Introduction
In 2019, the Center for Rural Pennsylvania and the Pennsylvania Fire and Emergency Services Institute (PFESI) conducted a mail survey of Pennsylvania fire chiefs from volunteer fire companies and combination paid/volunteer companies to identify firefighter recruitment and retention patterns, and to measure the capacity of fire companies to meet their communities’ emergency needs.

This report is the second in a series that shares the findings from the survey. The first report focused solely on recruitment and retention issues. This report looks at fire company capacity. The results of the survey were compared to the results of a similar survey of fire chiefs conducted in 2012 by the Center and PFESI.

According to the 2019 survey results:

- Fire companies had 24.1 active members, on average, which is a 3 percent decrease from 2012;
- 45 percent of fire companies had operating budgets under $100,000;
- 13.9 is the average number of fundraising events fire companies sponsor, which is a decrease from 2012 when companies sponsored 17.6 events, on average.
- 688 is the average number of calls fire companies responded to over the previous 2 years, which is a 22 percent increase from 2012;
- 56 percent of fire chiefs said their companies were unable to respond to some calls over the previous 2 years – in 2012, 44 percent said the same;
- 39 percent of fire companies have strategic plans; and
- 34 percent of companies discussed or considered consolidation over the previous 2 years.

Findings
Number of Firefighters
In 2019, fire chiefs reported having 56.7 members, on average. The chiefs considered 24.1 of these members, on average, to be active members. Among these active members, 16.3 members, on average, regularly responded to calls.

Average Number of Firefighters, 2019

<table>
<thead>
<tr>
<th>Total # Fire Company Members</th>
<th>56.7</th>
</tr>
</thead>
<tbody>
<tr>
<td># Active Members</td>
<td>24.1</td>
</tr>
<tr>
<td># Members Regularly Responded to Calls</td>
<td>16.3</td>
</tr>
</tbody>
</table>
Survey Methods

The Center for Rural Pennsylvania and the Pennsylvania Fire and Emergency Services Institute (PFESI) conducted three statewide surveys of fire chiefs in 2001, 2012, and 2019. This analysis focused on data from the 2012 and 2019 surveys only.

The table below shows the response rates and margins of error for all three surveys.

Data Limitations
Focus on Volunteer and Paid/Volunteer Fire Companies
The 2019 survey was mailed exclusively to fire chiefs from volunteer fire companies and combination paid/volunteer companies. Earlier surveys were sent to all fire chiefs, including those from paid companies. The inclusion of paid companies in prior surveys are likely to have minimal effect on the comparisons made in this analysis, since PFESI data indicate that paid fire companies make up only 2 percent of Pennsylvania’s 1,969 fire companies.

Different Definitions of Fire Company Member and Active Fire Company Member
In field testing the survey in 2001, some chiefs considered all members to be active, while others considered only those who regularly respond to calls as active. To avoid confusion, the Center included three separate questions on membership in all three surveys. The first asked for the total number of members; the second asked for the total number of “active members”; and the third asked for the total number of members who regularly respond to calls. Despite the separate questions, the results indicate that some respondents did not make the distinction between active members and members. Therefore, unless otherwise noted, this analysis focuses on active members.

Survey Responses Are Only Comparable at the Aggregate Level
The responses to all three surveys were anonymous, so individual responses from fire companies in 2001 and 2012 could not be compared with individual responses in 2019. Therefore, responses were compared in aggregate.

Chief’s Opinion May Be Different from Rank-and-File Members
In many ways, the position of fire chief is one of management. His or her views may differ from rank-and-file members.

Recoding/Calculating Variables
Rural/Urban
Fire companies were classified as rural or urban based on the county in which they were located. The analysis used the Center for Rural Pennsylvania’s definition of rural and urban counties. Fire companies were rural if they were located in counties where the population density was below the statewide average of 284 persons per square mile. Fire companies were urban if they were located in counties where the population density was at or above the statewide average.

Net Change in Firefighters
The analysis included a variable that was calculated by subtracting the number of new members that joined the company in the previous 2 years from the number of those who left the company or became inactive in the previous 2 years. This variable was then classified into three categories: (1) companies that lost members; (2) companies that had no change in members; and (3) companies that gained one new member or more.

Blank Responses
In all three surveys, questions that were left blank on age cohorts, the number of female members, new members, and members who left were interpreted to mean “none” and therefore coded as zero.

This analysis focuses on active firefighters. In the text below, the terms “firefighter” and “member” are synonymous.

Survey Response Rates

<table>
<thead>
<tr>
<th>Year</th>
<th>Number of Surveys Mailed</th>
<th>Number of Surveys with Bad Addresses</th>
<th>Total Sample Size</th>
<th>Number of Useable Surveys Returned</th>
<th>Response Rate</th>
<th>Margin of Error</th>
</tr>
</thead>
</table>
Change in Number of Firefighters, 2012 to 2019

From 2012 to 2019, there was a 31 percent increase in the number of fire company members, and a 3 percent decrease in both the number of active members and members that regularly responded to calls.

Average Number of Fire Company Members, 2012 and 2019

Qualifications and Fire Police

At a fire incident, firefighters have many specialized roles, such as driving the firetruck to the incident site, traffic and crowd control, and, of course, fire suppression. When it comes to fire suppression, firefighters may be qualified for two basic types of firefighting, exterior and interior. Firefighters who are exterior qualified perform various jobs outside the burning structure, such as connecting hoses, and controlling the pumper. Interior qualified firefighters are authorized by the chief to enter the burning structure to look for victims, and for fire suppression. Fire police support firefighting efforts at emergency incidents. In addition to securing firefighting equipment, incidents and fire scenes, and the station itself, fire police perform traffic and crowd control.

In 2019, fire chiefs were asked to report the number of members who regularly responded to calls that were interior or exterior qualified and the number of fire police. According to the data, 57 percent of firefighters were interior qualified, 34 percent were exterior qualified, and 12 percent were fire police. Because some fire chiefs included members who have dual roles, the percentages do not add up to 100 percent.

Percent and Average Number of Firefighters Who Are Interior Qualified, Exterior Qualified, and Fire Police Who Regularly Responded to Calls, 2019

Note: Members may have dual roles so total does not add up to 100 percent.
Age of Active Firefighters

Pennsylvania fire company members are getting older. In 2012, fire chiefs said 35 percent of their members were age 40 and older. In 2019, fire chiefs said 49 percent of their members were age 40 and older.

Female Firefighters

In 2012, 79 percent of fire chiefs said their company had one or more active female members. In 2019, 83 percent said their company had one or more active female members. While more companies reported having female members, the average number of female firefighters has not changed significantly. In 2012, companies had 2.5 female firefighters, on average. In 2019, the average was 2.7.

Average Number of Active Female Firefighters per Company, 2012 and 2019

<table>
<thead>
<tr>
<th>Year</th>
<th>Average</th>
</tr>
</thead>
<tbody>
<tr>
<td>2012</td>
<td>2.5</td>
</tr>
<tr>
<td>2019</td>
<td>2.7</td>
</tr>
</tbody>
</table>
Fire Calls
In 2019, fire chiefs said that, over the previous 2 years, their company responded to 688 calls, on average. In 2012, the average was 566 calls. In 2019, the number of calls a company responded to varied by geography, budget, and number of active firefighters.

Change in the Number of Fire Calls
Fifty-two percent of fire chiefs said the number of fire calls increased during the previous 2 years, 4 percent said they decreased, and 44 percent said they remained about the same. These percentages were nearly identical to the 2012 responses.
Ability to Respond to Calls

In 2019, 56 percent of fire chiefs said that, in the previous 2 years, their company was unable to respond to one or more calls. This is a significant increase from the 2012 survey when 44 percent of chiefs said their company was unable to respond to one or more calls. In 2019, 72 percent of chiefs said their company could not respond to 10 calls or fewer, 18 percent said they could not respond to 11 to 20 calls, and 10 percent said they could not respond to more than 20 calls. There was no statistically significant difference between rural and urban companies in the number of calls in which the company was unable to respond, nor were there any differences in fire company budgets or the number of calls. However, companies with a higher number of active members were more likely to respond to calls than companies with fewer active members.

Reasons for Non-Response

In 2012 and 2019, the majority of fire chiefs said the reason why their company was unable to respond to calls was insufficient crew (79 percent and 85 percent, respectively). In 2019, other reasons included no driver (43 percent), apparatus/equipment out-of-service (4 percent), and other reasons (10 percent). (Note: total does not add up to 100 percent because of multiple responses).
Municipalities in First-Due Area
In 2019, fire chiefs said they had 2.4 municipalities, on average, in their first-due area. This average is nearly identical to the 2012 rate of 2.3 municipalities. In 2019, there was no significant difference in the number of municipalities in first-due areas among rural and urban fire companies. There were also no relationships between the number of municipalities and fire company operating budgets, the number of active firefighters, or the number of fire calls.

One in three fire chiefs said one or more of their members were elected or appointed local government officials. Additionally, 82 percent of fire chiefs either agreed or strongly agreed that they had a good working relationship with the municipalities in their service area.

Number of Municipalities in First-Due Area, 2019

Operating Budgets
In 2019, 45 percent of fire chiefs said their operating budget for that year was under $100,000, 48 percent said it was $100,000 to $499,999, and the remaining 7 percent said it was $500,000 or more. (The 2019 budget ranges were incompatible with the 2012 survey budget ranges.)

There was a significant relationship between a company’s operating budget and:
* Number of active members (the higher the budget, the more members);
* Number of fire calls (the higher the budget, the more fire calls); and
* Rural/urban status (urban companies had higher budgets than rural companies).

There was no significant relationship between a company’s operating budget and:
* Number of municipalities in the first-due area;
* Net change in members over the previous 2 years; and
* Percent of firefighters 40 years old and older.
Fundraising Events
In 2019, fire companies had 13.9 fundraising events, on average. This is a decrease from 2012, when companies had an average of 17.6 events. In 2019, the number of fundraising events was significantly correlated with the number of fire calls and the number of members who left the fire company. However, the number of fundraising events was not significantly correlated with the number of new members and the net change in membership. This may suggest that fundraising has little impact on recruiting new members. There was also no significant relationship between the number of fundraising events and the company’s operating budget. There was, however, a significant difference between rural and urban fire companies and the number events they held. Rural companies had 18 events, on average, while urban companies had 10.
In 2019, 65 percent of fire chiefs said that firefighters were required to participate in fundraising events, and 35 percent said they were not required to participate. Among the fire companies that required firefighter participation, they had 16 events, on average. Companies that did not require participation had 11 fundraising events, on average.

Strategic Planning
In the 2019 survey, fire chiefs were asked if they had a strategic plan. Nearly two out of five (39 percent) said their company had a plan. Among those with a plan, 77 percent said their plan was written or revised/updated between 2016 and 2019, 19 percent said the plan was written between 2010 and 2015, and 4 percent said the plan was written before 2010. Among the topics included in the strategic plan were:
- 89% Apparatus replacement/upgrade;
- 84% Equipment replacement/upgrade;
- 75% Financial sustainability (fundraising, expenditures, etc.);
- 64% Relationship with area municipalities;
- 61% Recruitment and retention of members; and
- 20% Hiring staff/drivers. (Note: total does not add up to 100% due to multi-responses.)
Consolidation or Regionalization

In both 2012 and 2019, fire chiefs were asked if their company had discussed or considered regionalization or consolidation with a neighboring fire company over the previous 2 years. In 2012, 33 percent of fire chiefs said they discussed or considered this issue. In 2019, this percentage increased to 34 percent. There were very few differences between companies that had discussed or considered regionalization or consolidation and those who had not. For example, there were no statistically significant differences between the two types of companies and the number of members who joined the company, members who left the company, and the net change in members. Therefore, it would appear that membership issues were not driving the discussion on regionalization or consolidation. Similarly, there were no differences in the budget or the number of fundraising events. Also, the percent of active firefighters who were over 40 years old appeared to have no significant role in whether companies did or did not discuss regionalization or consolidation. One variable that was statistically significant was the company’s location. A higher percentage of urban companies discussed or considered regionalization or consolidation (41 percent) than rural companies (26 percent).

Percent of Fire Companies that Discussed or Considered Regionalization or Consolidation in the Previous 2 Years, 2012 and 2019

Attitudes About Regionalization

In 2019, fire chiefs were asked if they agreed or disagreed with the following statement: in the next 5 years, my company is likely to be less independent and will increase participation in some type of regional response system. More than three in 10 chiefs (31 percent) agreed or strongly agreed with the statement. Nearly the same percentage (30 percent) disagreed or strongly disagreed with the statement, and 39 percent neither agreed nor disagreed.
Discussion

Aging Membership

The average age of fire company members is increasing. In 2012, 35 percent of fire company members were age 40 and older. In 2019, 49 percent were age 40 and older. According to a study by the National Fire Protection Association, 49 percent of firefighters in the U.S. are 40 years old and older. Having older members has a number of advantages when it comes to experience and skills. However, older firefighters may not be able to accomplish all of the physical challenges required in an emergency situation. They may also be more susceptible to injury.

Consolidation/Regionalization Discussion is Not Being Driven by Membership or Financial Issues

According to the survey results, there were no statistically significant differences in the net change in membership between companies that discussed or considered consolidation or regionalization and those that did not. The same is true for differences in company budgets and the number of fundraising events companies held. This suggests that, among companies that are discussing consolidation or regionalization, they are doing so for other reasons and not because their backs are against a membership or financial wall.

Fundraising Events Have Declined

In 2012, fire companies had one fundraising event every three weeks, on average. In 2019, the results indicated that most companies have scaled this back to about one event every four weeks. In addition, the percent of companies that require members to participate in fundraising events went from 72 percent in 2012 to 65 percent in 2019. These changes do not suggest that fire companies are better off financially in 2019 than they were in 2012. What it may suggest is that companies may have become more efficient in their fundraising efforts and/or companies have diversified their sources of revenue. Regardless of the reason for the change, the number of fundraising events remains correlated with the number of members who leave the fire company.

Difficulties in Responding to Calls Remain a Problem

In 2012, 44 percent of fire chiefs said that, in the previous 2 years, they were unable to respond to one or more calls. In 2019, this rate jumped up 12 percentage points to 56 percent. The reasons for the missed calls have not changed significantly, and the majority of chiefs still say they were unable to respond because of insufficient crew. The difficulty of getting a sufficient crew is especially challenging during traditional working hours. The Center for Rural Pennsylvania analysis of data from the National Fire Incident Reporting System found that, between 2015 and 2017, 56 percent of fire incidents occurred between the hours of 8 a.m. and 5 p.m.

Strategic Planning is Not Universal

In 2019, fewer than two in five chiefs said they had a strategic plan. The lack of planning is especially pronounced among rural companies with a low number of active members. Planning for the future can help an organization meet new challenges and opportunities. Having a written plan that outlines when to replace or upgrade apparatus or equipment can help fire companies better prepare for the future. Among companies with a strategic plan, the majority of plans addressed issues such as financial sustainability, the relationship with area municipalities, and recruitment and retention of firefighters.