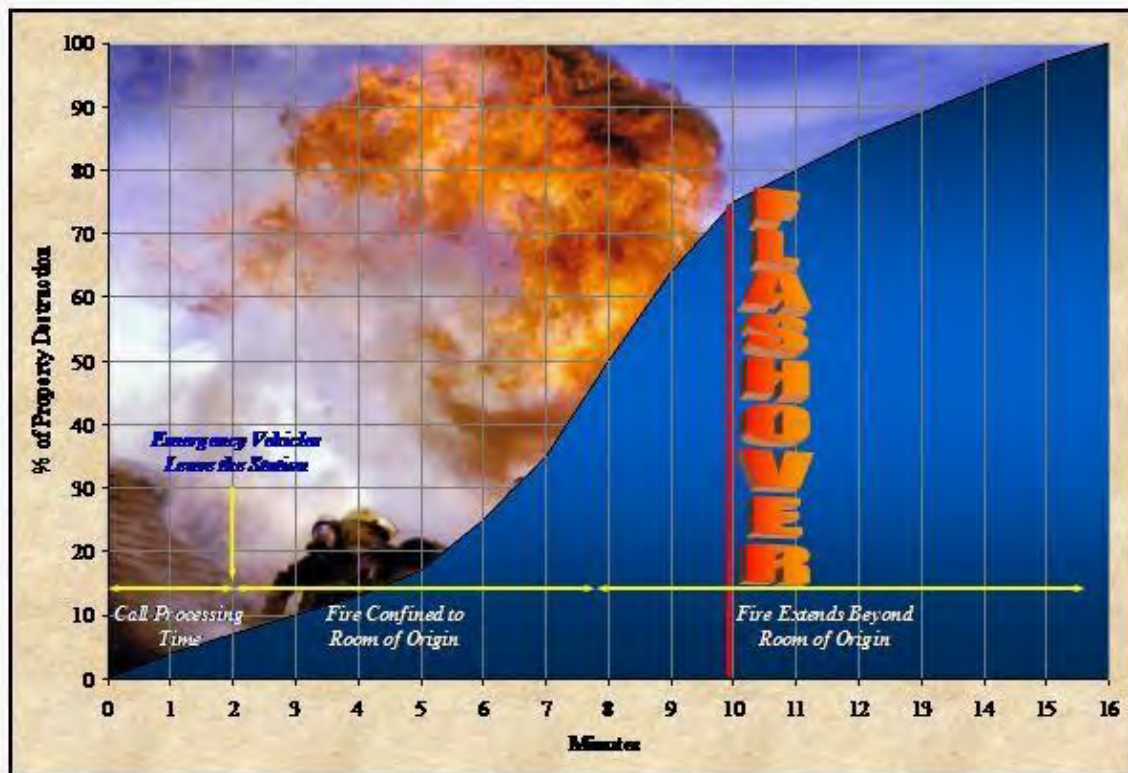
Another important factor in the whole response time question is what we term “detection time.” This is the time it takes to detect a fire or a medical situation and notify 9-1-1 to initiate the response. In many instances, particularly at night or when automatic detection

³² Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY CPSM 12/2015

³³ 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*.

systems (fire sprinklers and smoke detectors) are unavailable or inoperable, the detection process can be extended.

FIGURE 5-1: 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.***

As noted, the OFD deploys all apparatus from a single station. Figure 14-2 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 5-2: OFD Station Location and Travel Times

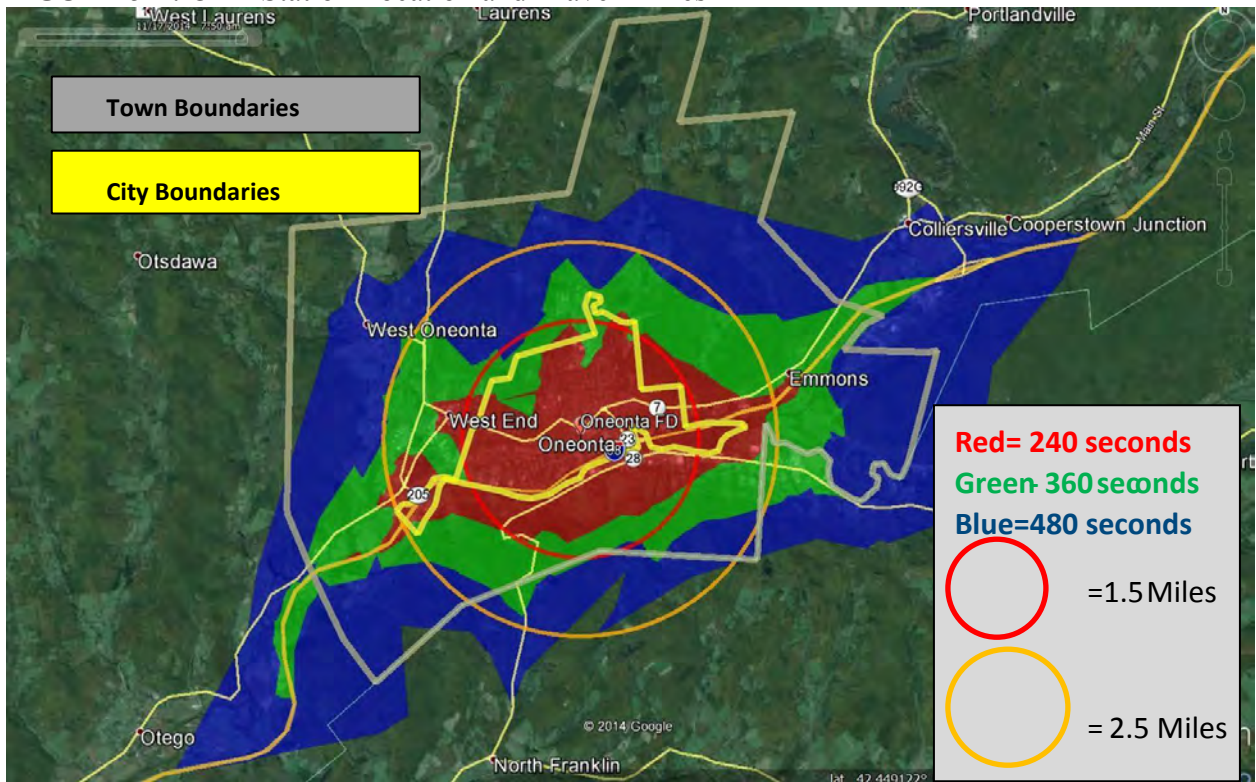


Figure 14-2 shows that the city is nearly 100 percent covered under the 240-second benchmark, and is 100 percent covered under the 360- and 480-second benchmarks. Further, the greatest percentage of the city is within the 1.5 mile radius for engine companies and is within 100 percent of the 2.5 mile 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 14-3 and 14-4 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 5-3: Fire Runs Concentration Plots

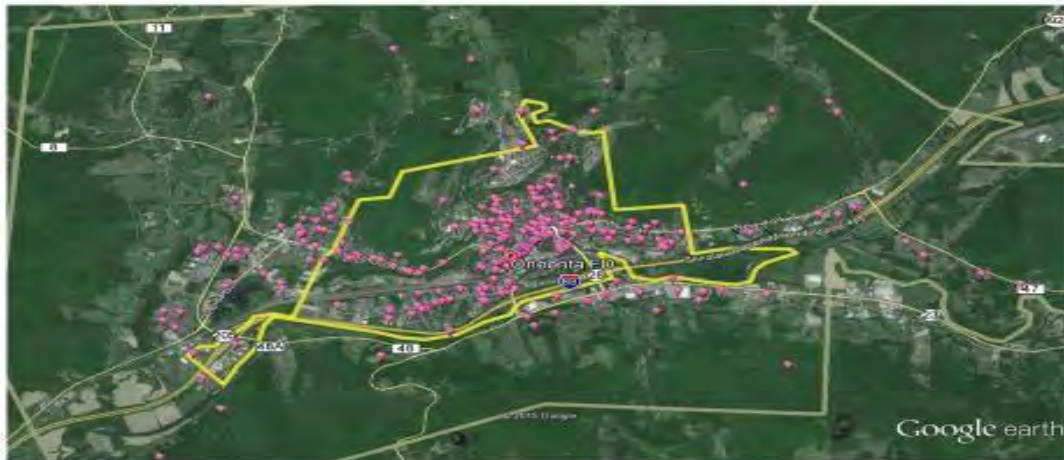
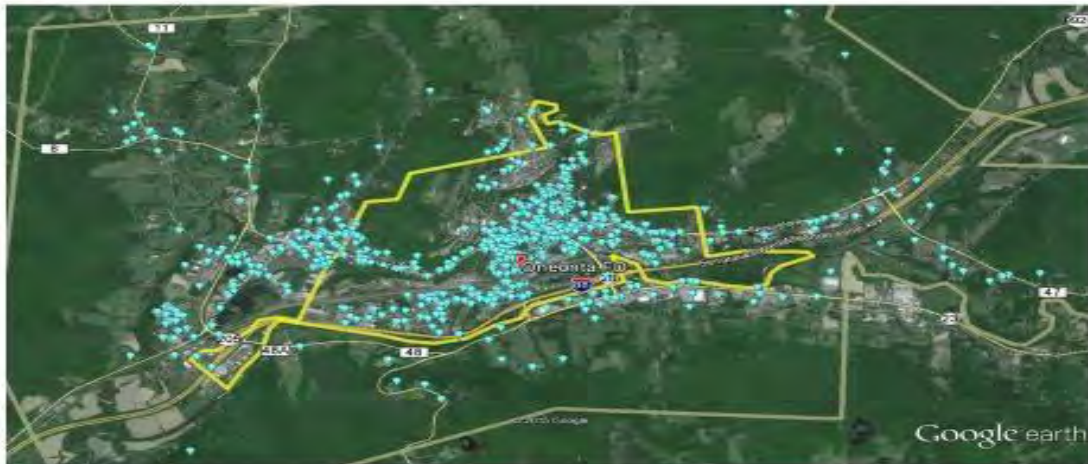


FIGURE 5-4: EMS Runs Concentration Plots



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 enroute 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 5-1: 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

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 5-2: 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.

During this study the Otsego County Dispatch center was upgrading their dispatch infrastructure, moving to a new location and was making positive changes in staffing and operations. This has resulted in an impressive decrease in dispatch time. After looking at dispatch data for the years of 2016, 2017 and 2018 year to date their average dispatch time has dropped to 2:59 seconds. However due to changes in the dispatch methodology overall turnout time has decreased only slightly to 2.36 minutes.

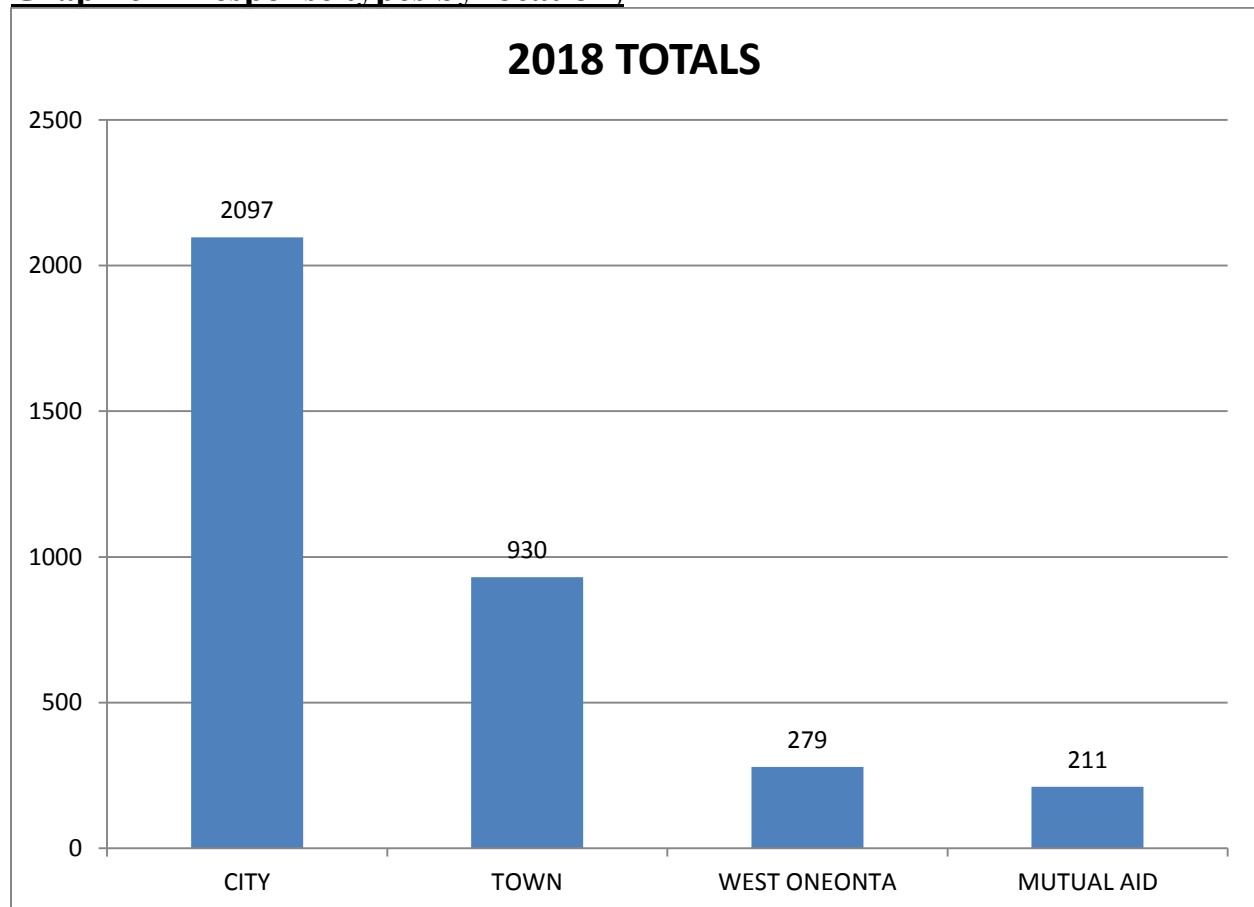
Section 6: Current Call Data

City of Oneonta Fire Department 2018 Year End Report

Response statistics;

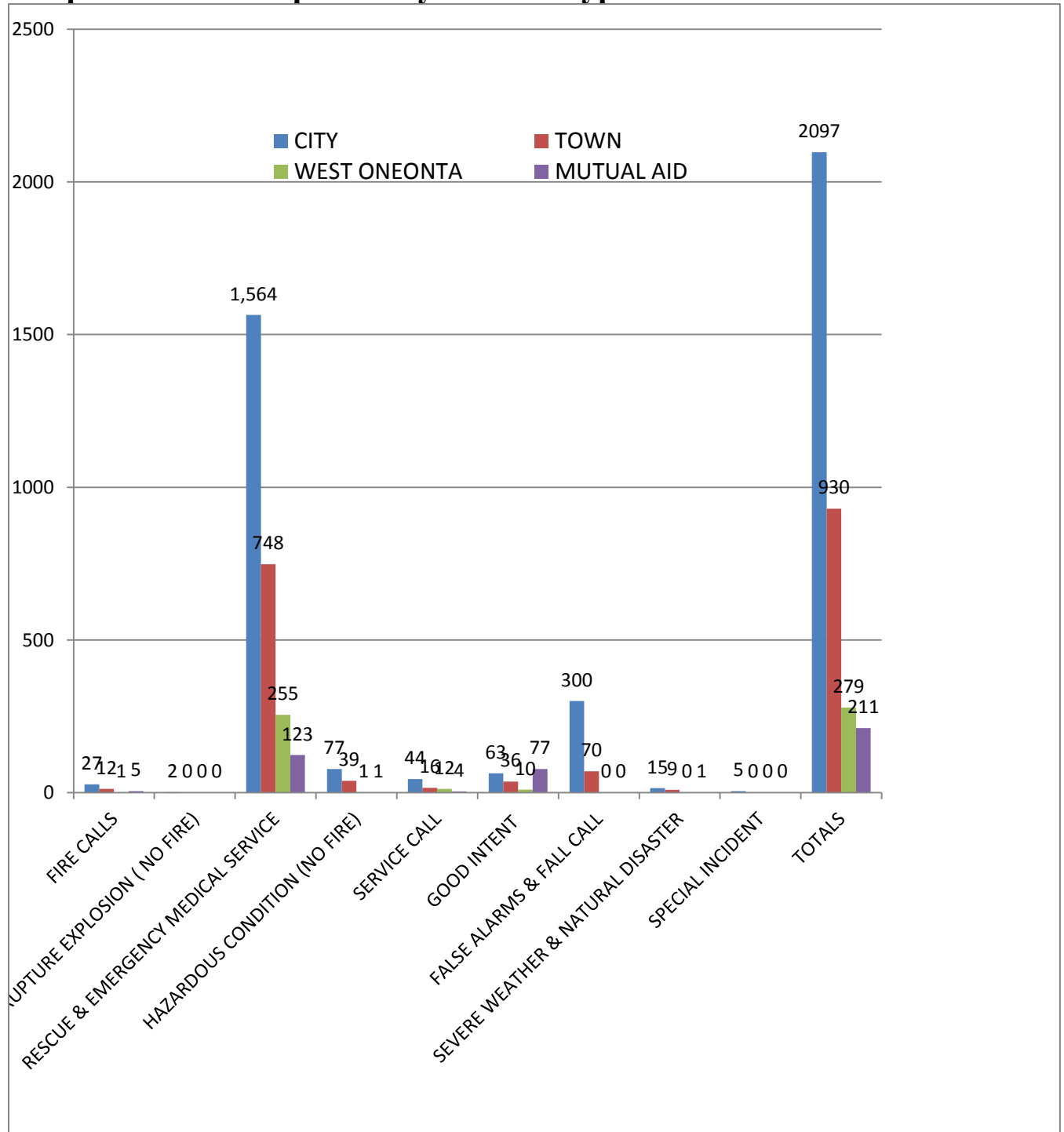
In **2018** the Oneonta Fire Department responded to **3,517** calls for service, including EMS, Fire, Rescue, Motor Vehicle Accidents (MVA), Hazardous Material Incidents, Severe Weather, Investigations, Alarms, Stand-by coverage, Mutual-Aid, Emergency Management Incident Action Planning and coverage for Community and Special Events.

Graph 6-1 Response types by location;

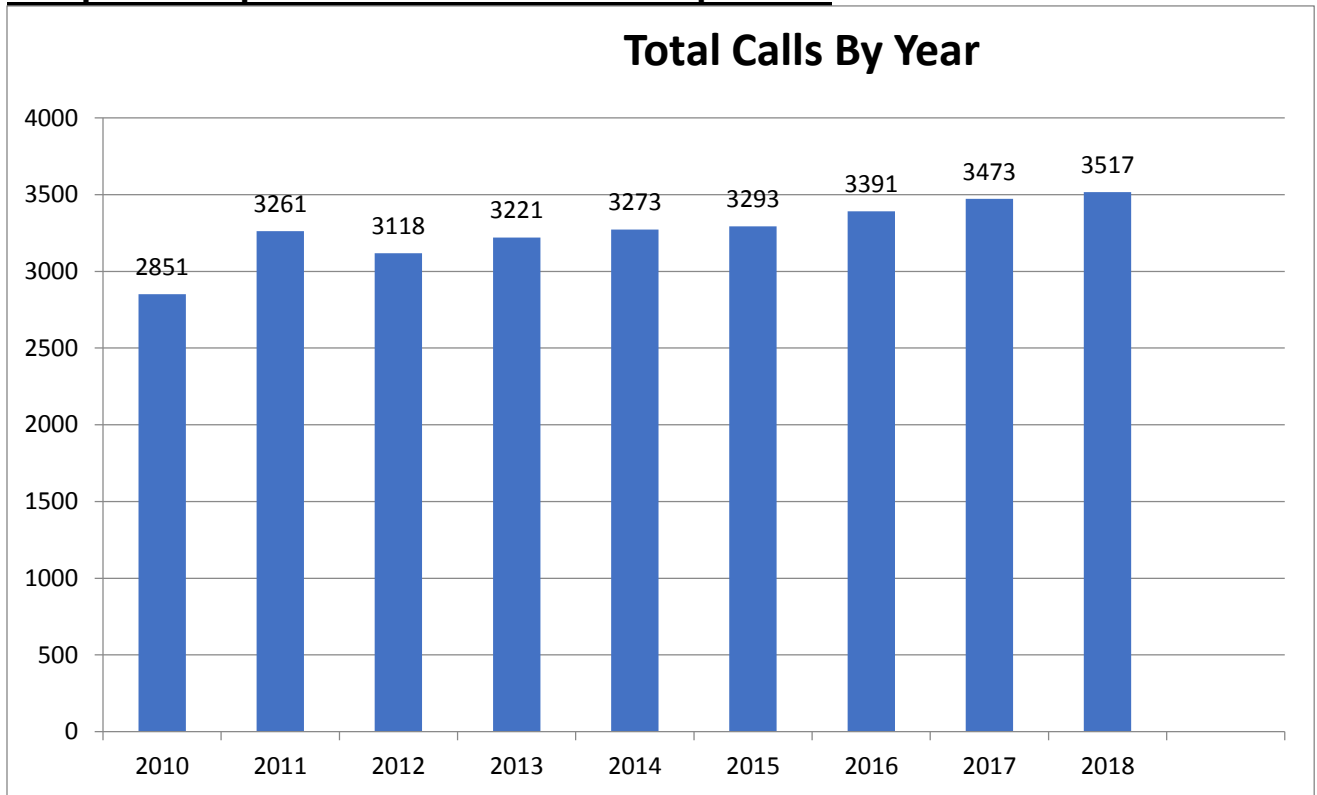


- **2,097** – Responses within the City limits = **59.62%** of the total responses.
- **930** - Responses to the Town of Oneonta = **26.44%** of total responses
- **279** – Responses the West Oneonta Fire District = **7.93%** of total responses
- **211** – Responses made M/A to Otsego, Delaware & Chenango County's = **6.01**
-

Graph 6-2 2018 Responses By Incident type and Location

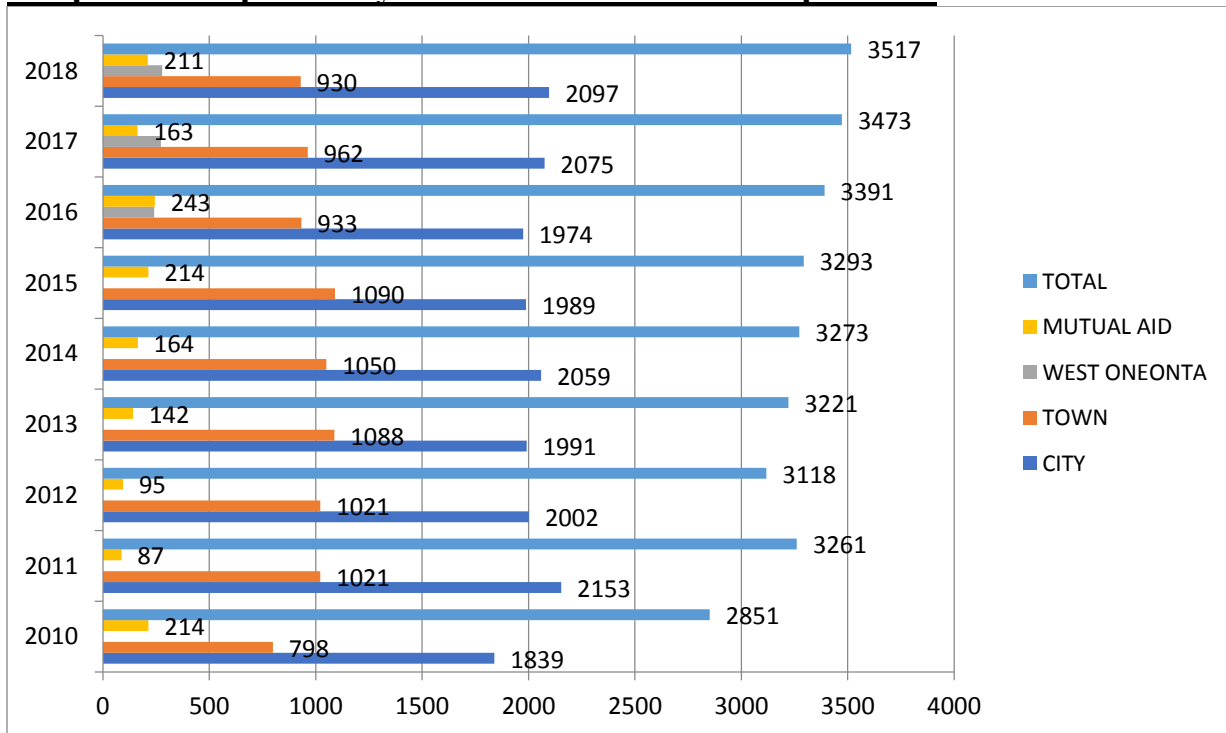


Graph 6-3 Response Totals 2010-2018 Comparisons

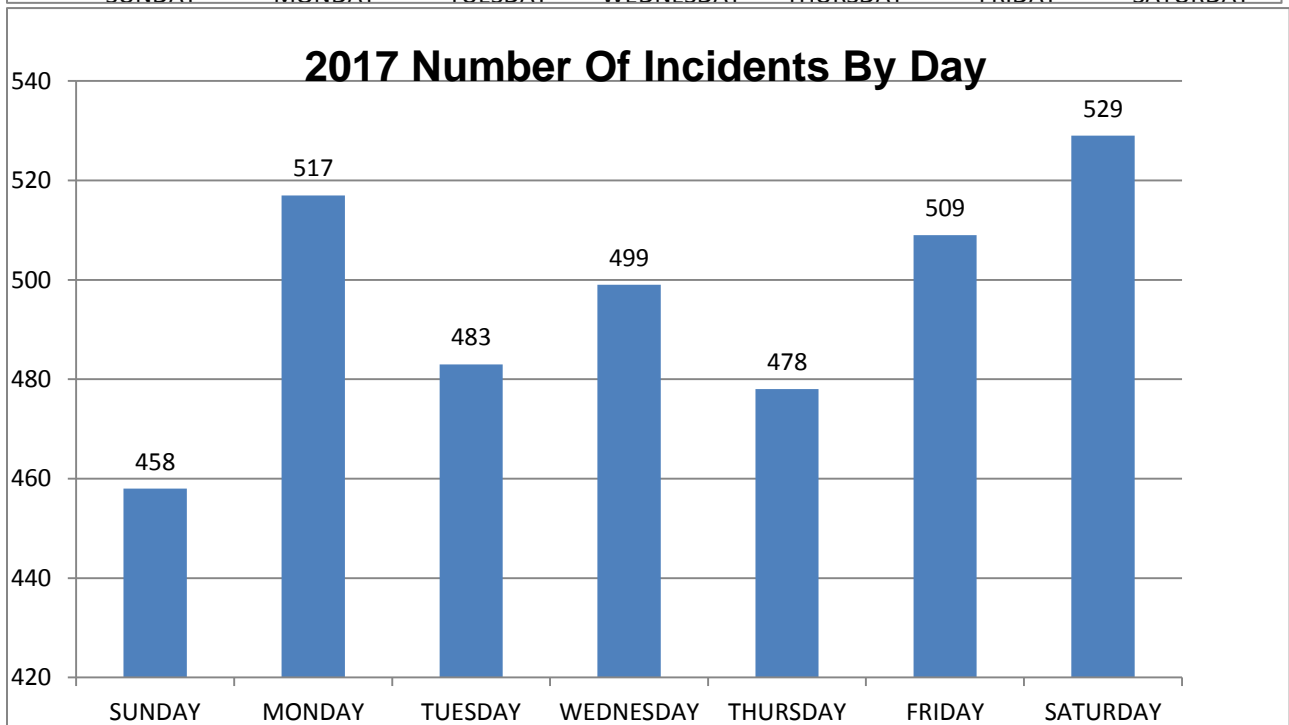
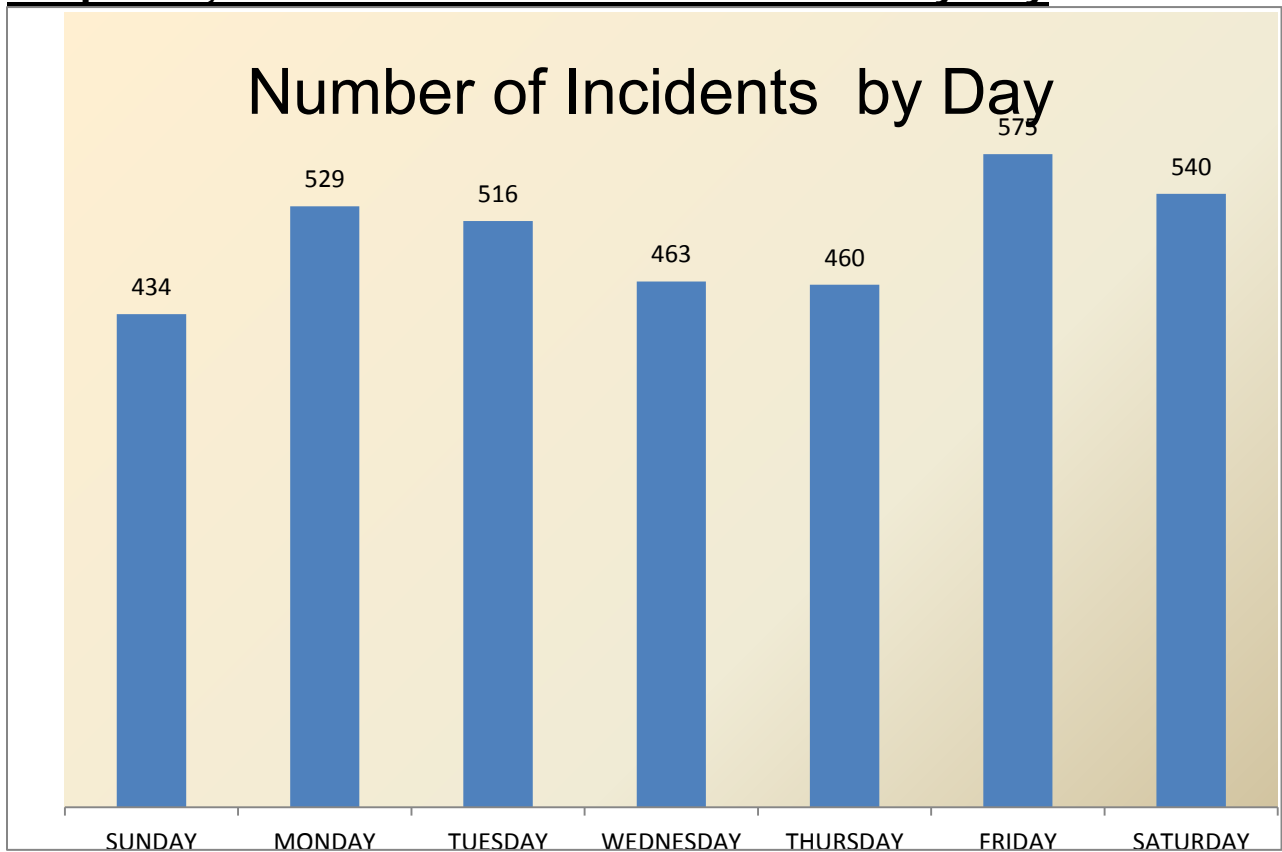


Past 9 years - this reflects an increase of 666 responses or 23.4 %

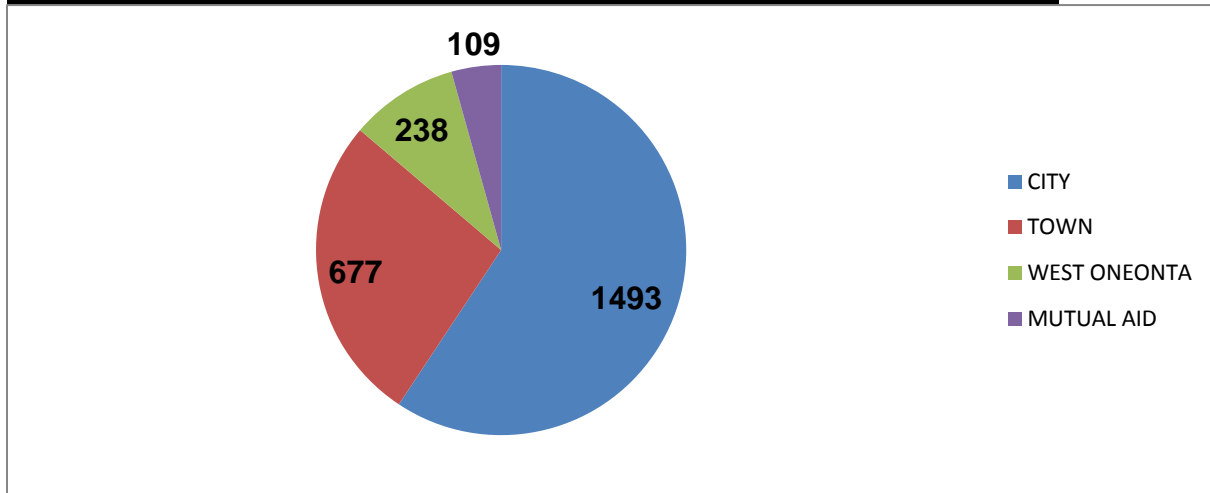
Graph 6-4 Responses by Location 2010-2018 Comparisons



Graph 6-5, 6 2018/2017 Number of Incidents By Day



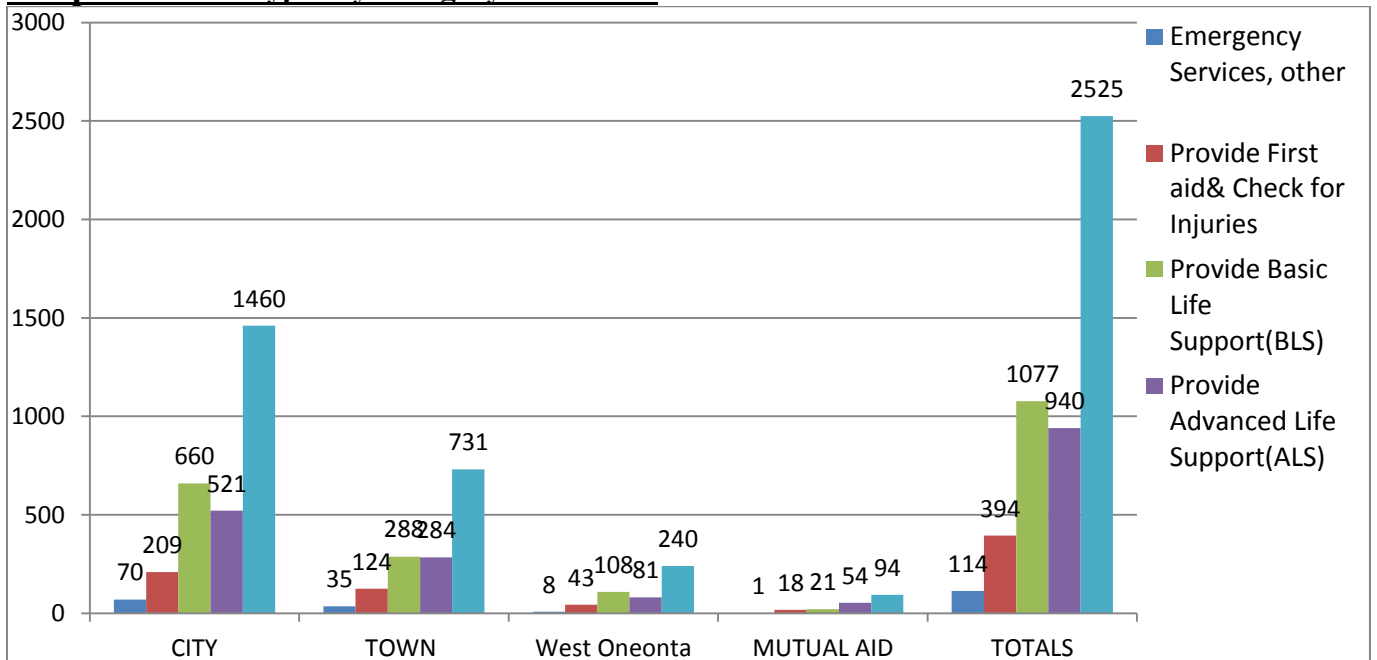
Graph 6-6 2018 Emergency Medical Services By Location



Emergency Medical Services;

In 2018 OFD continues to provide the best EMS care for its citizens and visitors to the area, transporting patients from their residence, emergency scenes, and health care facilities to the most appropriate hospital for needed care. **2517** EMS calls created **2,525** patient contacts, **956** patients were treated with Advanced Life Support measures and **1144** were treated under Basic Life Support Protocols. Additionally, **425** patients were provided emergency first aid on site. They either refused or did not require transportation to a hospital.

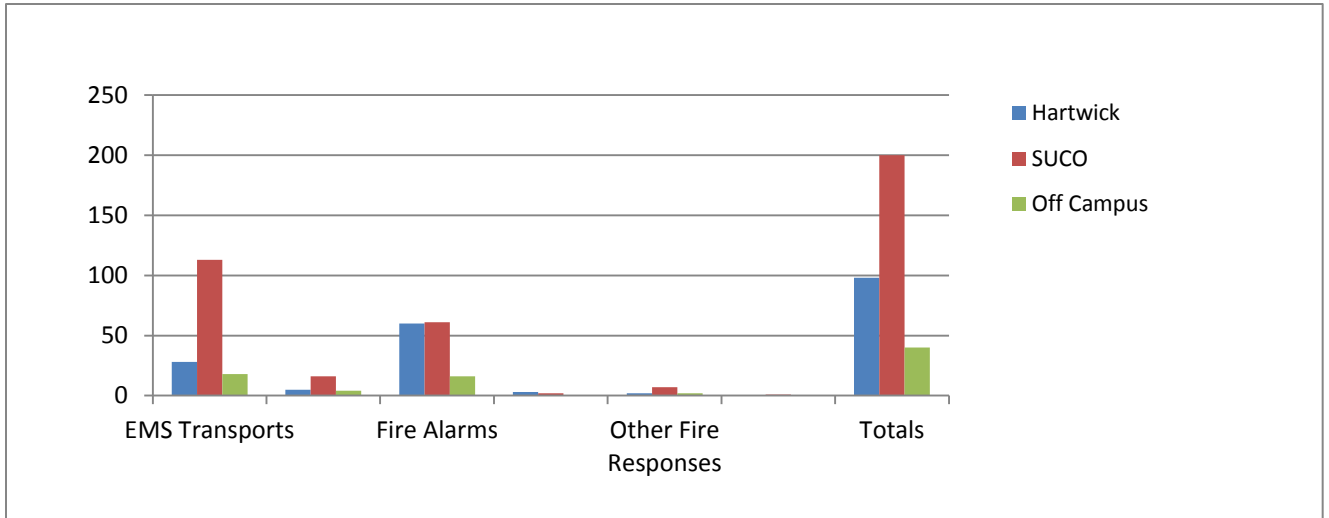
Graph 6-7 Call Types by Category & Location



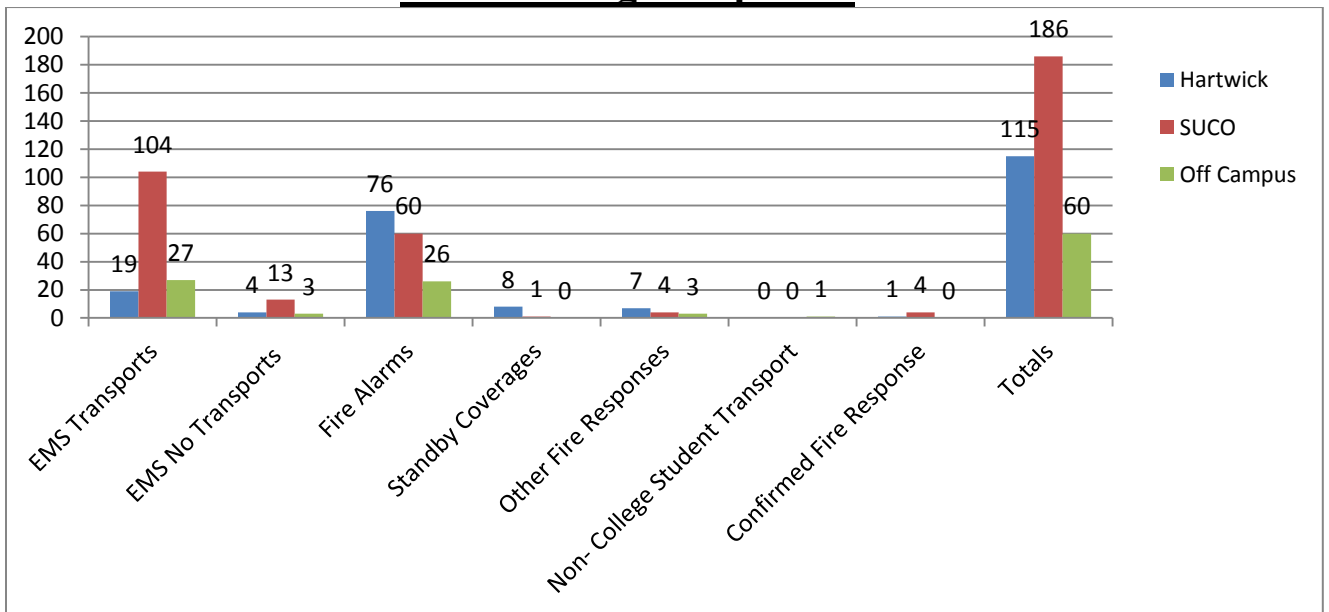
In 2018, a majority of responses made remain as EMS calls. 2517 calls for EMS, or approx. 72% of calls. 173 responses were made for motor vehicle accidents and rescues, 71 in the City, 71 in the Town Contract Area, 17 to West Oneonta Fire District, and 14 responses were made to other departments under Mutual Aid. There were 827 Fire related responses, of these fire responses 533 were in the City, 182 in the Town Contracted Area, 24 in West Oneonta Fire District. 88 were M/A.

- Oneonta FD / EMS were requested under Mutual Aid 211 times.
- OFD responded M/A to; CMT, Davenport, East Meredith, Franklin, Laurens, Milford, Morris, Norwich, Otego, Pindars Corners, Schenevus, Sidney Center, Stamford, Treadwell, West Oneonta, Worcester, (16) Fire and EMS Departments.
- Other agencies were requested to assist OFD via Mutual aid 53 times into Oneonta M/A was received from; Cooperstown, CMT, Franklin, Laurens, New York State Police, Otego, Pindars Corners, Sidney, West Oneonta, Worcester, Otsego County Fire Coordinators. (11) Departments.

Graph 6-8, 9 2018- College Responses



2017 - College Responses



Training of OFD Members

Fire/Rescue:

- During 2018 - 499 in house training classes, covering **53** topics were made available for OFD members to attend. A total of **3,419.75** training hours were documented. On an annual basis all firefighters are required to complete **100** hrs. In-service fire training on **24** topic specific categories. This year, **29** firefighters averaged over **117** training hours.
- OFD staff, using the Otsego County door simulator, trained on forcible entry techniques.
- Several members attended classes at the New York State Fire Academy.



EMS Training:

- In 2018, 6 in house courses were offered with 45 members attending.
- All OFD members continue to complete yearly Continuing Medical Education.
- OFD members were all recertified in CPR/AED
- 17 EMS Students (2 ALS and 15 BLS from neighboring departments) were mentored by OFD staff for a total 156 hours.

OFD Members Provide Training for City Staff:

- OFD Chief's provided all City staff with required annual in service training; 1910.1200 Right to Know, Haz-Mat Awareness, MSDS On-Line, Blood Borne Pathogens and PPE, and Confined Space Awareness.
- OFD staff provided CPR training and AED use for OPD and OPT.

Fire and Life Safety Prevention and Education:

Every year the Fire Department staff provides the community with fire prevention and life safety education classes. Throughout the year OFD staff provides classes, lessons and station tours to schools, daycare centers, colleges, Greek houses, local businesses and other City Departments.

- All Day Training was provided to the **3** elementary schools.
- The senior class at OHS was presented with lectures and a “Live Fire” demonstration.
- During fire prevention week, school groups from throughout the area came to the Oneonta Fire Station for tours and safety education.
- Several local businesses were provided with fire safety education and hands on fire extinguisher training.
- Approximately, **2,156 children and 987 adults** received this very important education and training.
- OFD members volunteered at the YMCA’s Junior Firefighter camp.
- OFD, in conjunction with 27 donors, completed and placed into service a Mobile Sprinkler Trailer. The trailer is used to compare sprinkler to non-sprinklered room fires.



Emergency Management:

E/M continues to participate with many other local agencies, in table top exercises, meetings, construction plan review, and preparation for events - Including; the NYS Eastern District Emergency Management Team, Otsego County E/M, Otsego County 911, Otsego County Traffic Safety Committee, Otsego County Fire and EMS Advisory Boards, Goodyear Lake Dam Emergency Response, AAREMS, the College at Oneonta, Hartwick College, the Oneonta City School District, and AO Fox Hospital Emergency Management Team.

E/M has continues to work closely with the City and Town Codes Offices on vacant / abandon & unsafe buildings. Sign program used to identify buildings for firefighter safety.

E/M continues to review new construction and expansion projects for;

- SUNY Oneonta – Bugbee Hall renovation project
- Holiday Inn Express
- Main Street renovations under the Downtown Revitalization Initiative

E/M reviewed and updated emergency action and evacuation plans, and provided fire and life safety education for area mobile home parks and ARC residential homes. Assisted with fire prevention and evacuation planning with – Robywood, Nader Towers, and 1 Associate Dr.

E/M planned for and participated in event coverage for several community events including; Snomegang, OH-FEST, 4th of July, Balloon Fest, Hospice concert event, Pit Run, graduation for both Colleges, Lower Deck Dash, Turkey Trot, Frost Bite 5K and First Night Oneonta, others.

Worked on County Emergency planning and flood mitigation projects.

E/M attended training / meetings with - Pipeline Emergency Response and Planning and Constitution Pipeline installation project.

E/M updated the Emergency Action Plans for Goodyear Lake Dam.

East Sidney Dam inspection and rescue preplanning.

Section 7: Recommendations for Change, Overall Evaluation, and Conclusion

*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.*³⁴

By looking at and evaluating the dispatch procedures from Otsego County's dispatch center and how we receive and react to that information transfer the Oneonta Fire Department may be able to make small changes that will reduce turn out time.

As mentioned at the end of Section 5, the Otsego County dispatch center has made changes to reduce their call taking to dispatch time and reduced the dispatch time from 3.2 minutes to 2.3 minutes. This was done via retraining, software and technology updates. The procedure they use is: call taker answers 911 phone call, uses ProQA question tree to determine nature, location, and extent of the emergency, selects appropriate response agency, tones agency on paging frequency (there is a 4 second lag here) then delivers dispatch information, When agency answers on radio frequency dispatch information is repeated on radio frequency.

When a call came into the Oneonta Fire Department our station alert tones are activated. The alert tones were heard throughout the station on a klaxon system that was activated through a pager/klaxon interface. The klaxon, especially at night when crews are standing down were jarring enough to initiate and adrenaline fueled autonomic fight or flight response. The tone duration was 11 seconds. The klaxon has been operating in this way since 1985 when the public safety building was occupied. The consequence of the 11 second klaxon was that the on-duty crew could not hear the initial dispatch information that comes over the paging system. This resulted in an estimated 30 second delay in turn out time of the first response vehicle, as the on duty crew had to answer the county and wait for the message to be repeated. Other factors that had affected turn out time were work details, time of day, overlapped calls, duty crew position in station. These causal factors in delaying response are being addressed.

In February of 2019 Tri-County Communications under the direction of the Chief's office installed hardware and software, which changed the way we accept calls from Otsego County. Two tones were added to differentiate between EMS and fire calls. The tones and paging frequency are broadcast on an internal PA system so that Oneonta Fire department members can hear the tone and message throughout the station. This will allow the members to proceed to the most appropriate response vehicle for the call being dispatched. The Chief's office will evaluate response times the after a 180 day time period if any impact on turnout time has been achieved, without loss of acuity in message retrieval. The new system utilizes a graduated tone, to reduce the incidence of fight or flight responses, and synchronize the paging and alert tones so no information is lost.

³⁴ Operational and Administrative Analysis Oneonta Fire Department Oneonta, NY CPSM 12/2015

Conclusion:

There are few differences between the levels of risk associated with metropolitan areas when compared to the City and Town of Oneonta. The obvious differences are size of the area served, size of the buildings, population size and demographics and size of the first responder organizations that serve them. For the City of Oneonta, and its surrounding neighbor the Town of Oneonta, the structure fire risk, EMS and other hazard response risks that are found parallel those in other communities across New York State, and across the nation. The difference is the City of Oneonta is required to prepare for, respond to and mitigate those risks with fewer personnel.

We can make the case for additional personnel based on the increasing call volume, the comparative study of call volume, calls per firefighter, firefighters per 1000 of population and other data included in this report. However, the reality of staffing for the risks we face in Oneonta is driven by the community's ability to pay. Large cities can make up the difference with economies of scale. They staff until a threshold is met that allows them to respond to and mitigate emergencies with enough personnel to ensure the safety of civilians and responders, but with significantly less staff per thousand. The City of Oneonta, because of its size, cannot do this, and must rely on the force that it can afford.

The City of Oneonta Fire Department, in order to attempt to attain national benchmarking levels for response times, must work to reduce turnout times for emergency and non-emergent calls. Small changes in internal infrastructure may help to reduce turnout times and those will be tested and evaluated over the course of the next year.

The City of Oneonta must provide the infrastructure, public safety and other services, to support present and future users. However, until we solve the problem of the 53% tax exempt rate, have a permanent shared services agreement with the Town of Oneonta and/or find some new or otherwise undiscovered perpetual form of funding for City services, we are forced to do more work, and face more risks with the same staffing levels. The uncertainty of the future combined with the low tax levy make it impossible to move forward in staffing for the risks we face now or plan for the increased risks we will face with future development.

The City of Oneonta Fire Department and its staff will continue to strive to provide the area's best emergency response and mitigation measures. The Chief's office recognizes that our staff, both frontline and support, are our most valuable asset and will work tirelessly to give them access to the best training and equipment so that they may operate in a safe and efficient manner considering the inherent dangers of this type of work. We, as a department take pride in the role we fulfill in our community and will work diligently to protect life, mitigate emergencies and protect the property of the citizens and visitors to the greater Oneonta area.

End notes/references

Operational and Administrative Analysis Oneonta Fire Department, Oneonta, NY Center for Public Safety Management – December 2015

http://www.dos.ny.gov/lg/publications/fire_district_consolidation.doc

<http://quickfacts.census.gov/qfd/states/36/3654881.html>

NY Home Town Locator, July 2016, data and demographics

10/5/2016 City and Town of Oneonta Community Risk Assessment

Focus on the Future of Main Street: An Economic Development Planning Study, Oneonta, NY May 2016 Prepared by LA Group

<http://highered.gradguard.com/fema-report-campus-fire-fatalities-2000-2015>

Totzke, Karen J. (2015), "EMS Use by the Young Adult Population in the Region of Waterloo". Theses and Dissertations (Comprehensive). Wilfrid Laurier University. Paper 1734. FA-166 / December 1996

U.S. Fire Department Profile- 2015, 4/17 NFPA Research, Quincy, MA

RISK MANAGEMENT PRACTICES IN THE FIRE SERVICE

Felicia, Patrick (2011). [*Handbook of Research on Improving Learning and Motivation*](#). p. 1003. ISBN 1609604962.

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

Response Matrix, Oneonta Fire Department

10/5/2016 City and Town of Oneonta Community Risk Assessment

NFPA 1710

National Fire Service Data Summit Proceedings, U.S. Department of Commerce, NIST Tech Note 1698, May 2011

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

Saylors, Eric January 2016. Fire Departments are Response Models, Not Production Models. elitecommandtraining.com

<http://www.businessdictionary.com/definition/public-good.html>

Maciag, Mike | November 2012 Tax-Exempt Properties Rise as Cities Cope with Shrinking Tax Bases *Governing The State and Localities*

Property Tax Exemption Data for U.S. Cities, *Governing The State and Localities*

<http://www.nfpa.org/news-and-research/fire-statistics-and-reports/fire-statistics/the-fire-service/fire-department-calls/fire-department-calls>

Saylors, Eric. (December 2015) Quantifying a Negative: How Homeland Security Adds Value. *The Journal of the NPS Center for Homeland Defense and Security*

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*.