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Opportunities for Sharing Fire and EMS Resources

An Evaluation of Existing Conditions and Opportunities in Templeton and Phillipston

March 2020

Prepared for:
Towns of Phillipston and Templeton and the Commonwealth of Massachusetts

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100 years CGR • 1915-2015

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Summary

The Towns of Templeton and Phillipston are relatively small rural communities located in north central Massachusetts. The estimated population for Templeton is 8,100 and Phillipston is 1,700. While the communities are thriving in certain aspects, they are facing several challenges with the continued operation of their fire department and emergency medical services. In 2019, they were awarded a state grant and engaged CGR to evaluate their existing operations and provide a portfolio of viable options for the towns to consider to improve their service and manage their fiscal pressures.

This summary section provides a high level overview of the project background, key findings, existing conditions and options for improvement. The full report is structured in several sections that present the Key Findings near the beginning, with the supporting information of Department Profiles, Calls for Service and Comparative Communities following with the Options for Improvement as the final section. The project involved interviews with key staff of each town and fire department, as well as substantial data requests. Additional research was conducted to develop benchmarks and identify potential opportunities for improvement.

Background

As stated in the project request for proposals: *"The Towns of Templeton and Phillipston have joined together to determine which, if any, elements of their Fire/EMS service might be suitable for sharing. This will range from the command structure to the administrative support structure to training, toning out of services based upon physical locale, sharing of equipment and/or maintenance, and sharing of training. Further they seek a review of their existing practices to determine where there may be room for improvement and what best practices – if any – they should be seeking to adopt."*

The operations of the two fire departments have had substantial changes in the last decade with the Templeton adding paramedic ambulance service and Phillipston adding a basic life support ambulance. These two changes included the addition of paid staff to ensure the service was available.

The fire departments do not operate in isolation but rather are an integral part of the municipal operations that are in competition for limited budgetary resources. In particular, increased demand for funding for the school department, plus the limits of tax cap legislation (Proposition 2 ½), restrain potential expansion of each fire department and restrict the possibility for capital investment.

Key Findings

The existing fire department operations in the two communities are meeting the basic needs and expectations of the town residents. However, there are areas where the departments should look to improve the existing situation.

- Both fire departments have a higher demand for emergency medical services (EMS) services than fire/rescue. EMS calls account for 80% of Templeton calls and 73% of Phillipston calls over the last 5 years.
- The departments each staff to provide essential coverage for EMS with Templeton Fire Department (TFD) having a paid paramedic/firefighter on duty at all times and Phillipston Fire Department (PFD) having a paid EMT/firefighter on duty 40 hours per week, when on-call staff are less likely to be available. Both departments use a combination of scheduled per-diem or on-call staff to fill in the rest of the schedule.
- For fire events, any on-duty staff are supplemented by on-call fire fighters and mutual aid resources, as needed.
- Neither department has on-duty staffing sufficient to meet the essential firefighting response of 4 firefighters[1] without utilizing on-call or mutual-aid resources.
- Both towns have made appropriate capital investments in fire department apparatus and their ambulances. TFD took delivery of a new fire engine in November 2019. PFD received a new Forestry/Squad vehicle in early 2019.
- Templeton is rated by the Insurance Services Office[2] as having better fire protection than Phillipston, but both could improve their ratings without substantial investments.
- Managing any fire department requires substantial technical knowledge, strong organizational skills and the resources necessary to complete the wide variety of administrative and operational tasks. Templeton's fire chief is also expected to answer EMS calls as the second person on a crew, leading to frequent interruptions in his workflow and hampering his effectiveness. Phillipston relies on the teamwork of a part-time chief and a full-time captain to manage the department operations.

[1] OSHA mandates that during initial stages of a fire incident, firefighters must operate in pairs and before a pair of firefighters can enter a hazardous area, another pair must be available to assist outside of the hazard area. Often referred to as the 2 in, 2 out rule.
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- The pay scale for both departments is at the low end of pay range with their peers and comparable departments. For positions that they both have, the departments pay similar rates, but lower than many of their peers.
- Templeton's share of its budget toward the fire department, and its per capita cost, is relatively low compared to peers. Phillipston's share of the budget toward the fire service is high compared to its peer group, but the per capita cost is comparable.
- Looking at the last five years, PFD response times[3] have a median of 8 min 48 seconds; TFD's median response time is 7 minutes. PFD's response time lowers to an average of 7 minutes during hours when it is staffed in the station.
- In Templeton, keeping the on-duty staff at Headquarters places them near 45% of its calls, reducing the response times.
- The Phillipston FD is centrally located and provides adequate response to all areas of town. Their station meets their needs as they currently operate, but lacks capacity for firefighters to sleep at the station.
- TFD Headquarters station is not at modern fire service standards, with staff needing to travel outdoors to get to their apparatus, no air handling for vehicle exhaust, and inadequate heat in the apparatus bay. Additionally, it is a risk for firefighters to have to traverse several flights of stairs to get from their sleeping or living quarters to their apparatus.
- Record-keeping for both FDs could improve in the areas of training and maintenance. The departments each have manual record-keeping for essential training records and vehicle maintenance. Existing record-keeping for essential materials such as personal protective gear, hoses, pumps, and ladders is not integrated with other records.
- TFD needs substantial investment in their self-contained breathing apparatus as their masks and regulators soon will be no longer supported by the manufacturer for routine maintenance or repair.

Department Profiles

Phillipston Fire Department

The Phillipston Fire Department (PFD) is a combination full-time and part-time/on-call fire department that provides BLS ambulance response to the town. The department is led by a part-time chief who is heavily supported by a full-time captain for administrative and day-to-day leadership tasks. There is another full time

[3] The response time is defined as the time the call was received by the dispatcher to the time the first vehicle arrived on scene.

firefighter/EMT staff member who has just been appointed. This is a replacement for the prior system where several part time staff filled the role.

PFD operates out of a single station located in the approximate center of the town at 90 State Road (MA 2A). The station has 6 bays operating out of three sides of the building. The station was built in 1998 and is located on a small plot of town land. PFD operates two engines, a tanker, an ambulance and several utility trucks and forestry apparatus. They also have a UTV, a mobile light tower, and a small boat.

The PFD was last evaluated by the Insurance Services Organization in 2016. ISO uses a 1-10 scale with 1 being the best. PFD received a rating of 9 for most of the Town and 10 for the properties more than five road miles from the fire station. Over the last five years, the department has responded to around 14 calls per month, or about 170 calls per year. About 60% of calls are for EMS, with another 13% being for accidents, usually with a motor vehicle – both of which typically involve an ambulance response. Further discussion on calls for service for both agencies follows in a separate section of the report.

The PFD budget in 2019 was $250,253. This works out to about 5.4% of the town's total budget. The cost is about 21% higher in 2019 than it was in 2015. 69% of the fire department's cost is associated with salary for the staff.

Templeton Fire Department

The Templeton Fire Department (TFD) is a combination full-time and part-time/on-call fire department that provides paramedic ambulance response to the town. The department is led by a full-time chief who also is tasked to respond on calls on a regular basis. TFD became a paramedic department in 2015 and became a full-time staffed organization during Fiscal Year 2018.

TFD has a paid paramedic fire fighter on duty at all times. There are four full-time paramedics that work a rotation of 24-hour shifts on duty, then 72 hours off. This leads to an average of 42 hours per week for these staff. The chief was scheduled for 40 hours per week, from 7:00 am to 3:00 pm, five days a week. He serves as the second person on the ambulance during that time. The department relies on on-call staff from 3:00 pm to 7:00 am to ensure that calls are covered during that time.

TFD operates out of two stations on opposite sides of the town. The Headquarters Station is at 2 School Street and is located in the Baldwinville section of the town. The Headquarters Station includes the living quarters for the on-duty crew, administrative offices and storage. The main apparatus floor has four back-in bays and it is separated from the living quarters and offices by several hundred feet of parking lot.

The other station (Station #1) is at 466 Patriots Road in the Templeton Center area. This building was built in the 1960s and is typically used only by the on-call staff. The building has a small area to hold training classes. It has four back in bays.

TFD operates two engines, a ladder, a tanker, two ambulances, a utility truck and three forestry trucks.

The Insurance Services Organization rates each fire department in Massachusetts and most other states on several categories to assess their effectiveness. The categories are used to develop a 1-10 rating with 1 being the best. TFD rated a 6/6X.

Over the last five years, the department has responded to around 70 calls per month or about 845 calls per year. About 74% of calls are for EMS, with another 8% being for accidents, usually with a motor vehicle – this totals about 80% of calls with an ambulance response.

The TFD budget in 2019 was $723,653. This works out to about 8.4% of the town's total budget. The cost is about 25% higher in 2019 than it was in 2015. 69% of the fire department's cost is associated with salary for the staff or other compensation/benefits for the personnel. The substantial increase in the cost for the fire department is associated with the expenses related to operating a paramedic program and ensuring that a paramedic is on duty at all times.

Agency Comparisons

Category	Templeton	Phillipston
Population (2018 ACS)	8,100	1,800
Total Budget (2020)	$9,690,274	$4,603,957
Fire/EMS Budget (share)	$723,652 (7.5%)	$250,253 (5.4%)
EMS Revenue (share)	$302,389 (42%)	$32,000 (13%)
Other Revenue	$11,048	
FD Calls for Service (5 year average)	863	167
Cost per resident	$89	$139
Cost per call	$838	$1,303
Paid Staff @ station per week	208	80
Calls per pop	0.106	0.107

Call Comparison

(5 year average)	Templeton		Phillipston	
Total Calls	863		167	
01: Fire	10.6	1%	2.0	1%
02: Accident Related	66.2	8%	21.8	13%
03: EMS Calls	631.2	73%	99.8	60%
04: EMS Mutual Aid	1.8	0%	0.4	0%
05: Assist Police	43.4	5%	4.4	3%
06: Assist Other Agency	17.2	2%	16.4	10%
07: Fire Alarm	42.6	5%	7.0	4%
08: CO Detector	5.2	1%	2.2	1%
09: Fire Service	28.8	3%	8.8	5%
10: Outdoor Fire	6.2	1%	1.6	1%
11: Other Fires	6.0	1%	2.2	1%
12: Hazmat/Gas Spill	1.8	0%	0.6	0%
13: False Alarm/Call	1.6	0%	0.0	0%

Options for Improvement

These options are presented as a range of high-level opportunities to respond to the existing conditions as noted elsewhere in this report. Additionally, it is important to acknowledge other factors that exist in Templeton and Phillipston that will influence any changes to the fire departments. These factors include:

- The rural nature of the community precludes the level of fire protection and EMS found in more densely populated areas;
- The competition for municipal dollars under the tax ceiling forces difficult choices between public safety and other community needs;

- There are a limited number of adults physically able and interested in becoming involved in the fire service;
- The "graying" of the population both increases the demands for EMS service and decreases the number of people available to provide the service;
- The small size of the operations requires all personnel and particularly the leadership to continuously switch between tasks leading to a decline in efficiency; and
- The national fire service is continuously increasing their standards, requiring capital investment from communities.

The Options presented in this report range from minor changes in the individual department practices to the concept of a consolidated department. Accomplishing most of these options will require additional work from staff of the fire departments and the two towns on at least a short term basis. In some cases, there would need to be substantial effort put forth on an ongoing basis to accomplish the options.

Consolidation of Services

Given the relative paucity of resources in both departments, there is little immediate benefit of merging the two departments unless it would allow them to access additional financial resources through grants or a dedicated funding stream such as a fire district.

- In order to lead toward long term alignment of the two department's operations, there might be some benefit from a shared fire chief. In the current circumstances, PFD might benefit from TFD's fire chief if he had dedicated administrative time to share with PFD. This effort could be supported through an inter-municipal agreement with Phillipston purchasing a certain share of the TFD Chief's time to conduct leadership tasks in Phillipston. However, this would only be financially beneficial if the cost was less than the current arrangement where PFD has hired a part time fire chief that works 10-20 hours per week providing leadership and administrative support.
- A dedicated training officer could be a benefit for the two departments. This positon could also have ancillary response duties, but their primary focus should be developing and conducting a training curriculum, maintaining training records, and ensuring compliance among the workforce. This could be accomplished with dedicated per diem hours rather than a specific fulltime hire. Another possible avenue would be for one of the two full time staff at PFD serving in the role of joint training officer for both departments. This could be accomplished through an inter-municipal agreement.
- There might be benefit in having on-call or per diem firefighters jointly appointed between the two departments in order to be able fill shifts in either department, respond to calls as needed or participate in training at either department. This might need further exploration to ensure compliance with regulations and insurance policies. Examples of concerns that would need to be

ironed out include completion of annual physicals, familiarization to equipment and availability of appropriate personal protective equipment.
- Other shared resources such as administrative staff might also be helpful for the two departments. Currently TFD has a part time administrator and PFD relies on their firefighting staff for administrative tasks. The administrative tasks are similar between the departments and a single person working for both might bring some efficiency.

Recruitment and Retention

Both departments expressed concern with being able to meet their staffing needs in the medium to long term, particularly in finding employees with specific credentials such as EMT and paramedic. These options are opportunities to improve the function of the department in these areas. Again, there would need to be effort by fire department staff to be successful in accomplishing these options. These options do not need to be pursued jointly, but there may be some benefit if they are done together.

- Work with the high school to recruit future members of the organization through career exploration programs or a formal education program
- Develop an Explorer/Junior FF program
- Recruit women to participate as firefighters. Both departments already accept women as callmen and firefighters in all positions in the organization. The suggestion is to conduct a specific, targeted campaign to recruit from a population that has historically not been sought by fire departments across the country.
- Investigate recruiting from service organizations such as Rotary, Kiwanis, Scouts to help fill the needs of current callmen.
- Involve other employees in the town to participate as callmen OR to assist on the fireground in nonhazardous situations. Phillipston already does this with several members of the DPW staff trained to operate the tanker and provide scene support.
- Work with the chamber of commerce to identify employees that might be willing to participate as callmen, especially during traditional business hours.
- Hold open “citizen’s academies” to educate the public on the role of the fire department.
- Institute a mentor program for new members. This is already done on an informal basis, but a more formal program could help with retention and speed effectiveness of new department members.
- Conduct exit interviews for volunteers who leave to seek to identify correctable conditions and perhaps retain them.

Pay Scale

Both Templeton and Phillipston are near the low end of the wage scale for firefighters and paramedics in the region, although they are relatively close to each other in scale. This is not a crisis for the departments in terms of staffing, but an increase in the scale could help with recruiting and retaining firefighters at all levels.

- Using a theoretical $1 an hour raise for each position at the departments, the wage costs for TFD would go up an estimated $19,500 a year and for PFD they would increase about $8,600. This represents a 2.7% increase for TFD and a 3.4% increase for PFD.

One Dollar per Hour Wage Increase Annual Cost

	Base Schedule	On Call Positions	Total Additional Wages
Templeton	$ 16,822	$ 2,656	$ 19,478
Phillipston	$ 6,240	$ 2,400	$ 8,640

Staffing and Scheduling Model

The staffing model for both departments is focused on EMS responses, the bulk of the call volume for the two fire departments. Schedules have shifted over time as needs have changed and funding levels have been adjusted. It is possible to adjust the schedules, the responsibilities and position requirements. Several options are discussed below.

- Adjust the staffing model in Phillipston for the busier times of day – 9 am to 5 pm, vs. 7 am to 3 pm OR look to having 10-hour shifts for four days and adding per diem for the fifth day.
- Look to add back some dedicated administrative time to the Templeton Chief position by having per diem shifts during some day time hours.
  - The TFD chief is currently expected to answer the first call for service while he is on duty. This interrupts the flow of administrative work and prevents tasks from being completed in a timely manner. Adding several per diem shifts during the week would help enable the chief to dedicate time to the necessary administrative and leadership tasks to aid in operating the department in an effective manner.
- Consider ancillary responsibilities for the fire department staff to ensure value to community. Examples include municipal administrative tasks, assisting public works with non-time dependent tasks, and conducting public education events. This is more appropriate for PFD as they respond to only 3 to 4 calls per week and have substantial down time. PFD staff already assist other departments at certain times.

Apparatus Maintenance and Replacement

Maintaining all the apparatus and equipment necessary to safely suppress a fire or provide emergency medical care is an expensive endeavor. Certain specialized equipment could be used rarely in an emergency situation but is truly a matter of life or death that it be available and functioning when needed.

- NFPA 1901 Annex D suggests that apparatus older than 15 years be replaced or moved to reserve status because they lack many of the recent advances in safety technology.
  - Each department has a front line engine that is less than 15 years old (PFD 2005, TFD 2019), but even excluding the forestry equipment much of the firefighting equipment exceeds 15 years of age. These vehicles include :
    - TFD Engine 2 (1999), TFD Engine 1 (2003), and PFD Engine 3 (1995).
    - TFD Ladder 1 is a 2006 and will reach that mark next year.
  - If purchased new, the replacements of those four vehicles would approach $2 million. However, there is a reasonable market place for used vehicles that would provide the community 5 to 7 years of service.
- Before replacing its ladder truck, TFD should consider whether it is needed based on the risks in the community and the proximity of neighboring resources. It responded to an average of 12 calls per year over the last 5 years. (Although part of the problem was the unit was out of service for maintenance.) Aerials are expensive to maintain and require frequent training to ensure that personnel are effective at its utilization.
  - For ISO rating purposes, a “service company” could be substituted. Not replacing the ladder truck could make resources available for other needs in the fire department or town.
  - The TFD chief has indicated that he feels the response from neighboring resources would be too long and he would rather have this resource available in the community.
- Record keeping for essential tests such as pumps, hoses, SCBAs and ladders are conducted at appropriate intervals, but the records are managed manually.

Software for Record Keeping

The marketplace for software in the fire and EMS realm is robust with a variety of products available to fit every need and no single solution. The two departments have instituted a variety of products to help meet their existing needs, but there are some gaps that could be addressed to improve processes and lighten workloads. Many of the software packages in use in the departments have additional modules that can be purchased to allow the department to address a different problem. In most cases, there is a benefit of using an add on module compared to a new software package as the staff are already familiar with the basic interface and some of the department data is already in the software.

Statutory or Regulatory Challenges to Recommendations

- Based on available information, the recommendations suggested through this project do not have substantial statutory or regulatory challenges. The majority of recommendations focus on internal policies in the departments or towns. Other follow existing practices such as inter-municipal agreements or automatic aid plans that already exist in these communities or their neighbors.
- As noted, the regulations and best practices in the fire service and EMS are constantly changing. There are a continuous flow of additional recommendations, particularly in the areas of apparatus, equipment and training that might increase the cost of providing fire and EMS services.

Other Considerations:

- TFD could potentially improve their ISO PPC rating by improving the testing of their water system, tracking their training and implementing a fire prevention program. An improved PPC rating would potentially lower fire insurance rates for residents and commercial properties. An improved PPC rating would potentially lower fire insurance rates for residents and commercial properties
- PFD could become a rated ISO PPC fire department by mapping and testing their suction points to have a creditable water supply. Additionally, planning out mutual aid tanker supplies would assist. Improving the ISO rating would reduce costs for the residents in the community on their fire insurance.
- Both departments should consider Automatic Aid (at the time of initial dispatch) for high risk events such as structure fires to ensure that adequate assistance is available. These agreements can be time dependent as well, so if the aid is only needed during daytime hours, it should be requested then. PFD has established an automatic aid plan for paramedic service at all times of the day.
- PFD should continue to use Athol for paramedic service because their location is better for more events than TFD units responding from Station 2. Alternatively, PFD could choose to geographically divide their response area to use the closest paramedic unit. Athol would retain a majority of calls, but TFD's ambulance is likely closer on a third of calls.
- PFD should consider methods to ensure quicker response to high priority calls at times when their station is unmanned.
- TFD Station 2 needs to have substantial capital needs addressed, including:
  - Reducing travel time from crew quarters to apparatus and eliminating the trip outside;
  - Reducing the number of stairs and doors between crew quarters and the apparatus floor; and
  - Improving climate control and exhaust ventilation/capture in the apparatus floor.
- Both towns should consider an adjustment for billing rates for the ambulance. Templeton revised theirs in 2017 and Phllipston last revised them in 2014. To be clear, only a small portion of patients actually pay the full amount they are

billed. Most transports are covered by Medicare, Medicaid or commercial insurance that pay only fixed amounts. The billing agency used by the two towns believes that both towns receive a very high proportion of what they are due. A reasonable method to compare billing rates would be to have the billing agency provide benchmarks for their other clients in the area. The table below shows the approved billing rates for each town plus the rate for Medicare.

Comparison of Billing Rates

	Last rate change	ALS	ALS2	BLS	MILEAGE	ANCILLARIES
Templeton	2017	$1,750	$2,250	$1,000	$27.50	Y
Phillipston	2014	$868	$1,257	$731	$25	Y
Medicare	2019	$ 474	$689	$399	$7.69	N

Staff Team

James Harrington, retired Chief of the Gates (NY) Fire District, conducted several interviews and provided invaluable expertise related to fire department operations.

Katherine Bell and Michael Silva assisted with the data analysis related to calls for service and response times. Kieran Bezila assisted with background research and in developing the report.

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Department Profiles

These profiles were developed over several months from July 2019 through November 2019. Some information was adjusted in early 2020 when changes were suggested by the departments.

Phillipston Fire Department

The Phillipston Fire Department (PFD) is a combination full-time and part-time/on-call fire department that provides BLS ambulance response to the town. The department is led by a part-time chief who is heavily supported by a full-time captain for administrative and day-to-day leadership tasks. There is another full time firefighter/EMT staff member who has just been appointed as a replacement for the prior system with several part time staff filling the role.

Staffing

PFD uses two paid firefighters from 0700 to 1500, Monday through Friday, to provide essential coverage during the day. The only full-time firefighter holds the rank of captain and is an EMT. The other position is a per diem person that might be a firefighter/EMT, EMT or FF/First Responder. This position is being transitioned to a full time position. Both have administrative and support roles assigned to them to help with the operations of the department, including maintaining files, scheduling maintenance, and maintaining the calendar. The department has been operating with two paid staff for about seven years, since they expanded their services to include a BLS ambulance.

The part-time chief was newly installed into the role in September of 2019. His role has been to help with overall planning, direction and supervision for the department. He has been working about 20 hours per week and is available to respond to emergencies and answer questions from the staff. He is a full-time deputy chief for the Athol Fire Department, but the work the Phillipston is independent of that positon.

There are 25 part-time/on-call members of the department. In total, about 45 percent of the staff are certified as EMTs. On-call members are eligible to be scheduled for a shift to fill in for the full-time staff during vacations or other absences. They also are scheduled to be on-call for an evening. They are paid $15 to be dedicated to the evening, plus they are paid for the time they are on a call. The hourly pay rates for the staff when working range from $15.11 for firefighters without EMT training to $30.08 for the interim deputy chief. Paid per-call firefighters are paid for the duration of the call each time they respond. They are also paid while they attend training.

Phillipston FD Personnel, (March, 2020)

	Count	Hourly Rate
Interim Fire Chief	1	$30.08
Full Time Captain/EMT	1	$21.25
Lieutenant/SO Officer/EMT – On-Call	1	$16.85
FF/EMT - On Call	6	$16.34
EMT - On Call	3	$15.97
Driver - On Call	2	$15.11
FF- On Call	7	$15.11
Probationary FF - On Call	4	$15.11
Total	25	

In FY 2019, there were 35 individuals that worked for the fire department. There was a full time captain/EMT and a part time interim chief during that period. The 33 other individuals worked a total of 4,806 hours and received $93,500 in pay during that time. The average number of hours worked was 141. A third of the firefighting staff worked less than 50 hours over the course of the year. The part time employee with the most hours worked 805 hours, over 300 more than the next busiest employee.

PFD On-Call and Per Diem Staff Hours 2019

Hours Worked	Number
Less than 50	13
51 to 150	10
151 to 250	5
251 to 350	2
More than 350	4
Average	141

The department reports that is a challenge to maintain adequate numbers of on-call and per-diem staff. There has been a substantial turnover in the department in the last few years as a result of some personnel performance issues and a resulting reorganization.

Station

PFD operates out of a single station located in the approximate center of the town at 90 State Road (MA 2A). The station has 6 bays operating out of three sides of the building. The station was built in 1998 and is located on a small plot of town land. In

addition to the apparatus bays, there is a watch room with radios and computer, a sizeable training room, a kitchenette, and several administrative offices. There are not any provisions for crews to sleep at the station. The building can operate fully on a diesel powered generator. There is a small (2 story) training tower located behind the station. The apparatus bays each have a vehicle exhaust capture system.

Apparatus

PFD operates two engines, a tanker, an ambulance and several utility trucks and forestry apparatus. They also have a UTV, a mobile light tower, and a small boat.

Phillipston Apparatus

Year	Designation	Manufacturer
2005	Engine 1	Smeal/HME
1995	Engine 3	E-One
2011	Tanker 2	International/E-One
2007	Ambulance 1	Ford/Horton
1985	Forestry 4	Chevrolet/D30
2011	Command	Dodge Durango
2019	Forestry 5	Ford 550/CET

Engine 1 is the first engine to respond to fire events. Along with typical equipment, it carries a set of hydraulic tools for vehicle extrication. Engine 3 has a hose reel with 1000' of 4 inch hose. Tanker 2 can be used as a first due engine with 1250 gpm pump, pre-connect hose lines and 3000 gallons of water. Squad 5 is capable of operating as both a forestry truck and as light duty rescue truck.

Apparatus Utilization

The ambulance responds to all EMS calls (when it's available) and to other large events leading to it responding on 78% of calls received by PFD in the last 5 years. The next most frequently used apparatus is Engine 1. Tanker 2 responded next most frequently, on about 5% of calls.

PFD Apparatus Utilization

Unit	2014	2015	2016	2017	2018	2019	Total	
24A-Phillipston Ambulance	58	147	130	132	134	55	656	78.4%
24EN1-Pumper-	23	42	35	49	65	26	240	28.7%
24EN3-Pumper-	2	7	2	4	4	0	19	2.3%
24F4-Brush-	4	4	9	9	2	3	31	3.7%

24F5-Brush-	0	2	4	2	0	11	19	2.3%
24PR-Heavy Rescue-	9	7	7	4	4	0	31	3.7%
24T2-Tanker-	2	5	9	7	11	4	38	4.5%

Equipment

In general, the department is well-equipped for a rural fire department, with appropriate gear for the risk environment including the use of high-density foam for structure fires and gear to battle brushfires. In the last five years, the department has acquired all new hose, 20 new SCBA units, 10 new sets of wildland firefighting gear, and a new automatic lifting stretcher for the ambulance. Federal grants assisted with the purchase of the SCBA units, a state grant helped with the wildland gear and a golf tournament fundraiser helped with the purchase of the automatic stretcher.

ISO Rating

The PFD was last evaluated by the Insurance Services Organization in 2016. ISO uses a 1-10 scale with 1 being the best. PFD received a rating of 9 for most of the Town and 10 for the properties more than five road miles from the fire station. Out of 377 fire departments rated in Massachusetts, 8 rated a 10, 41 rated a 9, and 87% rated an 8B or better. Lack of a water system is a key factor in the rating for Phillipston. It could be possible to earn a better score through documentation of more available water to the community.

Calls for Service Overview

Over the last five years, the department has responded to around 14 calls per month, or about 170 calls per year. About 60% of calls are for EMS, with another 13% being for accidents, usually with a motor vehicle – both of which typically involve an ambulance response. Further discussion on calls for service for both agencies follows in a separate section of the report. There are about 9.5 calls per 100 residents in the Town.

PFD Calls for Service

	2014* from 7/1/14	2015	2016	2017	2018	2019* 6/30/19	Total
Total	79	184	169	167	171	80	837
01: Fire	2	1	2	2	3	0	10
02: Accident Related	5	14	19	37	25	9	106

	2014* from 7/1/14	2015	2016	2017	2018	2019* 6/30/19	Total
03: EMS Calls	52	129	106	85	92	43	504
04: EMS Mutual Aid	0	0	0	1	0	1	2
05: Assist Police	0	5	6	4	5	2	17
06: Assist Other Agency	1	16	17	17	22	10	83
07: Fire Alarm	2	4	6	9	11	5	36
08: CO Detector	3	3	0	2	3	1	12
09: Fire Service	7	8	9	7	8	6	44
10: Outdoor Fire	1	2	3	1	0	2	9
11: Other Fires	5	1	1	2	2	0	11
12: Hazmat/Gas Spill	1	1	0	0	0	1	3
13: False Alarm/Call	0	0	0	0	0	0	0
Source: Templeton Police Dispatch							

For paramedic-level EMS calls, PFD's ambulance responds, but they also request a paramedic ambulance to respond. This is typically a joint dispatch from the Templeton Dispatch to the Athol Fire Department, which sends their ambulance from their headquarters station in the Town of Athol.

Finances

The PFD budget in 2019 was $250,253. This works out to about 5.4% of the town's total budget. The cost is about 21% higher in 2019 than it was in 2015. 69% of the fire department's cost is associated with salary for the staff.

PFD Budget Summary

Fiscal Year	2015	2016	2017	2018	2019
Fire Salary	$119,820	$126,579	$134,727	$147,654	$149,789
Fire Expense	$57,790	$60,146	$67,151	$64,979	$48,288
EMS Salary	$4,862	$6,329	$24,571	$24,197	$23,916
EMS Expense	$24,112	$32,224	$28,657	$29,132	$28,260
Yearly Total	$206,584	$225,278	$255,106	$265,962	$250,253
Change from Prior Year		9%	13%	4%	-6%

In addition to grant revenue for specific purposes, PFD generates revenue from ambulance transports. For FY 2019, the town received $32,225.14 for ambulance

services rendered in that year. With 74 EMS responses in FY 2019, this amounts to an average revenue per response of $435. The revenue from EMS transports covers about 13% of the costs of operating the fire department.

The town sets its own charges for ambulance service. The last revision to its ambulance charges (see below) was in 2014. PFD is paid for about 97% of the charges it is eligible to collect for according to its billing company. When there is an ALS transport, Phillipston is obligated to pay a share of their revenue to the department that provided the paramedic service.

PFD Billing Structure

	Advanced Life Support (Level 1)	Advanced Life Support (Level 2)	Basic Life Support	Per Mile	ANCILLARIES
Phillipston	$868	$1257	$731	$25	Y

Software

PFD uses Emergency Reporting software for making reports of their fire incidents to the state and national databases. This software program costs about $100 a month for the aspects used by PFD. They use IAMRESPONDING software to help track which on-call members are responding to assist on emergencies. This software costs $810 a year. PFD also uses AMBUPRO for writing their patient care reports.

Observations

PFD has undergone several substantial changes in the last decade. They instituted BLS transport ambulance service in 2012. At the same time, they added full-time paid staff for 8 hours a day, 5 days a week, to ensure that there was staff available to respond during that time. In 2018, there was a substantial change in department structure with the chief of the department leaving with several other staff members. This has been replaced by a captain and a part-time chief on an interim basis. The town has not increased their ambulance billing rate in about five years. Much of the record-keeping for areas such as training and equipment maintenance, is manual, either in written form or using self-designed spreadsheets.

Templeton Fire Department

The Templeton Fire Department (TFD) is a combination full-time and part-time/on-call fire department that provides paramedic ambulance response to the town. The

department is led by a full-time chief who also is tasked to respond on calls on a regular basis. TFD became a paramedic department in 2015 and became a full-time staffed organization during Fiscal Year 2018.

Staffing

TFD has a paid paramedic fire fighter on duty at all times. There are four full-time paramedics that work a rotation of 24-hour shifts on duty, then 72 hours off. This leads to an average of 42 hours per week for these staff. Effective in the middle of July 2019, the chief was scheduled for 40 hours per week, from 7:00 am to 3:00 pm, five days a week. He serves as the second person on the ambulance during that time. The department relies on on-call staff from 3:00 pm to 7:00 am to ensure that calls are covered during that time. On weekends, there is an on-call or part-time person on duty from 7 pm to 7 am. To stay active, on-call EMS personnel are required to sign up for one six hour on-call shift per week, from either 6 pm to midnight, or midnight to 6 am. There is a $20 stipend for each of these shifts.

The chief has been in the role for the last two years. He is assisted by several on-call officers including a deputy chief, two captains (one for each station) and four lieutenants (two for each station.) About a quarter of the fire department staff lack EMS certification and another quarter does not have firefighting training, but is used to staff the ambulance.

TFD Staffing Roster

Position Title	FY20 FTEs	Hourly Rate
Fire Chief	1	$74,576 (salary)
Deputy Fire Chief (part-time)	1	$15,634 (salary)
EMS Director	1	$24.00
Firefighter/EMT full-time	0	
Firefighter/Paramedic full-time	4	$23.69
Firefighter/Paramedic part-time	4	$22.00
Firefighter/EMT Call*	9	$16.00
Firefighter Call*	10	$15.34
EMT Call*	3	$15.75
Paramedic Call*	2	$22.00
Paramedic part-time*	1	$22.00
Firefighter/Paramedic Call*	2	$23.00
Administrative Assistant part-time	1	
	39	

The part-time staff are paid for hours worked when they are scheduled. When acting as on-call, they receive the stipend and a two-hour minimum. The full-time firefighters are required to go to the state academy for firefighting training. The part-time and on-call firefighters attend an in-house training program for firefighting. Continuing EMS training is handled locally for paramedics, EMTs and first responders. Original certification training for EMT certification is through an accredited program.

The department reports that it is able to maintain its minimum staffing needs but could use additional on-call staff to ensure an adequate response.

Stations

TFD operates out of two stations on opposite sides of the town. The Headquarters Station is at 2 School Street and is located in the Baldwinville section of the town. The Headquarters Station includes the living quarters for the on-duty crew, administrative offices and storage. It is the former building for the town's Light Department but was converted to use for the fire department over a decade ago. The main apparatus floor has four back-in bays and it is separated from the living quarters and offices by several hundred feet of parking lot. The four bays contain the primary ambulance, a ladder truck, the first-due engine and an out of service engine that is awaiting replacement in Fall 2019. In the building, along with the living quarters and offices, is a garage with three small bays that contains a military brush truck, a 1970s era forestry pick up, and an 1980s military forestry pick up. There are storage areas around the facilities for spare equipment. There is no vehicle exhaust system in these two buildings.

The other station (Station #1) is at 466 Patriots Road in the Templeton Center area. This building was built in the 1960s and is typically used only by the on-call staff. It houses the second-due ambulance, an engine, a tanker and a brush truck. The building has a small area to hold training classes. There is also an aging gear washer at the station, but no drying equipment.

Equipment

The department has adequate equipment for its area, including turnout gear for each of its firefighters. Several sets of turnout gear will need to be replaced in 2020 as they reach their maximum service age. The department's SCBA units are aging. They were acquired on a grant in 2005 and have a service life expectancy of 15 years. All 56 bottles have been replaced in the last few years. The current inventory has 26 SCBA units (masks, packs and regulators) that will need to be replaced in the next few years as they age out of warranty. Their bottles are a quick-connect system manufactured by Scott. On the EMS side, both ambulances have an electro-mechanical lifting stretcher and are equipped with paramedic equipment. The department is updating

their stretchers to models that will have a hydraulic lifting arm to assist in loading patients.

Apparatus

TFD operates two engines, a ladder, a tanker, two ambulances, a utility truck and three forestry trucks.

TFD Apparatus

Year	Designation	Manufacturer	Station
1989	Tanker 1		1
1999	Engine 2 (Rescue engine)	E One	HQ
2003	Engine 1	KME	1
2006	Ladder 1	KME	1
2007	Ambulance 2	Ford Diesels	HQ/1 (rotate)
2014	Ambulance 1	Ford Diesels	HQ/1(rotate)
2019	Engine 3		HQ
1978	Forestry 2		HQ
1983	Forestry 1		HQ
1985	Forestry 3		HQ
1984	Utility 8		1

Ladder 1 has a 75-foot straight stick and it meets the qualifications of a quint with pump, tank and full supply of hose. Engine 2 was acquired as a used apparatus several years ago and. It has a vehicle-mounted SCBA fill system, 1000 gallon water tank and 1250 gpm pump. Forestry 1 and 3 are military units with slide-in units with water tanks (500 gal. for #1 and 1000 gal for # 2) and small pumps designed for the task. Forestry 2 is owned by TFD and is a converted pick up with a 300 gallon tank. The two ambulances rotate their service as the primary unit on a weekly basis. Engine 3 (which was received in November 2019) is the first engine to respond out of headquarters. It has a six-man cab, a 1000 gallon tank and a 1500 gpm top-mount controlled pump. The vehicle comes equipped with a new battery-powered extrication tool. TFD is also finalizing a lease to replace Ambulance 2 during calendar 2020.

Apparatus Utilization

The two ambulances respond to 58% and 34% of the calls received by the department, as they go to all EMS calls and other substantial events. They also could both be needed at the same incident. The next busiest pieces of equipment are the two first-due engines responding to 9% and 8 % of events, respectively. The ladder truck responded to 1.4% of calls in the 61 months covered, which averaged once a month.

TFD Apparatus Utilization

	2014	2015	2016	2017	2018	2019	Total	Percent
29A1-AMBULANCE 1	240	467	436	580	580	239	2542	58.4%
29A2-AMBULANCE 2	151	307	304	228	257	246	1493	34.3%
29E1-Pumper-	29	58	75	60	104	52	378	8.7%
29E2-Pumper-	0	20	76	93	98	64	351	8.1%
29E3-Pumper-	22	45	7	0	0	0	74	1.7%
29E4-Pumper	3	1	0	0	0	0	4	0.1%
29F1-Brush	2	5	12	6	3	1	29	0.7%
29F2-Brush	1	15	11	15	7	12	61	1.4%
29F3-Tanker-	1	2	8	4	1	1	17	0.4%
29L1-Aerial-	6	12	15	9	10	8	60	1.4%
29R1-RESCUE 1	4	0	1	0	0	0	5	0.1%
29R8-Support-CASCADE	1	0	0	0	0	0	1	0.0%
29T1-Tanker-	2	6	3	3	6	3	23	0.5%

Insurance Services Organization Public Protection Rating

The Insurance Services Organization rates each fire department in Massachusetts and most other states on several categories to assess their effectiveness. The categories are used to develop a 1-10 rating with 1 being the best. TFD rated a 6/6X. In the state, 294 fire departments rate better and 64 worse[7]. Areas for potential improvement noted in the report revolve around training, personnel and the water supply.

TFD ISO Rating

ISO Ratings	Available Credit	Templeton
Communications	10	6.5
Engine Cos.	6	4.01
Reserve Pumpers	0.5	0
Pump Capacity	3	3
Ladder Service	4	2.85
Reserve Ladder	0.5	0
Deployment Analysis	10	5.06
Company Personnel	15	1.7

[7] The full ISO report with explanation of the different rating categories is included with the report.

ISO Ratings	Available Credit	Templeton
Training	9	1.9
Operational Considerations	2	2
Water Supply	40	26.5
Divergences		-5.04
Risk Reduction	5.5	0.0
Total Credit	105.5	48.48

Calls for Service Overview

Over the last five years, the department has responded to around 70 calls per month or about 845 calls per year. About 74% of calls are for EMS, with another 8% being for accidents, usually with a motor vehicle – this totals about 80% of calls with an ambulance response. There are about 11 calls per 100 residents in the Town. Further discussion on calls for service for both agencies follows in a separate section of the report.

TFD Calls for Service

	2014* from 7/1/14	2015	2016	2017	2018	2019* 7/31/19	Total
Total	439	845	822	848	864	536	4,354
01: Fire	4	11	16	14	4	5	54
02: Accident Related	23	56	64	67	88	33	331
03: EMS Calls	361	669	595	620	595	346	3,186
04: EMS Mutual Aid	0	0	2	2	2	4	10
05: Assist Police	5	15	33	53	67	44	217
06: Assist Other Agency	5	13	32	9	14	13	86
07: Fire Alarm	16	34	38	44	50	36	218
08: CO Detector	5	5	5	4	5	2	26
09: Fire Service	17	31	20	19	26	35	148
10: Outdoor Fire	1	5	8	9	2	6	31
11: Other Fires	1	6	5	5	6	7	30
12: Hazmat/Gas Spill	1	0	2	2	3	1	9
13: False Alarm/Call	0	0	2	0	2	4	8

Finances

The TFD budget in 2019 was $723,653. This works out to about 8.4% of the town's total budget. The cost is about 25% higher in 2019 than it was in 2015. 69% of the fire department's cost is associated with salary for the staff or other compensation/benefits for the personnel. The substantial increase in the cost for the fire department is associated with the expenses related to operating a paramedic program and ensuring that a paramedic is on duty at all times.

TFD Budget Summary

Fiscal Year	2015	2016	2017	2018	2019
Fire/EMS Salary	$326,156	$343,969	$322,221	$390,254	$502,524
Fire/EMS Expense	$210,715	$213,091	$202,176	$188,106	$221,129
Yearly Total	$536,871	$557,060	$524,397	$578,360	$723,653
		4%	-6%	10%	25%

In addition to grant revenue for specific purposes, TFD generates revenue from ambulance transports. For FY 2019, the town received $317,698.46 for ambulance services rendered in that year. With 602 EMS responses in FY 2019, this amounts to an average revenue per EMS call of $527.74. The revenue from EMS transports covers about 43% of the costs of operating the fire department.

The town sets its own charges for ambulance service. The last revision to its ambulance charges (see below) was in 2017. TFD is paid for about 97% of the charges it is eligible to collect for, according to its billing company.

TFD Billing Rate Table

	Last rate change	ALS	ALS2	BLS	MILEAGE	ANCILLARIES
Templeton	1/1/2017	$ 1750	$ 2250	$ 1000	$ 27.50	Y

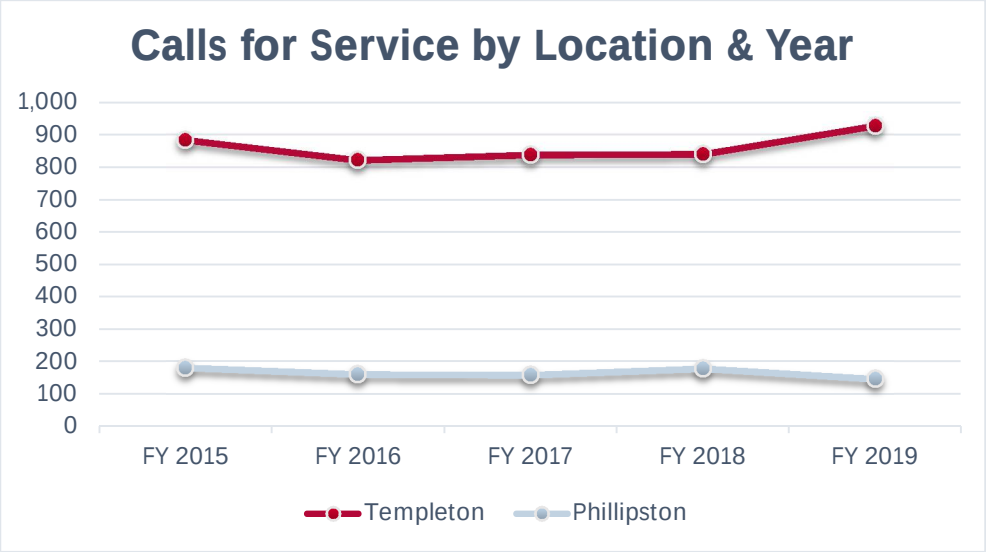
Software

TFP uses several different software programs to help manage its operations. Image Trend is used for EMS patient care reporting. IMC software is used to track fire incidents for reporting to the state and federal databases. EPro Software is used for scheduling employees. PSTrax is used to manage the EMS vehicle checks and to track personal protective equipment. IAMRESPONDING is used to track members who are

responding to calls. In total, the department spends about $12,500 on their different software packages.

Calls for Service

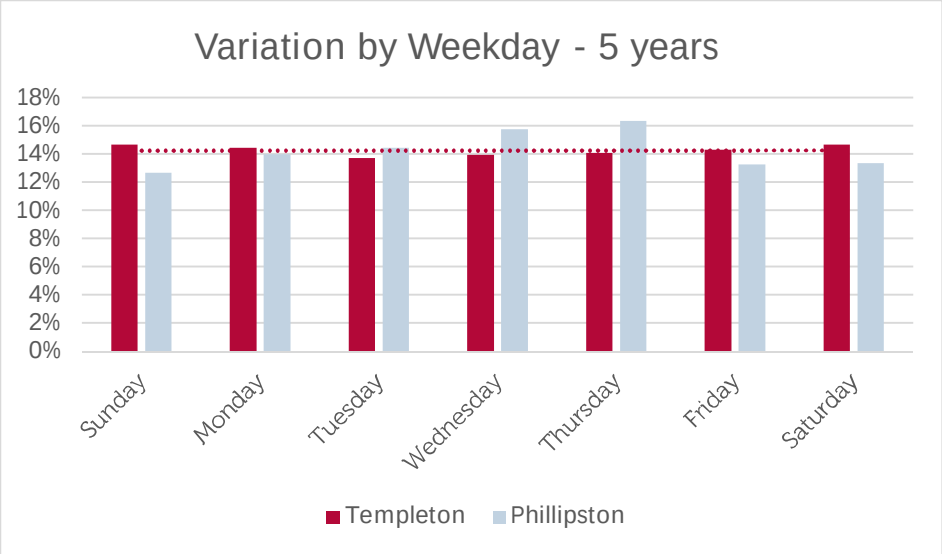
CGR received fire and EMS calls for service data for both Templeton and Phillipston from their dispatch center operated by the Templeton Police Department. This data ranged from July 2017 through July 2019. In total, there were 5,391 records. CGR geo-coded the calls for service data and identified coordinates for all but eight records. The calls for service data is presented below in a series of tables, charts and maps.

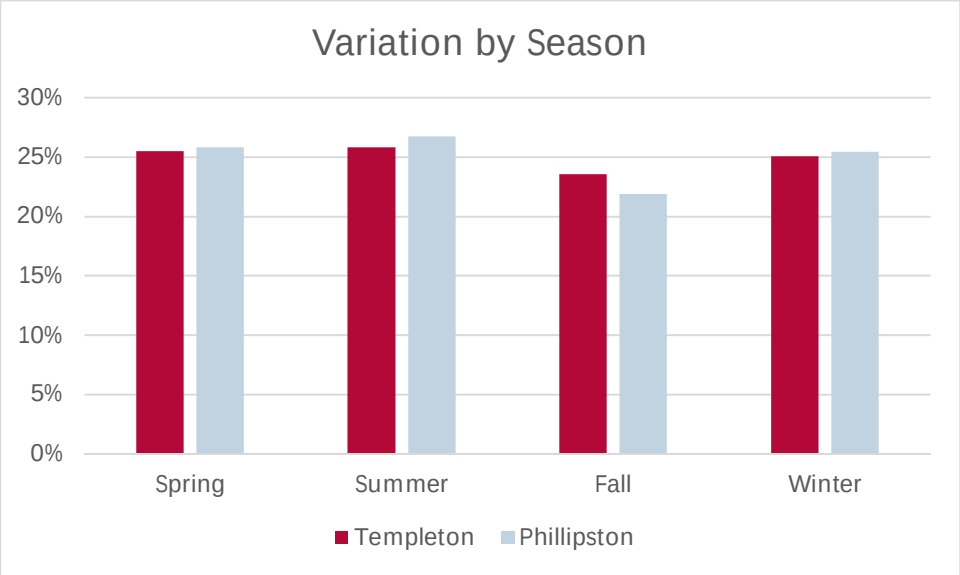


Templeton had an average of 845 calls for service over each of the past five fiscal years, while Phillipston had 167. The rate of calls by population is higher (11 per 100 residents) in Templeton than in Phillipston (9.5 per 100 residents.) This disparity can be attributed to the lower rate of EMS calls (6.5 per 100) in Phillipston compared to Templeton (8.9 per 100). The rate of other requests for the fire department is essentially even between the two (3 per 100 in Phillipston and 2 per 100 in Templeton). A more thorough evaluation of the users of EMS services would be needed to identify potential causes for the variation.

Seasonal and Weekday Variation

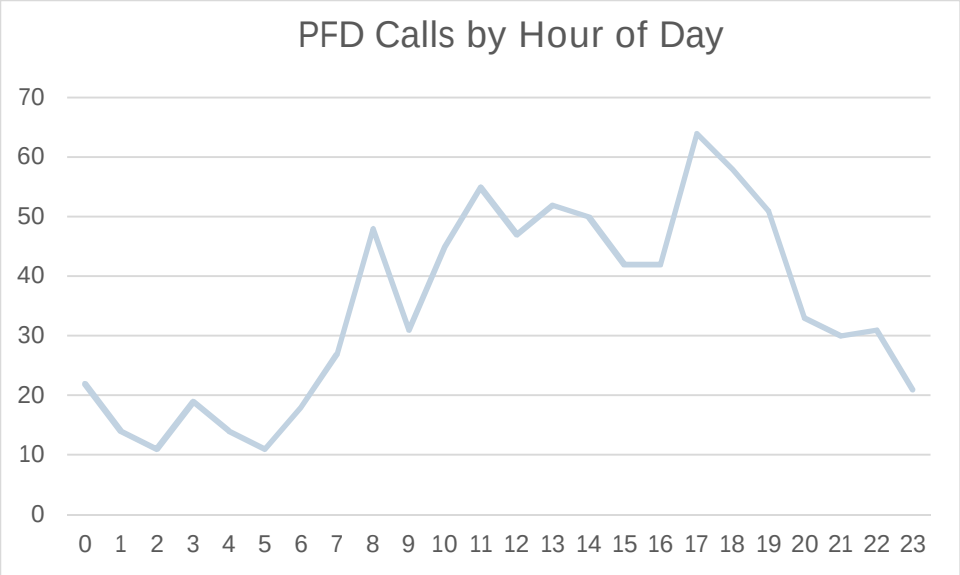
As seen in the following charts, over the last five years there is little variation in call volume by day of week or by season for either of the departments.



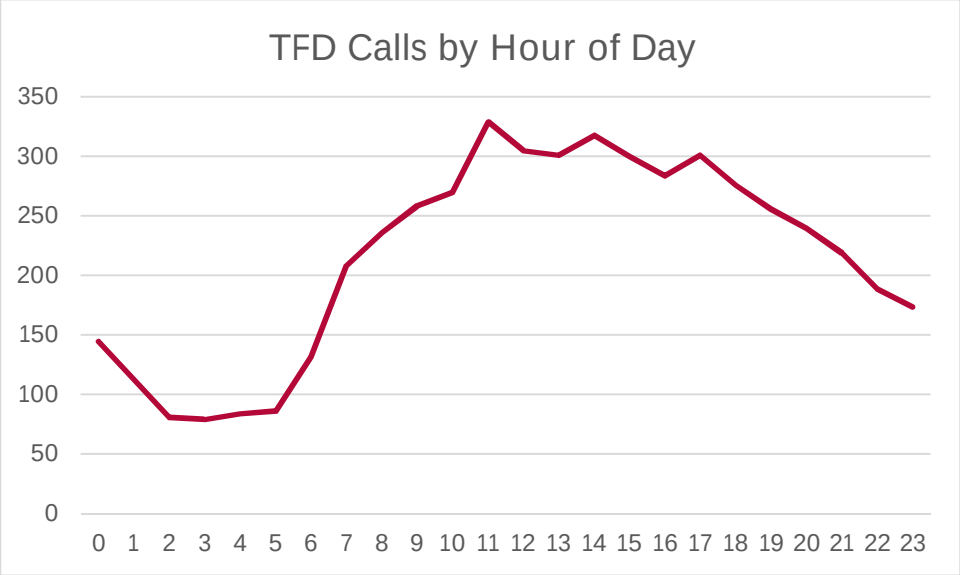


Time of Day Variation

As is often seen in calls for service, there is a substantial variation in calls based on the time of the day. For Phillipston, the peak hour for calls is 5 pm, with about 8% of calls. During the 12 hours from 8:00 am to 7:59 pm, 70% of the calls occurred. The current paid shift for the full-time staff is during the hours when about a third of calls occurred (272 of 836) over the past five years.



For Templeton, the peak hour for calls occurred at 11 am, with about 6% of calls, although every hour between 11:00 am and 5:00 pm accounted for about 6% of calls. Two-thirds of calls occurred during the 12 hours between 8:00 am and 7:59 pm.



Response Time Analysis

Both communities are characterized by having sections of the towns with relatively dense populations, separated by rural areas. This topography leads to a disparity in response times based on location that is not easily addressed by fire departments. In short, it is difficult to respond to rural locations even when staff is available, resulting in longer response time for all calls in the community. For this project, response times

were calculated from the time of dispatch to the time the unit called on scene. This measurement includes the time it takes for the crew to muster and begin to respond, as well as the actual travel time to the scene. It does not consider the time it takes answer the call and gather information from the caller, which can vary from 30 seconds to several minutes and is outside the influence of the fire department.

Response times are a frequently used metric for fire service performance. While it is intuitive that quicker responses are generally better, there is also research to support a quick response in two key types of events. For a patient in cardiac arrest, survival rates are better for patients with CPR starting in several minutes and an AED in less than 8 minutes from time of the event occurring. For a house on fire, suppression efforts are more successful if a fully equipped team of a dozen firefighters can begin to fight the fire in less than ten minutes. Both of those types of events are relatively rare, but response times are often judged based on those types of calls.

On this project, we identified both the median response time and the 90th percentile response time for all calls and also for several subcategories. The 90th percentile time indicates that 90% of calls had a response time shorter than the indicated time.

Phillipston Response Times

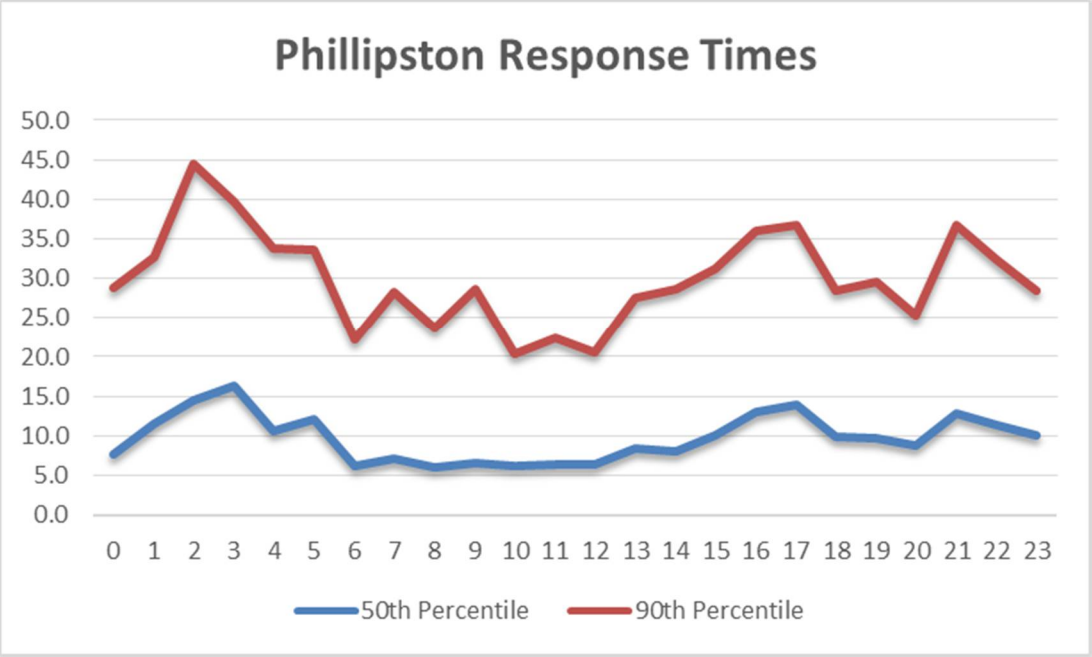
For all Phillipston calls, there is a median response time of 8 minutes, 48 seconds and they respond to 90 percent of calls in under 21 minutes and 12 seconds. For fire-only calls, the response time is a median of 11 minutes and 90 percent response at 25 minutes 12 seconds. For EMS-only calls, the median is 7 minutes and 48 seconds while the 90 percent response was at 18 minutes, 24 seconds. The tables below show that Mutual Aid calls increase the response times while the Accident calls have quickest response times.

PFD Response Time Matrix

Call Type	2018 Count	2014-2018 Total	2015-2018 Avg	Median	90th Percentile
01: Fire	3	10	2	7.2	13.8
02: Accident Related	25	106	23	6.5	15.2
03: EMS Calls	92	504	102	8.4	18.4
04: EMS Mutual Aid	0	2	0	11.3	11.9

Call Type	2018 Count	2014-2018 Total	2015-2018 Avg	Median	90th Percentile
05: Assist Police	5	17	4	7.2	20.3
06: Assist Other Agency	22	83	18	21.5	32.8
07: Fire Alarm	11	36	7	9.8	21.5
08: CO Detector	3	12	2	12.0	23.2
09: Fire Service	8	44	8	10.2	23.7
10: Outdoor Fire	0	9	2	7.7	9.6
11: Other Fires	2	11	2	16.2	24.8
12: Hazmat/Gas Spill	0	3	0	0.0	8.3
13: False Alarm/Call	0	0	0	n/a	n/a
Total	171	837	170	8.8	21.2

Response times are noticeably more rapid during the hours between 7:00 am and 3:00 pm. The median response time during those hours averaged 7 minutes and 6 seconds, while the other hours of the day they average 11 minutes and 36 seconds. If you exclude weekends, the median response times during the day improve to 6 minutes and 6 seconds. For EMS-only calls during staffed station hours, the median response time is 5 minutes, 42 seconds and 90 percent of calls are answered in under 9 minutes and 24 seconds. About a third of calls occurred during this time period, which accounts for a quarter of the week.



Templeton Response Times

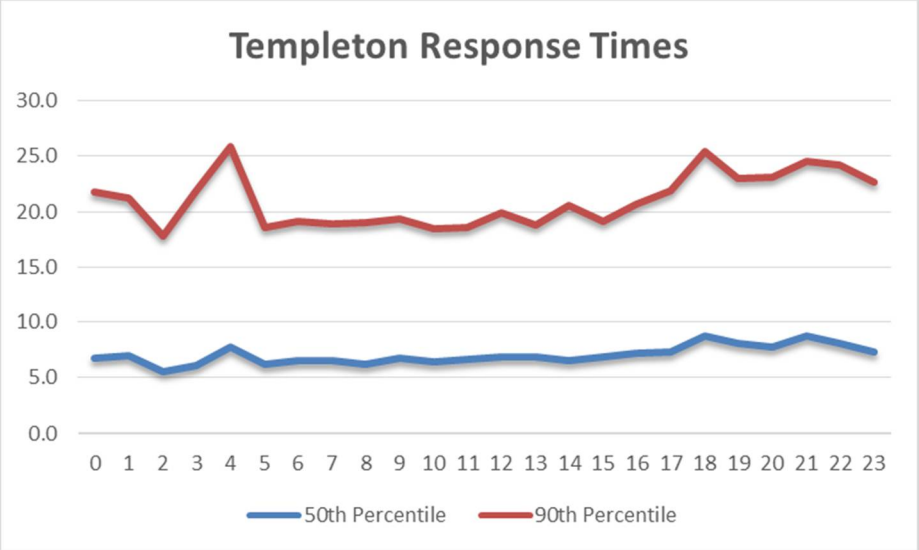
For Templeton, there is a median response time of 7 minutes and a 90th percentile response time of 13.0 minutes. For Fire calls, there is a median response of 5.5 minutes and a 90th percentile response time of 13.4 minutes. On EMS calls, the median response time is slower by almost 2 minutes, at 7.3 minutes, while the 90th percentile remains essentially the same. The tables below show that Assist Other Agency (mutual aid) calls increase the response times while the Accident calls have quickest response times, almost a minute quicker than the next fastest category.

TFD Response Time Matrix

Call Type	2018 Count	2014-2018 Total	2015-2018 Avg	Median	90th Percentile
01: Fire	4	54	11	5.5	13.4
02: Accident Related	88	331	69	4.6	8.7
03: EMS Calls	595	3,186	620	7.3	13.5
04: EMS Mutual Aid	2	10	2	7.3	15.3
05: Assist Police	67	217	42	6.4	13.1

Call Type	2018 Count	2014-2018 Total	2015-2018 Avg	Median	90th Percentile
06: Assist Other Agency	14	86	17	16.9	28.8
07: Fire Alarm	50	218	42	7.4	14.6
08: CO Detector	5	26	5	7.5	16.2
09: Fire Service	26	148	24	8.2	20.5
10: Outdoor Fire	2	31	6	10.2	17.6
11: Other Fires	6	30	6	7.6	13.4
12: Hazmat/Gas Spill	3	9	2	2.6	10.6
13: False Alarm/Call	2	8	1	9.2	14.3
Total	864	4,354	845	7.0	13.0

When looking at response times by the hour of day, Templeton's median response time is fairly consistent during daytime hours at 6 minutes, 36 seconds, but does creep up in evening hours (5:00 pm to midnight) to 7 minutes and 42 seconds. This shift is likely due to the use of on-call personnel to help staff the evening and overnight hours. Interestingly, response times during the overnight hours are not noticeably slower than the daytime hours.



The call response data tracks different districts inside Templeton. The station that is always staffed is in the Baldwinville section of the Town. 45% of calls are in that area of the community. The next busiest area, with 26% of calls, is Templeton Center where the other, unstaffed, fire station is located. The median response time is nearly two minutes longer in Templeton Center and East Templeton, compared with Baldwinville.

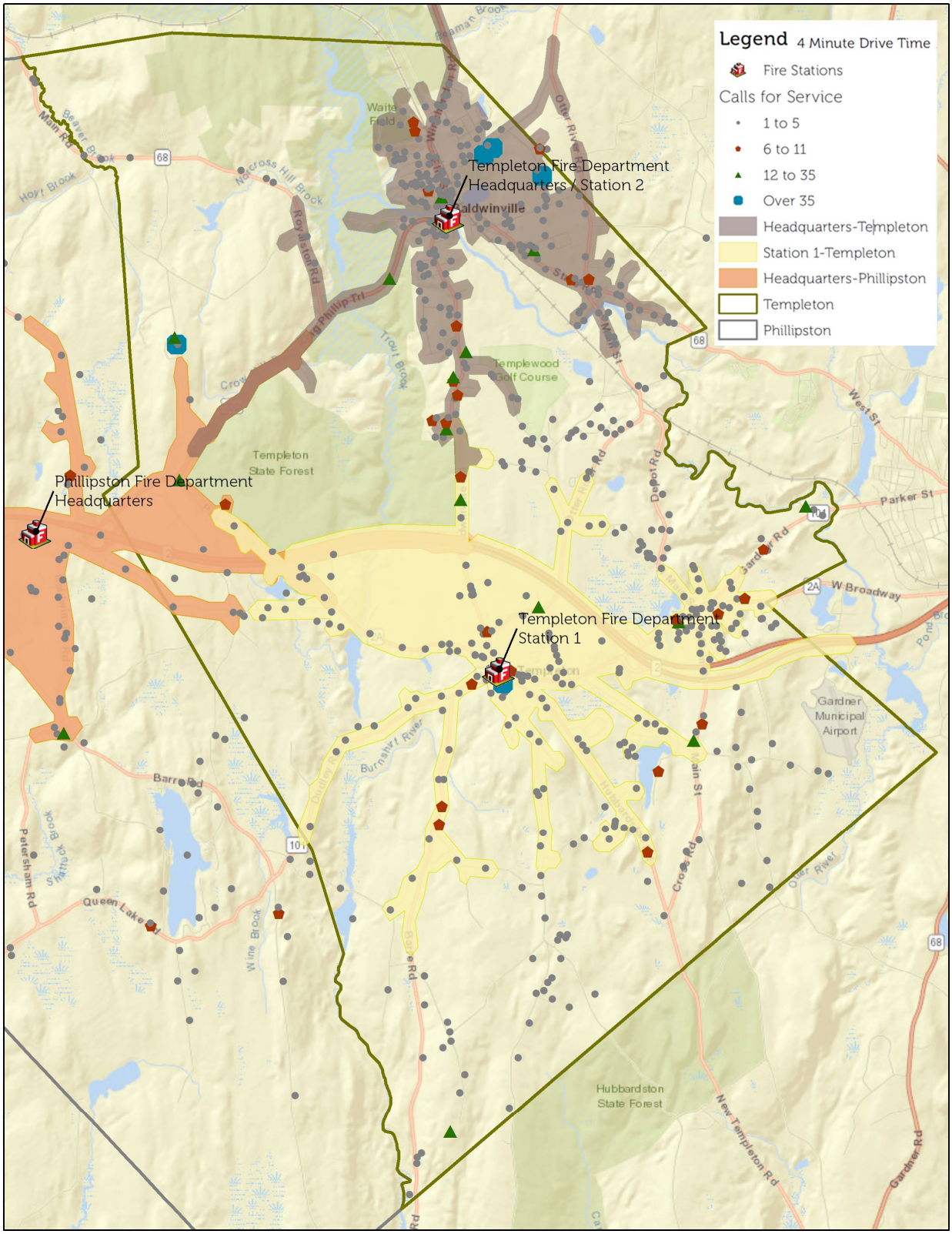
TFD Response Times to Sections

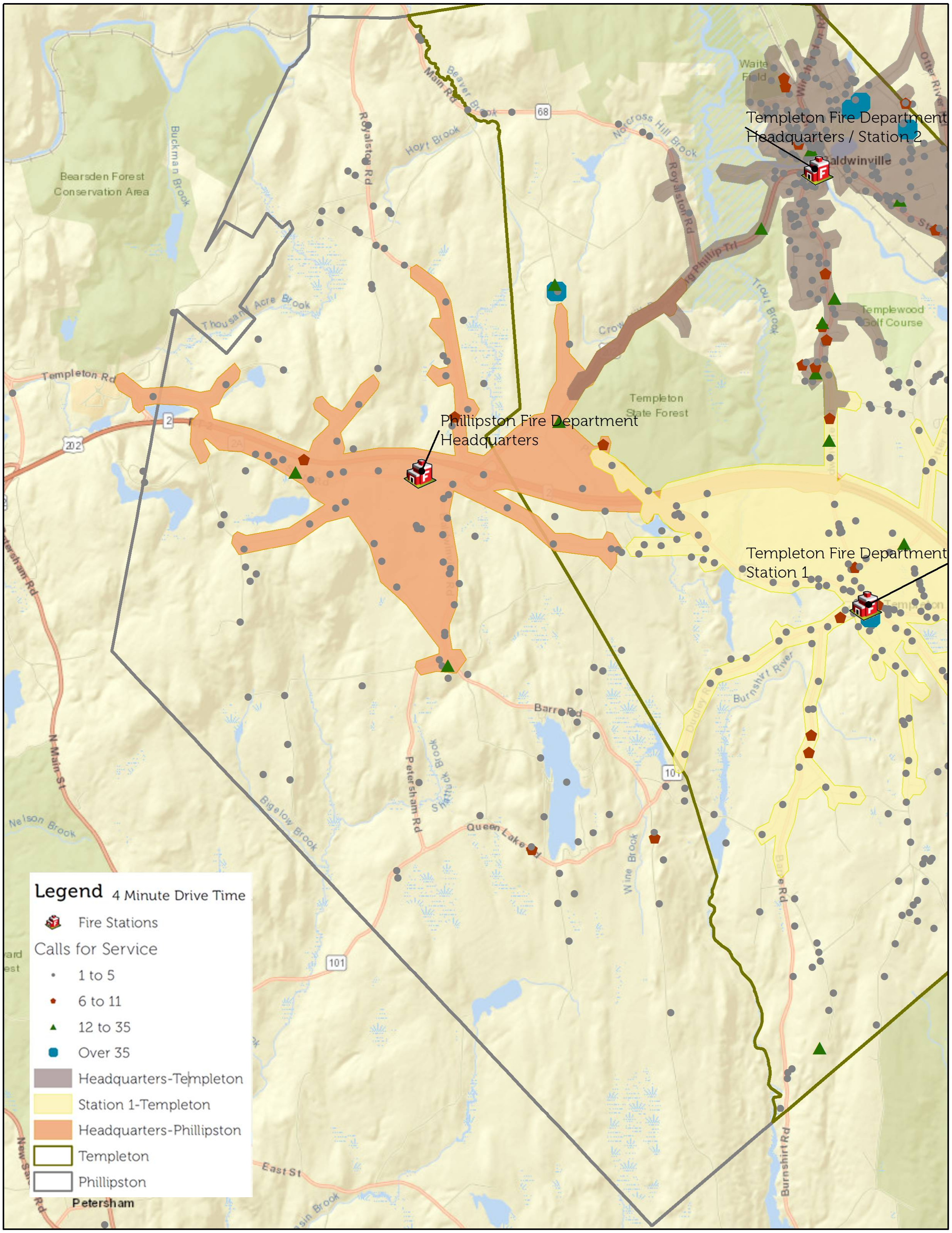
Dispatch Districts	**2018 Count**	**2014-2018 Total**	**2015-2018 Avg**	**50th Percentile**	**90th Percentile**
Baldwinville	406	1,987	391	6.1	13.2
East Templeton	155	772	148	8.2	13.5
Otter River	54	360	68	6.8	12.9
Templeton Center	237	1,147	223	8.0	14.5
Desk	12	87	16	14.0	27.2

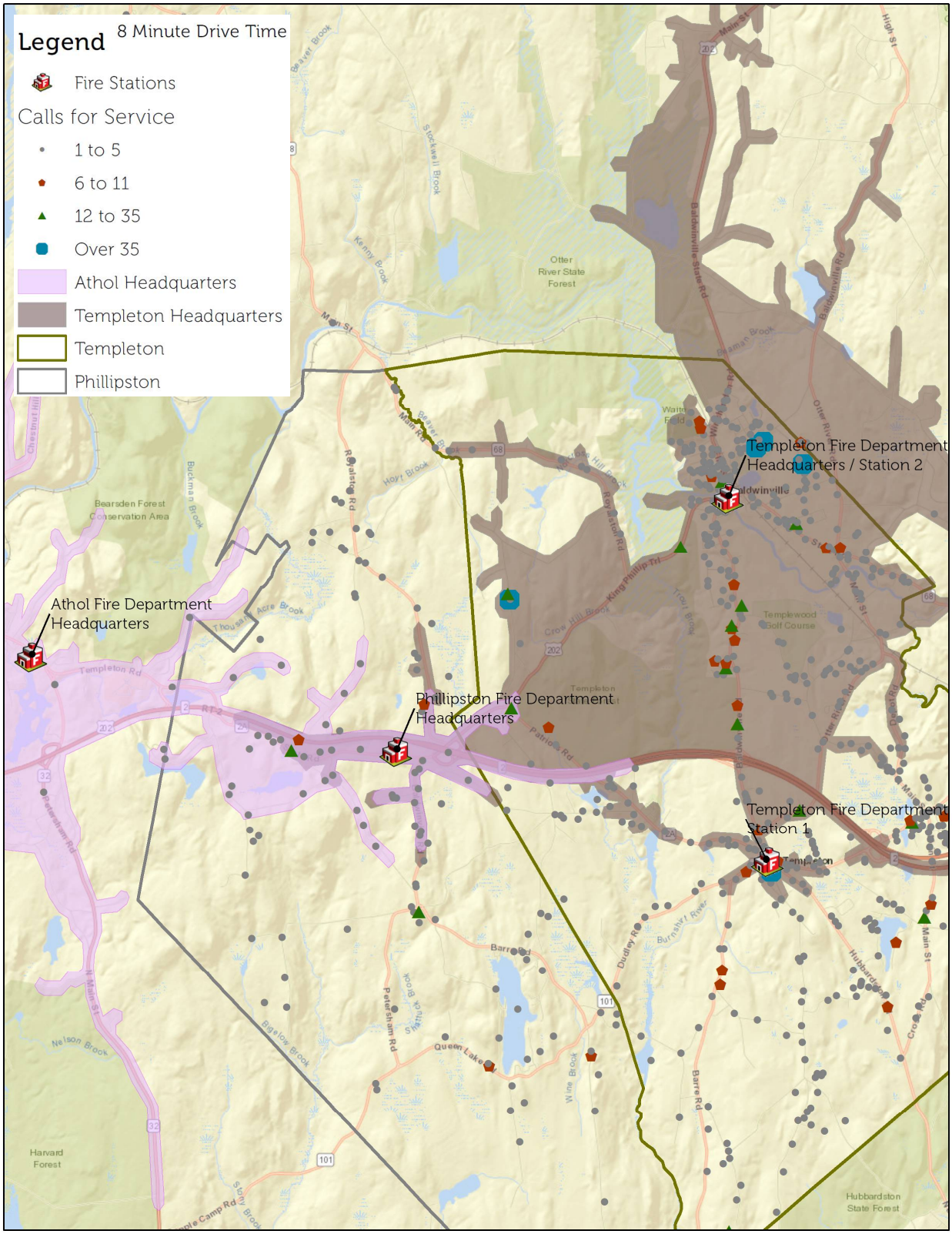
Maps

As seen on the TFD call map, the distribution of calls in town is concentrated in the area north of Route 2, with many of the calls occurring in the Baldwinville area. The shaded areas indicate what geography can be reached inside a four-minute drive time. The majority of calls in the Town are within that drive distance of one of the two stations, but as noted elsewhere, only the Headquarters station is typically staffed, which leads to longer response times in the southern part of the town. Additionally, some calls in the western portion of the town are actually closer to the Phillipston station.

As seen on the PFD call map, many of the calls are inside the four-minute drive time, include calls in Templeton. PFD's station is well located in the center of the town and has relatively good road access to the whole town. On the second PFD map, we looked at which potential paramedic service would provide better service in the town. The Athol Fire Department routinely provides paramedic service to PFD. When looking at the 242 locations where there were calls in Phillipston, 97 of the locations (40%) are within an eight-minute drive of Athol and 79 locations (33%) are within an eight-minute drive of TFD's headquarters.


Legend 4 Minute Drive Time
Fire Stations
Calls for Service
1 to 5
6 to 11
12 to 35
Over 35
Headquarters-Templeton
Station 1-Templeton
Headquarters-Phillipston
Templeton
Phillipston
Templeton Fire Department Headquarters / Station 2
Baldwinville
Phillipston Fire Department Headquarters
Templeton Fire Department Station 1
Templeton State Forest
Templewood Golf Course
Gardner Municipal Airport
Hubbardston State Forest
Waite Field
Hoyt Brook
Beaver Brook
Main Rd
Nocross Hill Brook
Royalston Rd
Trout Brook
Otter River
Main St
West St
Parker St
W Broadway
Depot Rd
Gardner Rd
Cross Rd
New Templeton Rd
Barre Rd
Petersham Rd
Queen Lake
Wine Brook
Burnshirt River
Pond Brook
68
2A
10


Templeton Fire Department
Headquarters / Station 2
Phillipston Fire Department
Headquarters
Templeton Fire Department
Station 1
Legend 4 Minute Drive Time
Fire Stations
Calls for Service
1 to 5
6 to 11
12 to 35
Over 35
Headquarters-Templeton
Station 1-Templeton
Headquarters-Phillipston
Templeton
Phillipston


Legend
8 Minute Drive Time
Fire Stations
Calls for Service
1 to 5
6 to 11
12 to 35
Over 35
Athol Headquarters
Templeton Headquarters
Templeton
Phillipston
Templeton Fire Department Headquarters / Station 2
Athol Fire Department Headquarters
Phillipston Fire Department Headquarters
Templeton Fire Department Station 1
Otter River State Forest
Bearsden Forest Conservation Area
Templewood Golf Course
Harvard Forest
Hubbardston State Forest

Comparative Communities

In an effort to benchmark the performance of the two fire departments, several benchmarks for each town were identified. The tables below show how the different communities compare in a variety of characteristics. Much of the data is drawn from Division of Local Services of the Massachusetts Department of State.

Peer Community General Characteristics

Peer (Templeton or Phillipston)	Town	County	2015 Population	Land Area	Pop. Density	Total Budget Millions
P	Barre	WORCESTER	5,496	44	124	$12.84
P	Bernardston	FRANKLIN	2,101	23	90	$5.63
P	Erving	FRANKLIN	1,776	14	129	$12.58
P	New Salem	FRANKLIN	999	45	22	$3.43
P	Northfield	FRANKLIN	2,992	34	87	$10.16
P	Phillipston	WORCESTER	1,747	24	72	$4.80
T	Ashburnham	WORCESTER	6,209	38	162	$19.27
T	Athol	WORCESTER	11,654	32	361	$23.66
T	Ayer	MIDDLESEX	8,001	9	897	$35.83
T	Dudley	WORCESTER	11,587	21	557	$21.66
T	Monson	HAMPDEN	8,789	44	199	$29.97
T	Montague	FRANKLIN	8,272	30	274	$24.26
T	Orange	FRANKLIN	7,651	35	218	$23.81
T	Templeton	WORCESTER	8,176	32	256	$19.13
T	Townsend	MIDDLESEX	9,515	33	290	$23.93
T	Winchendon	WORCESTER	10,698	43	249	$33.18

Phillipston falls in the middle of its selected peers with most of its characteristics. Templeton's land area, population and population density is also in the middle of its peers, while its total budget is the lowest.

Peer Community Fire Cost Comparison

Peer	Town	Total Budget (millions)	Budget Per Capita Share	Fire Budget (2019)	FD share of Total Budget	Fire Dept. Cost Per Capita
P	Barre	$12.84	$2,337	$226,117	2%	$41
P	Bernardston	$5.63	$2,678	$87,165	2%	$41
P	Erving	$12.58	$7,081	$242,772	2%	$137
P	New Salem	$3.43	$3,433	$72,159	2%	$72
P	Northfield	$10.16	$3,395	$108,769	1%	$36
P	Phillipston	$4.80	$2,750	$212,893	4%	$122
T	Ashburnham	$19.27	$3,104	$754,312	4%	$121
T	Athol	$23.66	$2,030	$1,900,761	8%	$163
T	Ayer	$35.83	$4,478	$1,665,731	5%	$208
T	Dudley	$21.66	$1,869	$1,018,805	5%	$88
T	Monson	$29.97	$3,410	$410,051	1%	$47
T	Montague	$24.26	$2,933	$0	0%	$0
T	Orange	$23.81	$3,112	$1,072,635	5%	$140
T	**Templeton**	**$19.13**	**$2,340**	**$578,359**	**3%**	**$71**
T	Townsend	$23.93	$2,515	$985,070	4%	$104
T	Winchendon	$33.18	$3,101	$885,221	3%	$83

Phillipston's cost per capita in the fire service is the second highest among its peers. It also has the highest fire department share of the budget among its peers, at 4 % of its total budget, compared to 1 and 2%. However, its per capita cost and FD budget size are in the middle of its peers.

Templeton ranks as one of the lowest for fire department costs per capita, total budget size, and share of fire department in the general budget. The total fire department budget was the lowest among its peers with fire departments. The town of Montague has two separate fire districts that serve it with their own distinct budgets and is excluded from this comparison.

Firefighter Wage Comparison

To benchmark fire department wages, CGR sought out wage information from the benchmark communities through direct requests or information available through public means. Position descriptions were not always clear and other compensation

such as on-call stipends were not included. For the accompanying table, wage figures are shown rounded to the nearest dollar.

Peer Community Firefighter Wage Comparison

	Firefighter		FF/EMT		FF /Paramedic		Line Officer	
Town	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.
Barre	$14	$15	$16	$19	$24	$27	$20	$21
Bernardston	$12	$12					$15	
Erving	$15	$15	$19	$19				
New Salem	$12	$20						
Northfield	$17	$17						
Phillipston	$15	$15	$16	$16			$18	$18
Ashburnham	$17	$17	$18	$17	$22	$24	$22	$28
Athol	$18	$21	$21	$24	$23	$26		
Ayer			$24	$31			$31	$33
Monson	$11	$16			$18	$20		
Montague (Turner's Falls)	$18	$18	$20	$20			$22	$22
Orange					$24	$24		
Templeton	$15		$16		$22	$24		
Townsend	$16		$23	$25	$25	$28	$28	$32
Winchendon	$20	$24			$24	$28	$21	$29
Average	$15	$17	$19	$21	$23	$25	$22	$26
Maximum	$24		$31		$28		$33	
Minimum	$11		$16		$18		$15	

Phillipston and Templeton wages are comparable for the positions that they each have (Firefighter = $15 to $16 and Firefighter/EMT = $16). They are substantially below the reported maximum wages for those categories of $24 and $31. They each are among the lowest for the wage scale for firefighter/EMTs. Templeton's firefighter/paramedic wages are four dollars more than the minimum reported, but are still among the lowest for that category among the peer group.

Options for Improvement

These options are presented as a range of high-level opportunities to respond to the existing conditions as noted elsewhere in this report. Additionally, it is important to acknowledge other factors that exist in Templeton and Phillipston that will influence any changes to the fire departments. These factors include:

- The rural nature of the community precludes the level of fire protection and EMS found in more densely populated areas;
- The competition for municipal dollars under the tax ceiling forces difficult choices between public safety and other community needs;
- There are a limited number of adults physically able and interested in becoming involved in the fire service;
- The "graying" of the population both increases the demands for EMS service and decreases the number of people available to provide the service;
- The small size of the operations requires all personnel and particularly the leadership to continuously switch between tasks leading to a decline in efficiency; and
- The national fire service is continuously increasing their standards, requiring capital investment from communities.

The Options presented in this report range from minor changes in the individual department practices to the concept of a consolidated department. Accomplishing most of these options will require additional work from staff of the fire departments and the two towns on at least a short term basis. In some cases, there would need to be substantial effort put forth on an ongoing basis to accomplish the options.

Consolidation of Services

Given the relative paucity of resources in both departments, there is little immediate benefit of merging the two departments unless it would allow them to access additional financial resources through grants or a dedicated funding stream such as a fire district.

- In order to lead toward long term alignment of the two department's operations, there might be some benefit from a shared fire chief. In the current circumstances, PFD might benefit from TFD's fire chief if he had dedicated administrative time to share with PFD. This effort could be supported through an inter-municipal agreement with Phillipston purchasing a certain share of the TFD Chief's time to conduct leadership tasks in Phillipston. However, this would only be financially beneficial if the cost was less than the current arrangement where PFD has hired a part time fire chief that works 10-20 hours per week providing leadership and administrative support.

- A dedicated training officer could be a benefit for the two departments. This positon could also have ancillary response duties, but their primary focus should be developing and conducting a training curriculum, maintaining training records, and ensuring compliance among the workforce. This could be accomplished with dedicated per diem hours rather than a specific fulltime hire. Another possible avenue would be for one of the two full time staff at PFD serving in the role of joint training officer for both departments. This could be accomplished through an inter-municipal agreement.
- There might be benefit in having on-call or per diem firefighters jointly appointed between the two departments in order to be able fill shifts in either department, respond to calls as needed or participate in training at either department. This might need further exploration to ensure compliance with regulations and insurance policies. Examples of concerns that would need to be ironed out include completion of annual physicals, familiarization to equipment and availability of appropriate personal protective equipment.
- Other shared resources such as administrative staff might also be helpful for the two departments. Currently TFD has a part time administrator and PFD relies on their firefighting staff for administrative tasks. The administrative tasks are similar between the departments and a single person working for both might bring some efficiency.

Recruitment and Retention

Both departments expressed concern with being able to meet their staffing needs in the medium to long term, particularly in finding employees with specific credentials such as EMT and paramedic. These options are opportunities to improve the function of the department in these areas. Again, there would need to be effort by fire department staff to be successful in accomplishing these options. These options do not need to be pursued jointly, but there may be some benefit if they are done together.

- Work with the high school to recruit future members of the organization through career exploration programs or a formal education program
- Develop an Explorer/Junior FF program
- Recruit women to participate as firefighters. Both departments already accept women as callmen and firefighters in all positions in the organization. The suggestion is to conduct a specific, targeted campaign to recruit from a population that has historically not been sought by fire departments across the country.
- Investigate recruiting from service organizations such as Rotary, Kiwanis, Scouts to help fill the needs of current callmen.
- Involve other employees in the town to participate as callmen OR to assist on the fireground in nonhazardous situations. Phillipston already does this with

several members of the DPW staff trained to operate the tanker and provide scene support.
- Work with the chamber of commerce to identify employees that might be willing to participate as callmen, especially during traditional business hours.
- Hold open "citizen's academies" to educate the public on the role of the fire department.
- Institute a mentor program for new members. This is already done on an informal basis, but a more formal program could help with retention and speed effectiveness of new department members.
- Conduct exit interviews for volunteers who leave to seek to identify correctable conditions and perhaps retain them.

Pay Scale

Both Templeton and Phillipston are near the low end of the wage scale for firefighters and paramedics in the region, although they are relatively close to each other in scale. This is not a crisis for the departments in terms of staffing, but an increase in the scale could help with recruiting and retaining firefighters at all levels.

- Using a theoretical $1 an hour raise for each position at the departments, the wage costs for TFD would go up an estimated $19,500 a year and for PFD they would increase about $8,600. This represents a 2.7% increase for TFD and a 3.4% increase for PFD.

One Dollar per Hour Wage Increase Annual Cost

	Base Schedule	On Call Positions	Total Additional Wages
Templeton	$ 16,822	$ 2,656	$ 19,478
Phillipston	$ 6,240	$ 2,400	$ 8,640

- The concept of a living wage is calculated as the wage necessary to meet the living expenses of a family unit based on geography and family situation. Using a model developed from MIT[8], we have identified the living wages necessary for a single person with no children, a single person raising one child alone and a married couple, both working, raising two children. We compared those projections to the positons of Firefighter EMT for both towns and Firefighter paramedic for Templeton. While all three exceed the living wage for a single

[8] https://livingwage.mit.edu/counties/25027

person with no children, none of the positons meet the living wage for raising a child.

Living Wage Comparison

	Annual Base Wage
TFD Firefighter EMT	$34,320
PFD Firefighter EMT	$30,680
TFD Paramedic	$49,920
LW for Single Adult, No kids	$25,969
LW for Single Adult, 1 Kid	$57,322
LW for Married Adult, both work, 2 kids	$71,047

Staffing and Scheduling Model

The staffing model for both departments is focused on EMS responses, the bulk of the call volume for the two fire departments. Schedules have shifted over time as needs have changed and funding levels have been adjusted. It is possible to adjust the schedules, the responsibilities and position requirements. Several options are discussed below.

- Adjust the staffing model in Phillipston for the busier times of day – 9 am to 5 pm, vs. 7 am to 3 pm OR look to having 10-hour shifts for four days and adding per diem for the fifth day.
  - The current staffing model is designed for when on call firemen are least available. However, it does not match the busiest hours of call demand.
  - Response times for PFD are best when there is a staff at the station.
  - The highest volume of calls for an 8 hour block of time is starting late morning (10am) until noon.
  - When looking at a 10 hour block of time, the busiest time for calls starts at 08:00 am.

Comparison of Calls by Shift Hours

	8 hour block	% of calls in time block	10 hour block	% of calls in time block
7:00 AM	354	43%	436	53%
8:00 AM	368	45%	472	57%
9:00 AM	361	44%	477	58%
10:00 AM	393	48%	496	60%
11:00 AM	401	49%	482	59%
noon	396	48%	456	55%
1:00 PM	380	46%	440	53%
2:00 PM	357	43%	409	50%

-
- Look to add back some dedicated administrative time to the Templeton Chief position by having per diem shifts during some day time hours.
  - The TFD chief is currently expected to answer the first call for service while he is on duty. This interrupts the flow of administrative work and prevents tasks from being completed in a timely manner. Adding several per diem shifts during the week would help enable the chief to dedicate time to the necessary administrative and leadership tasks to aid in operating the department in an effective manner.
- Consider ancillary responsibilities for the fire department staff to ensure value to community. Examples include municipal administrative tasks, assisting public works with non-time dependent tasks, and conducting public education events. This is more appropriate for PFD as they respond to only 3 to 4 calls per week and have substantial down time.

Apparatus Maintenance and Replacement

Maintaining all the apparatus and equipment necessary to safely suppress a fire or provide emergency medical care is an expensive endeavor. Certain specialized equipment could be used rarely in an emergency situation but is truly a matter of life or death that it be available and functioning when needed.

- NFPA 1901 Annex D suggests that apparatus older than 15 years be replaced or moved to reserve status because they lack many of the recent advances in safety technology.
  - Each department has a front line engine that is less than 15 years old (PFD 2005, TFD 2019), but even excluding the forestry equipment much of the firefighting equipment exceeds 15 years of age. These vehicles include :
    - TFD Engine 2 (1999), TFD Engine 1 (2003), and PFD Engine 3 (1995).
    - TFD Ladder 1 is a 2006 and will reach that mark next year.

    - If purchased new, the replacements of those four vehicles would approach $2 million. However, there is a reasonable market place for used vehicles that would provide the community 5 to 7 years of service.
- Before replacing its ladder truck, TFD should consider whether it is needed based on the risks in the community and the proximity of neighboring resources. It responded to an average of 12 calls per year over the last 5 years. (Although part of the problem was the unit was out of service for maintenance.) Aerials are expensive to maintain and require frequent training to ensure that personnel are effective at its utilization.
    - For ISO rating purposes, a "service company" could be substituted. Not replacing the ladder truck could make resources available for other needs in the fire department or town.
    - The TFD chief has indicated that he feels the response from neighboring resources would be too long and he would rather have this resource available in the community.
- Record keeping for essential tests such as pumps, hoses, SCBAs and ladders are conducted at appropriate intervals, but the records are managed manually.

Software for Record Keeping

The marketplace for software in the fire and EMS realm is robust with a variety of products available to fit every need and no single solution. The two departments have instituted a variety of products to help meet their existing needs, but there are some gaps that could be addressed to improve processes and lighten workloads. Many of the software packages in use in the departments have additional modules that can be purchased to allow the department to address a different problem. In most cases, there is a benefit of using an add on module compared to a new software package as the staff are already familiar with the basic interface and some of the department data is already in the software.

- For the size of the fleet, even combined, it might be more appropriate to develop a database using Access (or similar) than to invest in a new commercial software package. However, using a module from one of the existing software packages in use by the two departments might be reasonable solution.
- PSTrax (used by TFD) does have a module for tracking assets and vehicles that could be a cost effective solution for the department. However, even a home-grown database would be an improvement. Licensing should be explored to see if PFD could also use this software.
- IAMRESPONDING indicates on their website that they provide tracking for expiration dates, scheduling, NFIRS reporting, training/drill tracking and other information. The two departments both use this software and should evaluate if the functionality is included under their current package and if not, if they

should expand their utilization of this existing software. IAR website indicates that all functions are available to all subscribers.
- PFD has indicated that they are moving their records management to IMC software, which is the same program used by TFD, which could lead to some efficiencies and cost savings in the future.
- Similarly, training records for the firefighters should be moved into an electronic system. Again, for the size of the workforce, an Access (or similar) database would be appropriate.

- **Additional Items for the Fee Schedules**
  - 21E response (hazardous material spill) billing is an option, but appears to be rarely used in Massachusetts. It needs to be more than 5 gallons – can bill back the insurance for the organization that caused the spill.
  - It is also possible to bill for fire department efforts at motor vehicle crashes even if there are no injuries.
  - PFD had 3 spills and 84 accidents in 5 years. TFD had 201 accidents and 8 spills reported.
  - Considerations include who will administer the program, who will gather the information and who will handle the billing. Additionally, the considerations should include how the towns would handle insurance companies and individuals who refuse to pay.
  - A review of available information found very few fire departments that bill for anything except for large responses. Some communities have the local law on the books to allow for billing for responses, but don't spend the effort except for large clean ups.
  - The Northampton Fire Department fee schedule is attached for reference (Appendix 2). Correspondence with them indicates that have stopped billing for responses, but they do follow the fee schedule for inspections and alarms.

Geographic Response Times

- PFD is well located in the town for most of its calls
- TFD has two stations that are well located for call volume, but only one is staffed. The staffed station (#2) allows for a quicker response to more calls than the other station. However, if the opportunity presented itself to relocate the fire station, a location along Baldwinville Road between the high school and Baptist Common Road would lead to more rapid responses to a greater percentage of calls than either existing station.

Statutory or Regulatory Challenges to Recommendations

- Based on available information, the recommendations suggested through this project do not have substantial statutory or regulatory challenges. The majority of recommendations focus on internal policies in the departments or towns. Other follow existing practices such as inter-municipal agreements or automatic aid plans that already exist in these communities or their neighbors.

- As noted, the regulations and best practices in the fire service and EMS are constantly changing. There are a continuous flow of additional recommendations, particularly in the areas of apparatus, equipment and training that might increase the cost of providing fire and EMS services.

Other Considerations:

- TFD could potentially improve their ISO PPC rating by improving the testing of their water system, tracking their training and implementing a fire prevention program. An improved PPC rating would potentially lower fire insurance rates for residents and commercial properties. An improved PPC rating would potentially lower fire insurance rates for residents and commercial properties
- PFD could become a rated ISO PPC fire department by mapping and testing their suction points to have a creditable water supply. Additionally, planning out mutual aid tanker supplies would assist. Improving the ISO rating would reduce costs for the residents in the community on their fire insurance.
- Both departments should consider Automatic Aid (at the time of initial dispatch) for high risk events such as structure fires to ensure that adequate assistance is available. These agreements can be time dependent as well, so if the aid is only needed during daytime hours, it should be requested then. PFD has established an automatic aid plan for paramedic service at all times of the day.
- PFD should continue to use Athol for paramedic service because their location is better for more events than TFD units responding from Station 2. Alternatively, PFD could choose to geographically divide their response area to use the closest paramedic unit. Athol would retain a majority of calls, but TFD's ambulance is likely closer on a third of calls.
- PFD should consider methods to ensure quicker response to high priority calls at times when their station is unmanned.
- TFD Station 2 needs to have substantial capital needs addressed, including:
  - Reducing travel time from crew quarters to apparatus and eliminating the trip outside;
  - Reducing the number of stairs and doors between crew quarters and the apparatus floor; and
  - Improving climate control and exhaust ventilation/capture in the apparatus floor.
- Both towns should consider an adjustment for billing rates for the ambulance. Templeton revised theirs in 2017 and Phllipston last revised them in 2014. To be clear, only a small portion of patients actually pay the full amount they are billed. Most transports are covered by Medicare, Medicaid or commercial insurance that pay only fixed amounts. The billing agency used by the two towns believes that both towns receive a very high proportion of what they are due. A reasonable method to compare billing rates would be to have the billing agency provide benchmarks for their other clients in the area. The table below shows the approved billing rates for each town plus the rate for Medicare.

Comparison of Billing Rates

	Last rate change	ALS	ALS2	BLS	MILEAGE	ANCILLARIES
Templeton	2017	$1,750	$2,250	$1,000	$27.50	Y
Phillipston	2014	$868	$1,257	$731	$25	Y
Medicare	2019	$ 474	$689	$399	$7.69	N

Appendix 1: ISO Summary for Templeton

Public Protection Classification

(PPC™)

Summary Report

Templeton

MASSACHUSETTS

Prepared by

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March 20, 2015

Background Information

Introduction

ISO collects and evaluates information from communities in the United States on their structure fire suppression capabilities. The data is analyzed using our Fire Suppression Rating Schedule (FSRS) and then a Public Protection Classification (PPC™) grade is assigned to the community. The surveys are conducted whenever it appears that there is a possibility of a PPC change. As such, the PPC program provides important, up-to-date information about fire protection services throughout the country.

The FSRS recognizes fire protection features only as they relate to suppression of first alarm structure fires. In many communities, fire suppression may be only a small part of the fire department's overall responsibility. ISO recognizes the dynamic and comprehensive duties of a community's fire service, and understands the complex decisions a community must make in planning and delivering emergency services. However, in developing a community's PPC grade, only features related to reducing property losses from structural fires are evaluated. Multiple alarms, simultaneous incidents and life safety are not considered in this evaluation. The PPC program evaluates the fire protection for small to average size buildings. Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual PPC grade.

A community's investment in fire mitigation is a proven and reliable predictor of future fire losses. Statistical data on insurance losses bears out the relationship between excellent fire protection – as measured by the PPC program – and low fire losses. So, insurance companies use PPC information for marketing, underwriting, and to help establish fair premiums for homeowners and commercial fire insurance. In general, the price of fire insurance in a community with a good PPC grade is substantially lower than in a community with a poor PPC grade, assuming all other factors are equal.

ISO is an independent company that serves insurance companies, communities, fire departments, insurance regulators, and others by providing information about risk. ISO's expert staff collects information about municipal fire suppression efforts in communities throughout the United States. In each of those communities, ISO analyzes the relevant data and assigns a PPC grade – a number from 1 to 10. Class 1 represents an exemplary fire suppression program, and Class 10 indicates that the area's fire suppression program does not meet ISO's minimum criteria.

ISO's PPC program evaluates communities according to a uniform set of criteria, incorporating nationally recognized standards developed by the National Fire Protection Association and the American Water Works Association. A community's PPC grade depends on:

- **Needed Fire Flows**, which are representative building locations used to determine the theoretical amount of water necessary for fire suppression purposes.
- **Emergency Communications**, including emergency reporting, telecommunicators, and dispatching systems.
- **Fire Department**, including equipment, staffing, training, geographic distribution of fire companies, operational considerations, and community risk reduction.
- **Water Supply**, including inspection and flow testing of hydrants, alternative water supply operations, and a careful evaluation of the amount of available water compared with the amount needed to suppress fires up to 3,500 gpm.

Data Collection and Analysis

ISO has evaluated and classified over 48,000 fire protection areas across the United States using its FSRS. A combination of meetings between trained ISO field representatives and the dispatch center coordinator, community fire official, and water superintendent is used in conjunction with a comprehensive questionnaire to collect the data necessary to determine the PPC grade. In order for a community to obtain a grade better than a Class 9, three elements of fire suppression features are reviewed. These three elements are Emergency Communications, Fire Department, and Water Supply.

A review of the **Emergency Communications** accounts for 10% of the total classification. This section is weighted at **10 points,** as follows:

- Emergency Reporting 3 points
- Telecommunicators 4 points
- Dispatch Circuits 3 points

A review of the **Fire Department** accounts for 50% of the total classification. ISO focuses on a fire department's first alarm response and initial attack to minimize potential loss. The fire department section is weighted at **50 points,** as follows:

- Engine Companies 6 points
- Reserve Pumpers 0.5 points
- Pump Capacity 3 points
- Ladder/Service Companies 4 points
- Reserve Ladder/Service Trucks 0.5 points
- Deployment Analysis 10 points
- Company Personnel 15 points
- Training 9 points
- Operational considerations 2 points
- Community Risk Reduction 5.5 points (in addition to the 50 points above)

A review of the **Water Supply** system accounts for 40% of the total classification. ISO reviews the water supply a community uses to determine the adequacy for fire suppression purposes. The water supply system is weighted at **40 points,** as follows:

- Credit for Supply System 30 points
- Hydrant Size, Type & Installation 3 points
- Inspection & Flow Testing of Hydrants 7 points

There is one additional factor considered in calculating the final score – **Divergence**.

Even the best fire department will be less than fully effective if it has an inadequate water supply. Similarly, even a superior water supply will be less than fully effective if the fire department lacks the equipment or personnel to use the water. The FSRS score is subject to modification by a divergence factor, which recognizes disparity between the effectiveness of the fire department and the water supply.

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

PPC Grade

The PPC grade assigned to the community will depend on the community's score on a 100-point scale:

PPC	Points
1	90.00 or more
2	80.00 to 89.99
3	70.00 to 79.99
4	60.00 to 69.99
5	50.00 to 59.99
6	40.00 to 49.99
7	30.00 to 39.99
8	20.00 to 29.99
9	10.00 to 19.99
10	0.00 to 9.99

The classification numbers are interpreted as follows:

- Class 1 through (and including) Class 8 represents a fire suppression system that includes an FSRS creditable dispatch center, fire department, and water supply.
- Class 8B is a special classification that recognizes a superior level of fire protection in otherwise Class 9 areas. It is designed to represent a fire protection delivery system that is superior except for a lack of a water supply system capable of the minimum FSRS fire flow criteria of 250 gpm for 2 hours.
- Class 9 is a fire suppression system that includes a creditable dispatch center, fire department but no FSRS creditable water supply.
- Class 10 does not meet minimum FSRS criteria for recognition, including areas that are beyond five road miles of a recognized fire station.

New PPC program changes effective July 1, 2014

We have revised the PPC program to capture the effects of enhanced fire protection capabilities that reduce fire loss and fire severity in Split Class 9 and Split Class 8B areas (as outlined below). This new structure benefits the fire service, community, and property owner.

New classifications
Through ongoing research and loss experience analysis, we identified additional differentiation in fire loss experience within our PPC program, which resulted in the revised classifications. We based the differing fire loss experience on the fire suppression capabilities of each community. The new PPC classes will improve the predictive value for insurers while benefiting both commercial and residential property owners. Here are the new classifications and what they mean.

Split classifications
When we develop a split classification for a community — for example 5/9 — the first number is the class that applies to properties within 5 road miles of the responding fire station and 1,000 feet of a creditable water supply, such as a fire hydrant, suction point, or dry hydrant. The second number is the class that applies to properties within 5 road miles of a fire station but beyond 1,000 feet of a creditable water supply. We have revised the classification to reflect more precisely the risk of loss in a community, replacing Class 9 and 8B in the second part of a split classification with revised designations.

What's changed with the new classifications?
We've published the new classifications as "X" and "Y" — formerly the "9" and "8B" portion of the split classification, respectively. For example:

- A community currently displayed as a split 6/9 classification will now be a split 6/6X classification; with the "6X" denoting what was formerly classified as "9".
- Similarly, a community currently graded as a split 6/8B classification will now be a split 6/6Y classification, the "6Y" denoting what was formerly classified as "8B".
- Communities graded with single "9" or "8B" classifications will remain intact.

Prior Classification	New Classification
1/9	1/1X
2/9	2/2X
3/9	3/3X
4/9	4/4X
5/9	5/5X
6/9	6/6X
7/9	7/7X
8/9	8/8X
9	9

Prior Classification	New Classification
1/8B	1/1Y
2/8B	2/2Y
3/8B	3/3Y
4/8B	4/4Y
5/8B	5/5Y
6/8B	6/6Y
7/8B	7/7Y
8/8B	8/8Y
8B	8B

What's changed?
As you can see, we're still maintaining split classes, but it's how we represent them to insurers that's changed. The new designations reflect a reduction in fire severity and loss and have the potential to reduce property insurance premiums.

Benefits of the revised split class designations

- To the fire service, the revised designations identify enhanced fire suppression capabilities used throughout the fire protection area
- To the community, the new classes reward a community's fire suppression efforts by showing a more reflective designation
- To the individual property owner, the revisions offer the potential for decreased property insurance premiums

New water class
Our data also shows that risks located more than 5 but less than 7 road miles from a responding fire station with a creditable water source within 1,000 feet had better loss experience than those farther than 5 road miles from a responding fire station with no creditable water source. We've introduced a new classification —10W — to recognize the reduced loss potential of such properties.

What's changed with Class 10W?
Class 10W is property-specific. Not all properties in the 5-to-7-mile area around the responding fire station will qualify. The difference between Class 10 and 10W is that the 10W-graded risk or property is within 1,000 feet of a creditable water supply. Creditable water supplies include fire protection systems using hauled water in any of the split classification areas.

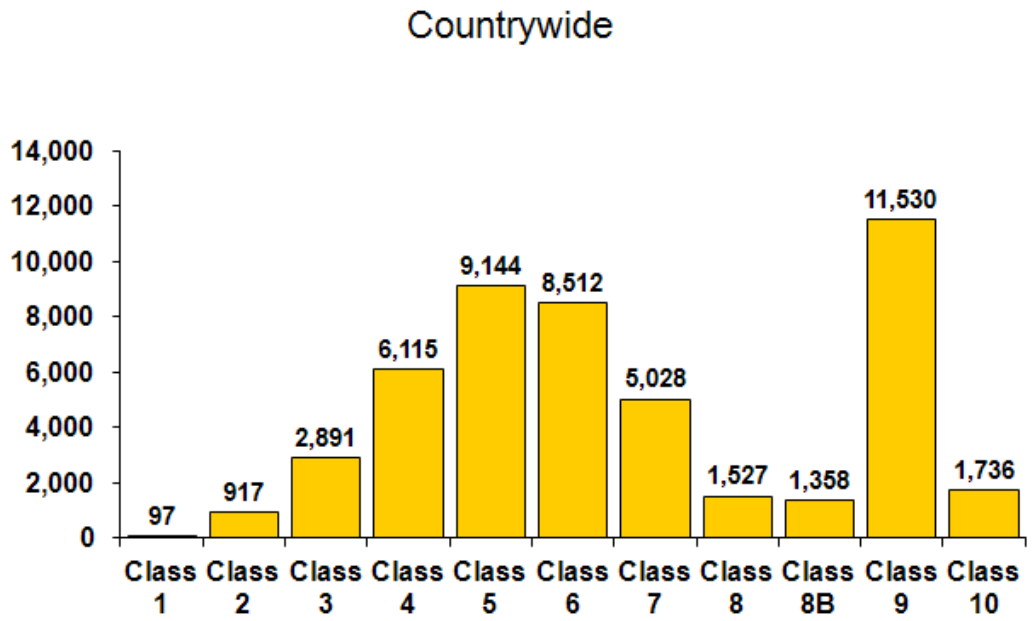
What's the benefit of Class 10W?
10W gives credit to risks within 5 to 7 road miles of the responding fire station and within 1,000 feet of a creditable water supply. That's reflective of the potential for reduced property insurance premiums.

What does the fire chief have to do?
Fire chiefs don't have to do anything at all. The revised classifications went in place automatically effective July 1, 2014 (July 1, 2015 for Texas).

What if I have additional questions?
Feel free to contact ISO at 800.444.4554 or email us at PPC-Cust-Serv@iso.com.

Distribution of PPC Grades

The 2015 published countrywide distribution of communities by the PPC grade is as follows:



Assistance

The PPC program offers help to communities, fire departments, and other public officials as they plan for, budget, and justify improvements. ISO is also available to assist in the understanding of the details of this evaluation.

The PPC program representatives can be reached by telephone at (800) 444-4554. The technical specialists at this telephone number have access to the details of this evaluation and can effectively speak with you about your questions regarding the PPC program. What's more, we can be reached via the internet at www.isomitigation.com/talk/.

We also have a website dedicated to our Community Hazard Mitigation Classification programs at www.isomitigation.com. Here, fire chiefs, building code officials, community leaders and other interested citizens can access a wealth of data describing the criteria used in evaluating how cities and towns are protecting residents from fire and other natural hazards. This website will allow you to learn more about the PPC program. The website provides important background information, insights about the PPC grading processes and technical documents. ISO is also pleased to offer Fire Chiefs Online — a special, secured website with information and features that can help improve your PPC grade, including a list of the Needed Fire Flows for all the commercial occupancies ISO has on file for your community. Visitors to the site can download information, see statistical results and also contact ISO for assistance.

In addition, on-line access to the FSRS and its commentaries is available to registered customers for a fee. However, fire chiefs and community chief administrative officials are given access privileges to this information without charge.

To become a registered fire chief or community chief administrative official, register at www.isomitigation.com.

PPC Review

ISO concluded its review of the fire suppression features being provided for Templeton. The resulting community classification is **Class 06/6X**.

If the classification is a single class, the classification applies to properties with a Needed Fire Flow of 3,500 gpm or less in the community. If the classification is a split class (e.g., 6/XX):

- The first class (e.g., "6" in a 6/XX) applies to properties within 5 road miles of a recognized fire station and within 1,000 feet of a fire hydrant or alternate water supply.
- The second class (XX or XY) applies to properties beyond 1,000 feet of a fire hydrant but within 5 road miles of a recognized fire station.
- Alternative Water Supply: The first class (e.g., "6" in a 6/10) applies to properties within 5 road miles of a recognized fire station with no hydrant distance requirement.
- Class 10 applies to properties over 5 road miles of a recognized fire station.
- Class 10W applies to properties within 5 to 7 road miles of a recognized fire station with a recognized water supply within 1,000 feet.
- Specific properties with a Needed Fire Flow in excess of 3,500 gpm are evaluated separately and assigned an individual classification.

FSRS Feature	Earned Credit	Credit Available
Emergency Communications		
414. Credit for Emergency Reporting	**2.40**	**3**
422. Credit for Telecommunicators	**3.20**	**4**
432. Credit for Dispatch Circuits	**0.90**	**3**
440. Credit for Receiving and Handling Fire Alarms	**6.50**	**10**
Fire Department		
513. Credit for Engine Companies	**4.01**	**6**
523. Credit for Reserve Pumpers	**0.00**	**0.50**
532. Credit for Pump Capacity	**3.00**	**3**
549. Credit for Ladder Service	**2.85**	**4**
553. Credit for Reserve Ladder and Service Trucks	**0.00**	**0.50**
561. Credit for Deployment Analysis	**5.06**	**10**
571. Credit for Company Personnel	**1.70**	**15**
581. Credit for Training	**1.90**	**9**
730. Credit for Operational Considerations	**2.00**	**2**
590. Credit for Fire Department	**20.52**	**50**
Water Supply		
616. Credit for Supply System	**20.30**	**30**
621. Credit for Hydrants	**3.00**	**3**
631. Credit for Inspection and Flow Testing	**3.20**	**7**
640. Credit for Water Supply	**26.50**	**40**
Divergence	**-5.04**	--
1050. Community Risk Reduction	**0.00**	**5.50**
Total Credit	**48.48**	**105.50**

Emergency Communications

Ten percent of a community's overall score is based on how well the communications center receives and dispatches fire alarms. Our field representative evaluated:

- Communications facilities provided for the general public to report structure fires
- Enhanced 9-1-1 Telephone Service including wireless
- Computer-aided dispatch (CAD) facilities
- Alarm receipt and processing at the communication center
- Training and certification of telecommunicators
- Facilities used to dispatch fire department companies to reported structure fires

	Earned Credit	Credit Available
414. Credit Emergency Reporting	**2.40**	3
422. Credit for Telecommunicators	**3.20**	4
432. Credit for Dispatch Circuits	**0.90**	3
Item 440. Credit for Emergency Communications:	**6.50**	**10**

Item 414 - Credit for Emergency Reporting (3 points)

The first item reviewed is Item 414 "Credit for Emergency Reporting (CER)". This item reviews the emergency communication center facilities provided for the public to report fires including 911 systems (Basic or Enhanced), Wireless Phase I and Phase II, Voice over Internet Protocol, Computer Aided Dispatch and Geographic Information Systems for automatic vehicle location. ISO uses National Fire Protection Association (NFPA) 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems* as the reference for this section.

Item 410. Emergency Reporting (CER)	Earned Credit	Credit Available
A./B. Basic 9-1-1, Enhanced 9-1-1 or No 9-1-1 For maximum credit, there should be an Enhanced 9-1-1 system, Basic 9-1-1 and No 9-1-1 will receive partial credit.	**20.00**	**20**
1. E9-1-1 Wireless Wireless Phase I using Static ALI (automatic location identification) Functionality (10 points); Wireless Phase II using Dynamic ALI Functionality (15 points); Both available will be 25 points	**25.00**	**25**
2. E9-1-1 Voice over Internet Protocol (VoIP) Static VoIP using Static ALI Functionality (10 points); Nomadic VoIP using Dynamic ALI Functionality (15 points); Both available will be 25 points	**25.00**	**25**
3. Computer Aided Dispatch Basic CAD (5 points); CAD with Management Information System (5 points); CAD with Interoperability (5 points)	**10.00**	**15**
4. Geographic Information System (GIS/AVL) The PSAP uses a fully integrated CAD/GIS management system with automatic vehicle location (AVL) integrated with a CAD system providing dispatch assignments.	**0.00**	**15**
Review of Emergency Reporting total:	**80.00**	**100**

Item 422- Credit for Telecommunicators (4 points)

The second item reviewed is Item 422 "Credit for Telecommunicators (TC)". This item reviews the number of Telecommunicators on duty at the center to handle fire calls and other emergencies. All emergency calls including those calls that do not require fire department action are reviewed to determine the proper staffing to answer emergency calls and dispatch the appropriate emergency response. NFPA 1221, *Standard for the Installation, Maintenance and Use of Emergency Services Communications Systems,* recommends that ninety-five percent of emergency calls shall be answered within 15 seconds and ninety-nine percent of emergency calls shall be answered within 40 seconds. In addition, NFPA recommends that ninety percent of emergency alarm processing shall be completed within 60 seconds and ninety-nine percent of alarm processing shall be completed within 90 seconds of answering the call.

To receive full credit for operators on duty, ISO must review documentation to show that the communication center meets NFPA 1221 call answering and dispatch time performance measurement standards. This documentation may be in the form of performance statistics or other performance measurements compiled by the 9-1-1 software or other software programs that are currently in use such as Computer Aided Dispatch (CAD) or Management Information System (MIS).

Item 420. Telecommunicators (CTC)	Earned Credit	Credit Available
A1. Alarm Receipt (AR) Receipt of alarms shall meet the requirements in accordance with the criteria of NFPA 1221	**20.00**	**20**
A2. Alarm Processing (AP) Processing of alarms shall meet the requirements in accordance with the criteria of NFPA 1221	**20.00**	**20**
B. Emergency Dispatch Protocols (EDP) Telecommunicators have emergency dispatch protocols (EDP) containing questions and a decision-support process to facilitate correct call categorization and prioritization.	**20.00**	**20**
C. Telecommunicator Training and Certification (TTC) Telecommunicators meet the qualification requirements referenced in NFPA 1061, *Standard for Professional Qualifications for Public Safety Telecommunicator,* and/or the Association of Public-Safety Communications Officials - International (APCO) *Project 33.* Telecommunicators are certified in the knowledge, skills, and abilities corresponding to their job functions.	**20.00**	**20**
D. Telecommunicator Continuing Education and Quality Assurance (TQA) Telecommunicators participate in continuing education and/or in-service training and quality-assurance programs as appropriate for their positions	**0.00**	**20**
Review of Telecommunicators total:	**80.00**	**100**

Item 432 - Credit for Dispatch Circuits (3 points)

The third item reviewed is Item 432 “Credit for Dispatch Circuits (CDC)”. This item reviews the dispatch circuit facilities used to transmit alarms to fire department members. A “Dispatch Circuit” is defined in NFPA 1221 as “A circuit over which an alarm is transmitted from the communications center to an emergency response facility (ERF) or emergency response units (ERUs) to notify ERUs to respond to an emergency”. All fire departments (except single fire station departments with full-time firefighter personnel receiving alarms directly at the fire station) need adequate means of notifying all firefighter personnel of the location of reported structure fires. The dispatch circuit facilities should be in accordance with the general criteria of NFPA 1221. “Alarms” are defined in this Standard as “A signal or message from a person or device indicating the existence of an emergency or other situation that requires action by an emergency response agency”.

There are two different levels of dispatch circuit facilities provided for in the Standard – a primary dispatch circuit and a secondary dispatch circuit. In jurisdictions that receive 730 alarms or more per year (average of two alarms per 24-hour period), two separate and dedicated dispatch circuits, a primary and a secondary, are needed. In jurisdictions receiving fewer than 730 alarms per year, a second dedicated dispatch circuit is not needed. Dispatch circuit facilities installed but not used or tested (in accordance with the NFPA Standard) receive no credit.

The score for Credit for Dispatch Circuits (CDC) is influenced by monitoring for integrity of the primary dispatch circuit. There are up to 0.90 points available for this Item. Monitoring for integrity involves installing automatic systems that will detect faults and failures and send visual and audible indications to appropriate communications center (or dispatch center) personnel. ISO uses NFPA 1221 to guide the evaluation of this item. ISO's evaluation also includes a review of the communication system's emergency power supplies.

Item 432 “Credit for Dispatch Circuits (CDC)” = 0.90 points

Fire Department

Fifty percent of a community's overall score is based upon the fire department's structure fire suppression system. ISO's field representative evaluated:

- Engine and ladder/service vehicles including reserve apparatus
- Equipment carried
- Response to reported structure fires
- Deployment analysis of companies
- Available and/or responding firefighters
- Training

	Earned Credit	Credit Available
513. Credit for Engine Companies	**4.01**	6
523. Credit for Reserve Pumpers	**0.00**	0.5
532. Credit for Pumper Capacity	**3.00**	3
549. Credit for Ladder Service	**2.85**	4
553. Credit for Reserve Ladder and Service Trucks	**0.00**	0.5
561. Credit for Deployment Analysis	**5.06**	10
571. Credit for Company Personnel	**1.70**	15
581. Credit for Training	**1.90**	9
581. Credit for Operational Considerations	**2.00**	2
Item 590. Credit for Fire Department:	**20.52**	**50**

Basic Fire Flow

The Basic Fire Flow for the community is determined by the review of the Needed Fire Flows for selected buildings in the community. The fifth largest Needed Fire Flow is determined to be the Basic Fire Flow. The Basic Fire Flow has been determined to be 3000 gpm.

Item 513 - Credit for Engine Companies (6 points)

The first item reviewed is Item 513 "Credit for Engine Companies (CEC)". This item reviews the number of engine companies, their pump capacity, hose testing, pump testing and the equipment carried on the in-service pumpers. To be recognized, pumper apparatus must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* which include a minimum 250 gpm pump, an emergency warning system, a 300 gallon water tank, and hose. At least 1 apparatus must have a permanently mounted pump rated at 750 gpm or more at 150 psi.

The review of the number of needed pumpers considers the response distance to built-upon areas; the Basic Fire Flow; and the method of operation. Multiple alarms, simultaneous incidents, and life safety are not considered.

The greatest value of A, B, or C below is needed in the fire district to suppress fires in structures with a Needed Fire Flow of 3,500 gpm or less: **3 engine companies**

a) **2 engine companies** to provide fire suppression services to areas to meet NFPA 1710 criteria or within 1½ miles.

b) **3 engine companies** to support a Basic Fire Flow of 3000 gpm.

c) **3 engine companies** based upon the fire department's method of operation to provide a minimum two engine response to all first alarm structure fires.

The FSRS recognizes that there are **3 engine companies** in service.

The FSRS also reviews Automatic Aid. Automatic Aid is considered in the review as assistance dispatched automatically by contractual agreement between two communities or fire districts. That differs from mutual aid or assistance arranged case by case. ISO will recognize an Automatic Aid plan under the following conditions:

- It must be prearranged for first alarm response according to a definite plan. It is preferable to have a written agreement, but ISO may recognize demonstrated performance.
- The aid must be dispatched to all reported structure fires on the initial alarm.
- The aid must be provided 24 hours a day, 365 days a year.

FSRS Item 512.D "Automatic Aid Engine Companies" responding on first alarm and meeting the needs of the city for basic fire flow and/or distribution of companies are factored based upon the value of the Automatic Aid plan (up to 1.00 can be used as the factor). The Automatic Aid factor is determined by a review of the Automatic Aid provider's communication facilities, how they receive alarms from the graded area, inter-department training between fire departments, and the fire ground communications capability between departments.

For each engine company, the credited Pump Capacity (PC), the Hose Carried (HC), the Equipment Carried (EC) all contribute to the calculation for the percent of credit the FSRS provides to that engine company.

Item 513 "Credit for Engine Companies (CEC)" = 4.01 points

Item 523 - Credit for Reserve Pumpers (0.50 points)

The item is Item 523 "Credit for Reserve Pumpers (CRP)". This item reviews the number and adequacy of the pumpers and their equipment. The number of needed reserve pumpers is 1 for each 8 needed engine companies determined in Item 513, or any fraction thereof.

Item 523 "Credit for Reserve Pumpers (CRP)" = 0.00 points

Item 532 – Credit for Pumper Capacity (3 points)

The next item reviewed is Item 532 "Credit for Pumper Capacity (CPC)". The total pump capacity available should be sufficient for the Basic Fire Flow of 3000 gpm. The maximum needed pump capacity credited is the Basic Fire Flow of the community.

Item 532 "Credit for Pumper Capacity (CPC)" = 3.00 points

Item 549 – Credit for Ladder Service (4 points)

The next item reviewed is Item 549 "Credit for Ladder Service (CLS)". This item reviews the number of response areas within the city with 5 buildings that are 3 or more stories or 35 feet or more in height, or with 5 buildings that have a Needed Fire Flow greater than 3,500 gpm, or any combination of these criteria. The height of all buildings in the city, including those protected by automatic sprinklers, is considered when determining the number of needed ladder companies. Response areas not needing a ladder company should have a service company. Ladders, tools and equipment normally carried on ladder trucks are needed not only for ladder operations but also for forcible entry, ventilation, salvage, overhaul, lighting and utility control.

The number of ladder or service companies, the height of the aerial ladder, aerial ladder testing and the equipment carried on the in-service ladder trucks and service trucks is compared with the number of needed ladder trucks and service trucks and an FSRS equipment list. Ladder trucks must meet the general criteria of NFPA 1901, *Standard for Automotive Fire Apparatus* to be recognized.

The number of needed ladder-service trucks is dependent upon the number of buildings 3 stories or 35 feet or more in height, buildings with a Needed Fire Flow greater than 3,500 gpm, and the method of operation.

The FSRS recognizes that there are **1 ladder companies** in service. These companies are needed to provide fire suppression services to areas to meet NFPA 1710 criteria or within 2½ miles and the number of buildings with a Needed Fire Flow over 3,500 gpm or 3 stories or more in height, or the method of operation.

The FSRS recognizes that there are **1 service companies** in service.

Item 549 "Credit for Ladder Service (CLS)" = 2.85 points

Item 553 – Credit for Reserve Ladder and Service Trucks (0.50 points)

The next item reviewed is Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)". This item considers the adequacy of ladder and service apparatus when one (or more in larger communities) of these apparatus are out of service. The number of needed reserve ladder and service trucks is 1 for each 8 needed ladder and service companies that were determined to be needed in Item 540, or any fraction thereof.

Item 553 "Credit for Reserve Ladder and Service Trucks (CRLS)" = 0.00 points

Item 561 – Deployment Analysis (10 points)

Next, Item 561 "Deployment Analysis (DA)" is reviewed. This Item examines the number and adequacy of existing engine and ladder-service companies to cover built-upon areas of the city.

To determine the Credit for Distribution, first the Existing Engine Company (EC) points and the Existing Engine Companies (EE) determined in Item 513 are considered along with Ladder Company Equipment (LCE) points, Service Company Equipment (SCE) points, Engine-Ladder Company Equipment (ELCE) points, and Engine-Service Company Equipment (ESCE) points determined in Item 549.

Secondly, as an alternative to determining the number of needed engine and ladder/service companies through the road-mile analysis, a fire protection area may use the results of a systematic performance evaluation. This type of evaluation analyzes computer-aided dispatch (CAD) history to demonstrate that, with its current deployment of companies, the fire department meets the time constraints for initial arriving engine and initial full alarm assignment in accordance with the general criteria of in NFPA 1710, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.*

A determination is made of the percentage of built upon area within 1½ miles of a first-due engine company and within 2½ miles of a first-due ladder-service company.

Item 561 "Credit Deployment Analysis (DA)" = 5.06 points

Item 571 – Credit for Company Personnel (15 points)

Item 571 "Credit for Company Personnel (CCP)" reviews the average number of existing firefighters and company officers available to respond to reported first alarm structure fires in the city.

The on-duty strength is determined by the yearly average of total firefighters and company officers on-duty considering vacations, sick leave, holidays, "Kelley" days and other absences. When a fire department operates under a minimum staffing policy, this may be used in lieu of determining the yearly average of on-duty company personnel.

Firefighters on apparatus not credited under Items 513 and 549 that regularly respond to reported first alarms to aid engine, ladder, and service companies are included in this item as increasing the total company strength.

Firefighters staffing ambulances or other units serving the general public are credited if they participate in fire-fighting operations, the number depending upon the extent to which they are available and are used for response to first alarms of fire.

On-Call members are credited on the basis of the average number staffing apparatus on first alarms. Off-shift career firefighters and company officers responding on first alarms are considered on the same basis as on-call personnel. For personnel not normally at the fire station, the number of responding firefighters and company officers is divided by 3 to reflect the time needed to assemble at the fire scene and the reduced ability to act as a team due to the various arrival times at the fire location when compared to the personnel on-duty at the fire station during the receipt of an alarm.

The number of Public Safety Officers who are positioned in emergency vehicles within the jurisdiction boundaries may be credited based on availability to respond to first alarm structure fires. In recognition of this increased response capability the number of responding Public Safety Officers is divided by 2.

The average number of firefighters and company officers responding with those companies credited as Automatic Aid under Items 513 and 549 are considered for either on-duty or on-call company personnel as is appropriate. The actual number is calculated as the average number of company personnel responding multiplied by the value of AA Plan determined in Item 512.D.

The maximum creditable response of on-duty and on-call firefighters is 12, including company officers, for each existing engine and ladder company and 6 for each existing service company.

Chief Officers are not creditable except when more than one chief officer responds to alarms; then extra chief officers may be credited as firefighters if they perform company duties.

The FSRS recognizes **0.81 on-duty personnel** and an average of **6.74 on-call personnel** responding on first alarm structure fires.

Item 571 "Credit for Company Personnel (CCP)" = 1.70 points

Item 581 – Credit for Training (9 points)

Training	Earned Credit	Credit Available
A. Facilities, and Use For maximum credit, each firefighter should receive 18 hours per month in structure fire related subjects as outlined in NFPA 1001.	**0.00**	**35**
B. Company Training For maximum credit, each firefighter should receive 16 hours per month in structure fire related subjects as outlined in NFPA 1001.	**6.25**	**25**
C. Classes for Officers For maximum credit, each officer should be certified in accordance with the general criteria of NFPA 1021. Additionally, each officer should receive 12 hours of continuing education on or off site.	**3.00**	**12**
D. New Driver and Operator Training For maximum credit, each new driver and operator should receive 60 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	**4.17**	**5**
E. Existing Driver and Operator Training For maximum credit, each existing driver and operator should receive 12 hours of driver/operator training per year in accordance with NFPA 1002 and NFPA 1451.	**1.67**	**5**
F. Training on Hazardous Materials For maximum credit, each firefighter should receive 6 hours of training for incidents involving hazardous materials in accordance with NFPA 472.	**1.00**	**1**
G. Recruit Training For maximum credit, each firefighter should receive 240 hours of structure fire related training in accordance with NFPA 1001 within the first year of employment or tenure.	**5.00**	**5**
H. Pre-Fire Planning Inspections For maximum credit, pre-fire planning inspections of each commercial, industrial, institutional, and other similar type building (all buildings except 1-4 family dwellings) should be made annually by company members. Records of inspections should include up-to date notes and sketches.	**0.00**	**12**

Item 580 "Credit for Training (CT)" = 1.90 points

Item 730 – Operational Considerations (2 points)

Item 730 "Credit for Operational Considerations (COC)" evaluates fire department standard operating procedures and incident management systems for emergency operations involving structure fires.

Operational Considerations	Earned Credit	Credit Available
Standard Operating Procedures The department should have established SOPs for fire department general emergency operations	**50**	**50**
Incident Management Systems The department should use an established incident management system (IMS)	**50**	**50**
Operational Considerations total:	**100**	**100**

Item 730 "Credit for Operational Considerations (COC)" = 2.00 points

Water Supply

Forty percent of a community's overall score is based on the adequacy of the water supply system. The ISO field representative evaluated:

- the capability of the water distribution system to meet the Needed Fire Flows at selected locations up to 3,500 gpm.
- size, type and installation of fire hydrants.
- inspection and flow testing of fire hydrants.

	Earned Credit	Credit Available
616. Credit for Supply System	**20.30**	30
621. Credit for Hydrants	**3.00**	3
631. Credit for Inspection and Flow Testing	**3.20**	7
Item 640. Credit for Water Supply:	**26.50**	**40**

Item 616 – Credit for Supply System (30 points)

The first item reviewed is Item 616 "Credit for Supply System (CSS)". This item reviews the rate of flow that can be credited at each of the Needed Fire Flow test locations considering the supply works capacity, the main capacity and the hydrant distribution. The lowest flow rate of these items is credited for each representative location. A water system capable of delivering 250 gpm or more for a period of two hours plus consumption at the maximum daily rate at the fire location is considered minimum in the ISO review.

Where there are 2 or more systems or services distributing water at the same location, credit is given on the basis of the joint protection provided by all systems and services available.

The supply works capacity is calculated for each representative Needed Fire Flow test location, considering a variety of water supply sources. These include public water supplies, emergency supplies (usually accessed from neighboring water systems), suction supplies (usually evidenced by dry hydrant installations near a river, lake or other body of water), and supplies developed by a fire department using large diameter hose or vehicles to shuttle water from a source of supply to a fire site. The result is expressed in gallons per minute (gpm).

The normal ability of the distribution system to deliver Needed Fire Flows at the selected building locations is reviewed. The results of a flow test at a representative test location will indicate the ability of the water mains (or fire department in the case of fire department supplies) to carry water to that location.

The hydrant distribution is reviewed within 1,000 feet of representative test locations measured as hose can be laid by apparatus.

For maximum credit, the Needed Fire Flows should be available at each location in the district. Needed Fire Flows of 2,500 gpm or less should be available for 2 hours; and Needed Fire Flows of 3,000 and 3,500 gpm should be obtainable for 3 hours.

Item 616 "Credit for Supply System (CSS)" = 20.30 points

Item 621 – Credit for Hydrants (3 points)

The second item reviewed is Item 621 "Credit for Hydrants (CH)". This item reviews the number of fire hydrants of each type compared with the total number of hydrants.

There are a total of 357 hydrants in the graded area.

620. Hydrants, - Size, Type and Installation	Number of Hydrants
A. With a 6 -inch or larger branch and a pumper outlet with or without 2½ -inch outlets	357
B. With a 6 -inch or larger branch and no pumper outlet but two or more 2½ -inch outlets, or with a small foot valve, or with a small barrel	0
C./D. With only a 2½ -inch outlet or with less than a 6 -inch branch	0
E./F. Flush Type, Cistern, or Suction Point	0

Item 621 "Credit for Hydrants (CH)" = 3.00 points

Item 630 – Credit for Inspection and Flow Testing (7 points)

The third item reviewed is Item 630 "Credit for Inspection and Flow Testing (CIT)". This item reviews the fire hydrant inspection frequency, and the completeness of the inspections. Inspection of hydrants should be in accordance with AWWA M-17, *Installation, Field Testing and Maintenance of Fire Hydrants.*

Frequency of Inspection (FI): Average interval between the 3 most recent inspections.

Frequency	Points
1 year	30
2 years	20
3 years	10
4 years	5
5 years or more	No Credit

Note: The points for inspection frequency are reduced by 10 points if the inspections are incomplete or do not include a flushing program. An additional reduction of 10 points are made if hydrants are not subjected to full system pressure during inspections. If the inspection of cisterns or suction points does not include actual drafting with a pumper, or back-flushing for dry hydrants, 20 points are deducted.

Total points for Inspections = 3.20 points

Frequency of Fire Flow Testing (FF): Average interval between the 3 most recent inspections.

Frequency	Points
5 years	40
6 years	30
7 years	20
8 years	10
9 years	5
10 years or more	No Credit

Total points for Fire Flow Testing = 0.00 points

Item 631 "Credit for Inspection and Fire Flow Testing (CIT)" = 3.20 points

Divergence = -5.04

The Divergence factor mathematically reduces the score based upon the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.

Community Risk Reduction

	Earned Credit	Credit Available
1025. Credit for Fire Prevention and Code Enforcement (CPCE)	**0.00**	2.2
1033. Credit for Public Fire Safety Education (CFSE)	**0.00**	2.2
1044. Credit for Fire Investigation Programs (CIP)	**0.00**	1.1
Item 1050. Credit for Community Risk Reduction	**0.00**	**5.50**

Item 1025 – Credit for Fire Prevention Code Adoption and Enforcement (2.2 points)	Earned Credit	Credit Available
Fire Prevention Code Regulations (PCR) Evaluation of fire prevention code regulations in effect.	0.00	10
Fire Prevention Staffing (PS) Evaluation of staffing for fire prevention activities.	0.00	8
Fire Prevention Certification and Training (PCT) Evaluation of the certification and training of fire prevention code enforcement personnel.	0.00	6
Fire Prevention Programs (PCP) Evaluation of fire prevention programs.	0.00	16
Review of Fire Prevention Code and Enforcement (CPCE) subtotal:	0.00	40

Item 1033 – Credit for Public Fire Safety Education (2.2 points)	Earned Credit	Credit Available
Public Fire Safety Educators Qualifications and Training (FSQT) Evaluation of public fire safety education personnel training and qualification as specified by the authority having jurisdiction.	0.00	10
Public Fire Safety Education Programs (FSP) Evaluation of programs for public fire safety education.	0.00	30
Review of Public Safety Education Programs (CFSE) subtotal:	0.00	40

Item 1044 – Credit for Fire Investigation Programs (1.1 points)	Earned Credit	Credit Available
Fire Investigation Organization and Staffing (IOS) Evaluation of organization and staffing for fire investigations.	0.00	8
Fire Investigator Certification and Training (IQT) Evaluation of fire investigator certification and training.	0.00	6
Use of National Fire Incident Reporting System (IRS) Evaluation of the use of the National Fire Incident Reporting System (NFIRS) for the 3 years before the evaluation.	0.00	6
Review of Fire Prevention Code and Enforcement (CPCE) subtotal:	0.00	20

Summary of PPC Review
for
Templeton

FSRS Item	Earned Credit	Credit Available
Emergency Reporting		
414. Credit for Emergency Reporting	**2.40**	**3**
422. Credit for Telecommunicators	**3.20**	**4**
432. Credit for Dispatch Circuits	**0.90**	**3**
440. Credit for Receiving and Handling Fire Alarms	**6.50**	**10**
Fire Department		
513. Credit for Engine Companies	**4.01**	**6**
523. Credit for Reserve Pumpers	**0.00**	**0.5**
532. Credit for Pumper Capacity	**3.00**	**3**
549. Credit for Ladder Service	**2.85**	**4**
553. Credit for Reserve Ladder and Service Trucks	**0.00**	**0.5**
561. Credit for Deployment Analysis	**5.06**	**10**
571. Credit for Company Personnel	**1.70**	**15**
581. Credit for Training	**1.90**	**9**
730. Credit for Operational Considerations	**2.00**	**2**
590. Credit for Fire Department	**20.52**	**50**
Water Supply		
616. Credit for Supply System	**20.30**	**30**
621. Credit for Hydrants	**3.00**	**3**
631. Credit for Inspection and Flow Testing	**3.20**	**7**
640. Credit for Water Supply	**26.50**	**40**
Divergence	**-5.04**	--
1050. Community Risk Reduction	**0.00**	**5.50**
Total Credit	**48.48**	**105.5**

Final Community Classification = 06/6X

Appendix 2 – Northampton Fee Schedule

Northampton Fire Department

26 Carlon Drive, Northampton, Massachusetts 01060-2373
Telephone: (413) 587-1032 Fax: (413) 587-1034

FEE SCHEDULE
February 2015

Aboveground Tank Inspection	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 37,10A
Alarm Programming (Central Station)	$ 105.00	City Ordinance
All Miscellaneous Permits assoc with MGL 148 sec 10A	$ 50.00 Permit Fee	Unless otherwise stated in MGL or 527 CMR.
Ammunition and Black/Smokeless Powder	$ 10.00 Permit Fee	527 CMR, MGL 148 sec 10A
Blasting (for 30 days)(Detail Required)	$ 50.00 Permit Fee	527 CMR, MGL 148 Sec 10A
Burning After Hours	$ 50.00 Fine	527 CMR
Illegal Burning & 2nd Offense	$ 100.00 Fine	
New construction and renovation inspection	$0.05 per square foot, (Minimum $50.00)	
Display of Fireworks (Outside Detail and Operations plan required)	$ 25.00 Permit Fee	527 CMR, MGL 148 sec 39A
Dumpster Permit	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Emergency Medical Service Fees	Based on the prevailing rates for Urban Massachusetts As published by Medicare	
Extrication from a Motor Vehicle	$105.00 per patient	
Fire Alarm/Suppression System work permit	$ 80.00 Permit Fee	MGL 148 sec 27A, City Ordinance
Hazardous Material 21E Response	$ 50.00 per vehicle towed from accident *Plus See Below	
Installation of Underground Tanks	$ 275.00 per tank	City Ordinance
Malicious False Alarm	Court Restitution for all response costs	
Oil Burner	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Oxygen Acetylene (Cutting & Welding) Permit	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Propane Installation/Storage Inspection	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Public Information	$ 0.50 per page plus actual hourly rate of employee billed in ¼ hour intervals	MGL 66
Quarterly/Annual Inspections (Ex. DPH License Holders)	$ 150.00	City Ordinance
Smoke Detector/Carbon Monoxide Certificate		MGL 148 sec 10A/City Ordinance
Single-family home	$ 50.00,	re-inspection $20.00 each
Two-family home	$ 100.00,	re-inspection $20.00 each
3-6 unit dwelling	$ 150.00,	re-inspection $20.00 each
7 or more unit dwelling	$ 500.00,	re-inspection $20.00 each
Storage of Flammables/Combustibles	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Tank Truck Inspection (for 2 years)	$ 50.00 Permit Fee	527 CMR, MGL 148 sec 10A
Underground Storage Facility Inspection	$ 50.00 Permit Fee per tank	527 CMR, MGL 148 sec10A

Note: Fire alarm and Fire Supression work permits apply to work that does not require a building permit

***Haz Mat 21E Response, Outside Details and Court Restitution**:
Apparatus and personnel charges are per hour and any portions thereof. Hourly rates are based on current top step pay of all ranks and pay grades. Supplies – Cost. There is a 10% Administrative Fee added to all invoices for outside details

Command Vehicle	$ 50.00	Brush Truck	$ 50.00	Engine	$100.00
Rescue Truck	$ 75.00	Boat	$100.00	Tanker	$100.00
Aerial Devices	$250.00	Support Vehicle	$100.00		

"Professionalism through Courage and Dedication"