



**Carl Vinson  
Institute of Government  
UNIVERSITY OF GEORGIA**

# **Savannah Fire Department General Organizational Review**

**Final Report**

**February 2019**

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## Introduction

This report is one of four that the University of Georgia's Carl Vinson Institute of Government has researched and written on the operations of the Savannah Fire Department (SFD) at the request of the City of Savannah. The other three reports focus on the areas of opportunities for organizational efficiency, implementing emergency medical services, and personnel issues. The SFD has earned an ISO 1 rating,<sup>1</sup> the highest a fire department can achieve. Additionally, the department has received national certification from the Commission on Fire Accreditation International (CFAI). Only 2% of fire departments nationally have achieved both of these recognitions.<sup>2</sup> These achievements represent generally accepted best practices in fire suppression management and fire department operations, respectively. National certification and an ISO I rating reflect excellent performance of a fire department and city leadership, and the citizens of Savannah can be assured that the SFD is effectively achieving its core mission, to preserve life and property. Examples of areas that are reviewed in the ISO and CFAI accreditation processes include response time, manpower, risk analysis, apparatus maintenance and replacement, training, access to water, public education, and emergency communications.<sup>3</sup> Because of the professional reviews that occur under the ISO and national accreditation processes, this organizational review focuses on areas that are not directly related to fire suppression, including training, fire inspections, fire investigations, public outreach, and facilities and equipment.<sup>4</sup>

While city leaders and the public can be assured that the SFD can competently perform its duties, there are areas in the department that can be improved. The department should focus on more transparency and consistency with policy implementation, which can be difficult in decentralized organizations like fire departments. With proper training and clear communication, it can be achieved. The department offers a wide array of training for firefighters and has rigorous training requirements. To raise the quality of training, the department should consider reclassifying training positions as permanent posts rather than having captains rotate into them annually. The newly created Fire Prevention Division conforms to best practice in organizational design, but the department should consider including within it the public information officer as well. Community outreach is one area

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<sup>1</sup> ISO is a quality rating assigned by the Insurance Services Office, Inc., a private, for-profit firm.

<sup>2</sup> [www.columbusga.gov/Fire/fire.htm](http://www.columbusga.gov/Fire/fire.htm)

<sup>3</sup> For more specific information about the SFD's ISO rating, please see the report *Savannah Fire Department ISO and Efficiency Analysis*. As part of the general research for these studies, the researcher reviewed SFD's information from ISO, the accreditation report, and other operations-related documents and asked several questions about operations during interviews and focus groups with employees.

<sup>4</sup> In regard to apparatus maintenance, this report focuses on how to improve the organizational efficiency of apparatus maintenance and station maintenance and does not look at the appropriateness of issues directly related to the ability of a fire department to extinguish a fire such as the type of hoses a department uses.

where the department could expand its efforts, particularly in regard to fire safety education for youth. One challenge the department will face when it begins providing emergency medical services<sup>5</sup> is that firefighters will have little to no time to participate in outreach efforts like the smoke detector program. Rather than diminish its outreach activities, the department may need to hire a public safety educator. Finally, the department does have some challenges in regard to its facilities and apparatus maintenance. The department, in coordination with the Office of Management and Budget, should develop a plan for regular investments in station maintenance so that these city assets do not become dilapidated. Using a private maintenance company to service the department's apparatuses may be a viable way to reduce wait times for repairs and maintenance.

## Methodology

The Institute of Government research team used the following methodologies to research operational practices of the SFD:

- A review of SFD documents such as its standards of cover, strategic plan, ISO report, annual budget, training reports, etc.
- Phone and in-person interviews with SFD's leadership team, including the fire chief, assistant chiefs, and battalion chiefs<sup>6</sup>
- Interview with a representative from the International Association of Firefighters, Local 574, the SFD's local employee union
- Four focus groups composed of SFD line employees
- An electronic survey sent to every member of the Savannah Fire Department
- Phone interviews with representatives from the Columbus Department of Fire and Emergency Medical Services, the City of Charleston Fire Department, and the City of Pooler Department of Fire-Rescue. Additionally, the researcher reviewed operational and financial documents from these agencies.

Institute faculty interviewed 17 SFD leaders in July 2018 (with follow-up interviews in July and August). The conversations ranged in length from 50 minutes to 1.5 hours and covered a wide range of topics such as the challenges facing the department, stations and equipment, community outreach activities, training, offering emergency medical services (EMS) citywide, and personnel issues.

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<sup>5</sup> For more information on this topic, see the report *Savannah Fire Department EMS Analysis*.

<sup>6</sup> Institute faculty also conducted a phone interview with Captain Marcus Wilson, who is responsible for fleet and equipment maintenance. While this interview included some discussion of department personnel issues, the focus was on the status of the department's vehicle maintenance program.

The four focus groups were held in late August 2018 and were composed of SFD employees with the rank of captain and below. For each focus group, Institute of Government faculty randomly selected 15 employees to participate. The sample was stratified by years of service with the department to ensure a diverse level of experience in the focus groups. The focus groups were 2.5 hours in length and were held over two days. A total of 32 employees chose to participate in the focus groups (eight in each). The following topics were discussed during the focus groups:

- The importance of ISO 1 and accreditation to the SFD
- SFD offering EMS
- SFD community outreach
- Personnel issues: salary, promotion, discipline, station transfers, recruitment
- Stations and equipment

Finally, the Institute of Government research team administered a workplace climate survey to all SFD employees. A total of 260 surveys<sup>7</sup> were completed, a 79.4% response rate.<sup>8</sup> In addition to workplace climate questions, a few more “operational” questions were included in the survey. The responses to these questions are included in this report. For more information about the survey methodology and the findings from the workplace climate questions, please see *Savannah Fire Department Personnel Report*. Since the period when employees responded to the survey, the Savannah fire chief announced his retirement.

The Institute of Government research team reviewed the operations of two fire departments with similar size and ISO ratings (ISO 1) to the SFD: the Charleston Fire Department in South Carolina and the Columbus Fire and Emergency Services Department in Georgia. Charleston was deemed a particularly good comparison department because, like Savannah, it is a waterfront tourist city. When appropriate, the operating practices of these two departments are compared to those of the SFD.

## **Department Overview**

The Savannah Fire Department’s purpose is to serve the residents, business owners, and visitors of Savannah by protecting their lives and property. To accomplish its mission, the department has 336 authorized positions of which 318 are certified firefighters.<sup>9</sup> Employees work from 15 fire stations located across the city that house a total of 15 engine companies, five ladder truck

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<sup>7</sup> Two surveys were only partially completed.

<sup>8</sup> A total of 326 emails were sent requesting that employees complete the survey. At the time of the research, several positions were vacant.

<sup>9</sup> City of Savannah fiscal year (FY) 2019 operating budget position control figures. Includes reductions in authorized positions from FY 2018.

companies, and two rescue companies.<sup>10</sup> The department also maintains special operations companies to address incidents related to technical rescues, such as from a vehicle, hazardous materials accidents, and marine rescues. All of these special companies represent best practices and are common for ISO 1 fire departments.<sup>11</sup>

The department is divided into three departments: Operations, Logistics, and Emergency Management.<sup>12</sup> The Operations Division is primarily responsible for fire suppression, and the vast majority of all firefighters work within this division. The Logistics Division is the administrative, i.e., support arm, of the department and encompasses fleet and equipment maintenance, accreditation, time keeping, research and planning, fire prevention, and training. Finally, the Emergency Management Department oversees citywide emergency management. The public information officer and emergency planning director report directly to the fire chief.

The department undertakes many of the organizational management processes and programs associated with best practices in fire operations including but not limited to the following:

- Comprehensive guidelines for fire suppression and clean up
- Pre-incident planning, including site visits to commercial and high-hazard buildings
- Risk assessment for all properties in the city
- Substantial annual training requirements that include both classroom and practical drills
- Fitness requirements that include one hour of exercise while on duty
- Strategic planning
- Public input through surveys
- Installation of mobile data terminals in all apparatus with integrated data between the fire inspections and fire operations
- Data analysis and tracking for all incidents
- Signed memorandums of agreement with authorities having jurisdiction for call assistance.
  - SFD recently is coordinating with the City of Pooler Fire Department to complete an automatic aid agreement which will provide additional fire suppression strength for the western area of Savannah.

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<sup>10</sup> The other three studies completed by the Institute of Government as part of this comprehensive organizational review were completed in 2018 and has the marine company as being in operation. This report reflects the status of the marine company as of January 2019.

<sup>11</sup> Only local governments located adjacent to a large body of water need marine rescue companies.

<sup>12</sup> Represents budget departments. These departments are often referred to as divisions in other local governments. The Emergency Management Department is comprised of a single person.

## BENCHMARKS

The SFD regularly tracks its performance with core metrics, such as the response time of companies to a call. Response time has several key components, starting with handling alarms and processing calls, which is the time it takes the emergency 911 dispatcher to process a call from a person. SFD does not control this aspect of response time. Next is turnout, which is how long it takes a fire company after receiving a call to leave the station. The third component is the travel time it takes the first arriving company to reach the incident scene. The final component is the time required for an effective response force (ERF) to assemble, which is when all needed personnel arrive at a scene. The larger the incident, the more personnel and companies will be needed; thus, achieving an ERF will take more time because companies are driving from farther stations to reach the scene. Tables 1 and 2 compare the SFD's response times to moderate- and high-risk fires with those of the Charleston and Columbus fire departments. Most notable is the amount of additional time it takes for emergency calls to be processed in Savannah than in Charleston. This additional minute translates into longer total response times. Despite this, SFD appears to be very successful in quickly reaching a scene because its total response times are very close to its comparable departments.

**Table 1. 2017 Moderate- and High-Risk Fire Suppression<sup>1</sup> Response Times (minutes: seconds)**

	<b>Call Processing</b>	<b>Turnout Time</b>	<b>Total Response Time 1st Unit</b>	<b>Total Response Time ERF<sup>2</sup></b>
Savannah (Moderate & High Risk)	2:58	1:21	6:43	11:55
Charleston (Moderate Risk only)	1:20	1:00	7:11	11:47
Charleston (High Risk only)	1:36	1:06	6:27	10:31
Columbus <sup>3</sup> (Moderate Risk only)	2:26	1:26	7:50	14:26

1. 90th percentile times (average time for 90% of responses)

2. ERF = effective response force, when sufficient personnel have arrived on a scene to effectively mitigate an incident.

3. Data for Columbus high-risk calls was unavailable.

Sources: *Savannah Fire Department Annual Compliance Report, 8th Edition*; *Charleston Fire Department 2017 Annual Report*; *Columbus Fire and Emergency Medical Services 2017 Standards of Cover*.

**Table 2. 2016 Moderate- and High-Risk Fire Suppression<sup>1</sup> Response Times (minutes: seconds)**

	<b>Call Processing</b>	<b>Turnout Time</b>	<b>Total Response Time 1st Unit</b>	<b>Total Response Time ERF<sup>2</sup></b>
Savannah (Moderate & High Risk)	3:03	1:23	7:02	13:32
Charleston (Moderate Risk only)	1:34	0:58	6:09	12:13
Charleston (High Risk only)	1:22	1:03	6:36	12:52
Columbus <sup>3</sup> (Moderate Risk only)	2:27	1:37	8:08	16:05

1. 90th percentile times (average time for 90% of responses)

2. ERF = effective response force, when sufficient personnel have arrived on a scene to effectively mitigate an incident.

3. Data for Columbus high-risk calls was unavailable.

Sources: *Savannah Fire Department Annual Compliance Report, 8th Edition*; *Charleston Fire Department 2016 Annual Report*; *Columbus Fire and Emergency Medical Services 2017 Standards of Cover*.

Because Charleston and Columbus both provide emergency medical services (EMS), comparisons of workload and costs are not appropriate. Additionally, determining an “average cost per call” is an inappropriate measure for fire suppression due to the large number of false alarm calls and the largely fluctuating size, complexity, and cost of fires, hazardous materials, and rescue calls.

## **POLICIES AND PROCEDURES**

The Operations and Logistics Divisions each annually review their respective operating policies.<sup>13</sup> Additionally, the department maintains a SOP committee that reviews requests for new and revised policies and procedures. After approval by the committee, the draft policies and procedures are reviewed by the assistant fire chiefs and fire chief prior to finalizing and publishing. Policies and procedures are formally reviewed every three years.

The SFD appears to face some challenges in regard to employee perceptions of how departmental policies and procedures are implemented. In a department-wide employee survey, respondents disagreed that the SFD’s operating policies and procedures are consistently followed (see Table 3). In decentralized organizations like fire departments, consistency in policy and procedure implementation can be a challenge because employees work in multiple locations somewhat independently. Although every employee can view the SFD’s policies via the city government’s intranet, CINC, this may not be sufficient to ensure every employee fully

<sup>13</sup> Interview with the Assistant Chief of Operations, July 2018.



understands them. To overcome the inherent difficulty with decentralization, management needs to exert additional attention and effort in educating all employees about policies and procedures as well as ensuring it does not inadvertently promote or allow inconsistency in policy execution.

**Table 3. Survey Question: SFD’s standard operating policies and procedures are consistently followed.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	6.5	17
Slightly agree	21.5	56
Neither agree nor disagree	10.4	27
Slightly disagree	25.4	66
Highly disagree	36.2	94
Total	100%	260

**Options**

- 1. Improve Implementation Consistency.** The recent retirement of the fire chief means that the leaderships of the department will be changing. The SFD may want to take this opportunity to assess how policies and procedures are implemented. SFD managers and supervisors may want to meet as a group to ensure they have a common understanding of how policies and procedures should be implemented. Employees’ concerns about fairness and consistency in the department were repeatedly raised in the employee survey responses. For more information about the results of this survey, please see *Savannah Fire Department Personnel Report*.

**Operations Division**

Because the work of the Operations Division is fire suppression and rescue, this report provides a brief overview of workload and a discussion of manpower. The division divides oversight of the department’s 15 fire stations into three battalions based on geography. Battalion 1 oversees six stations, and the adjacent Battalion 2 comprises five stations. Although Battalion 3 only has four stations, it is located on the western side of the city and thus should not have other stations. The distribution of stations by battalion is as follows (see Figure 1 for a map of station locations):

- Battalion 1: 3, 4, 5, 6, 8, 9
- Battalion 2: 1, 2, 7, 10, 11
- Battalion 3: 12, 13, 14, 15

Operations personnel are divided into three 24-hour shifts: A, B, and C. They work one full shift and then have two days off. A battalion chief oversees one battalion per shift, resulting in the need for nine shift battalion chiefs. This schedule and organizational design are standard across fire departments. The division is relatively flat in terms of firefighter ranks, with just five. The ranks are as follows:

- Firefighter – entry level
- Advanced Firefighter – successfully completed a yearlong probationary period
- Master Firefighter – apparatus operator
- Captain – company supervisor
- Battalion Chief – oversees all companies in a battalion

The department responds to wide variety of fire and rescue calls across Savannah. While the type and severity of risk differs from year to year, a significant portion (about one-third) of the calls are null (i.e., false alarms). Of course, firefighters do not know a call is false until a company arrives at the scene or the call is cancelled. Table 4 presents the number of calls each year during the 2014–2017 period.

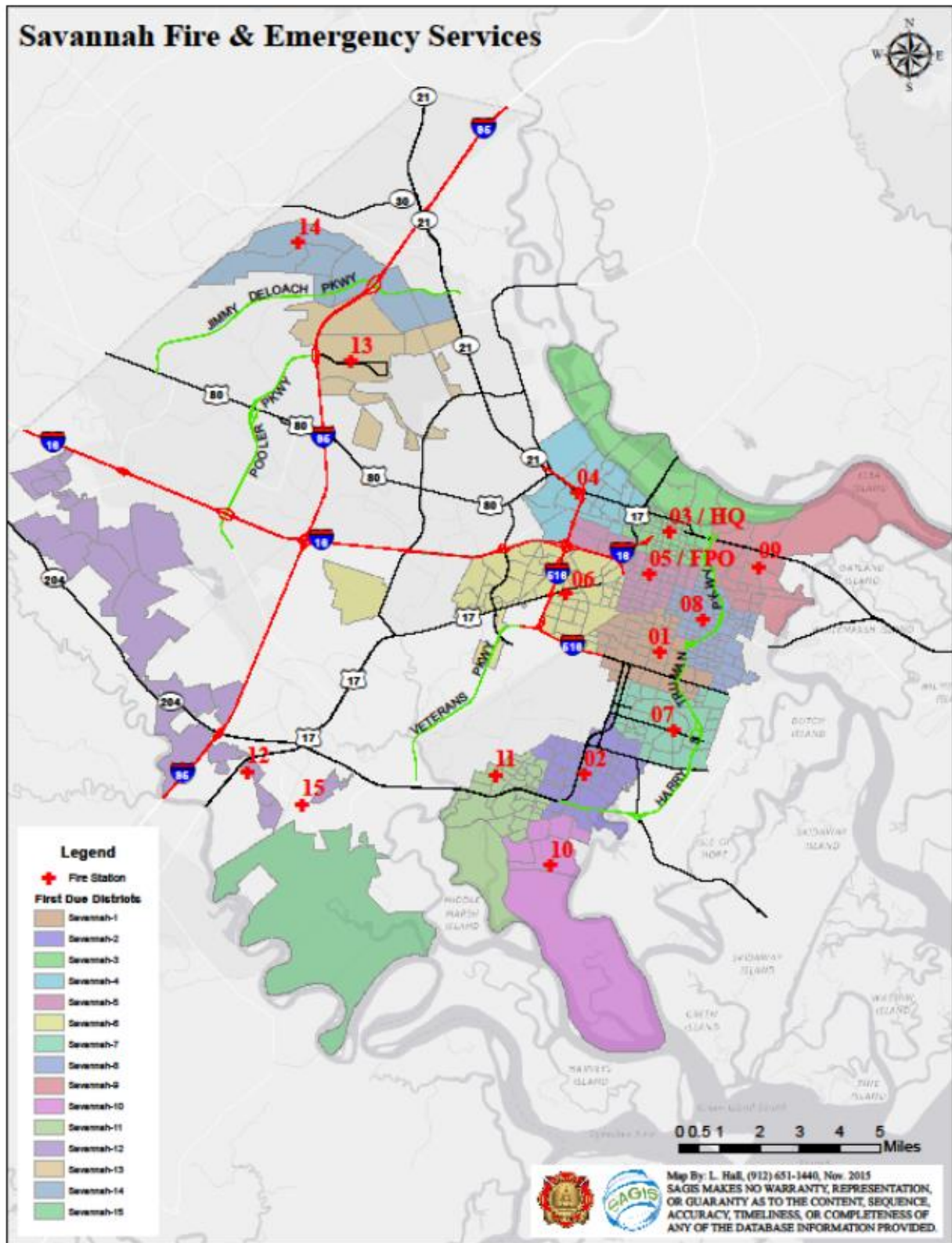
**Table 4. Savannah Fire Department Call Volume**

	<b>2014</b>	<b>2015</b>	<b>2016</b>	<b>2017</b>
Calls Numbers	6,392	7,204	8,447	7,812

Source: *Savannah Fire Department ISO and Efficiency Analysis*; activity report from SFD: Incident Type Period Comparisons, June 2018; *Savannah Fire Department Standards of Cover, 2015*.

The number of calls varies dramatically by station across Savannah. Battalion 1 responded to 59.7% of all incidents in 2017, while Battalion 2 responded to 34.4% and Battalion 3 to 5.9%. This work distribution has been fairly consistent in recent years. For more information about incident volume and the potential impact on the department of adding emergency medical services, please see the *Savannah Fire Department ISO and Efficiency Analysis* and the *Savannah Fire Department EMS Analysis* reports.

Figure 1. Savannah Fire Department Station Locations



One challenge facing the department has been not replacing personnel lost to attrition. In 2018, the department was not funded for a recruitment school (where it trains new firefighters), and current personnel were working a considerable amount of overtime to meet minimum staffing requirements. Having employees work overtime can be more cost effective than hiring new employees because of the significant expenditures for employee health insurance, which are fixed. In other words, the city pays the same amount of health insurance (and other fixed-cost benefits)<sup>14</sup> regardless of how many hours an employee works. In the case of firefighters, these employees would need to work a very significant amount of overtime to equal the cost of hiring an additional employee. In interviews, battalion chiefs mentioned using several employees on overtime to fill vacant shifts.<sup>15</sup> During focus groups, the participants were not unhappy to work overtime shifts, appreciating the additional income. However, having firefighters work extra shifts over an extended period of time can be physically draining for the employees, limit opportunities for training and vacation, and ultimately, be counterproductive to the welfare of the department.

Injuries are inherent in the dangerous work performed by firefighters, but at no point in the interviews or focus groups did employees raise concerns that the department had created unsafe conditions that would lead to more firefighter injuries. In fact, the department's adherence to national standards in regard to the number of firefighters on an engine (three or four) and firefighter entry into a burning structure (two into a building, with two ready to pull firefighters out) significantly reduces the risk of injury. The researcher supports adhering to best practices in firefighter safety.

The department has the following special operations companies that manage emergencies that are significantly different from traditional fire suppression: hazardous materials (hazmat), technical rescues, and marine rescues. Examples of the work these companies perform include suppressing a hazardous materials fire or rescuing automobile accident victims. The department has seven technical rescue (TRT) companies and six hazmat companies. Firefighters working in these companies respond to all other "traditional" emergency calls but also receive significant supplemental training to manage these types of emergencies. The primary hazardous materials company is located at Station 6. (The firefighters are also an engine company.) The hazmat program is managed by a battalion chief who oversees all hazmat training, manages staff that oversee hazardous materials inspections, and purchases equipment.

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<sup>14</sup> SFD detailed 2018 operating budget: \$2,921,185 in group health insurance for 341 employees is an average of \$8,566.52 per employee. When adding other fixed-cost benefits, the amount equals approximately \$9,188. Therefore, the city would need to spend more than \$9,000 per employee in overtime to equal the cost of a new employee. This figure equates to over two months of regular salary for a master firefighter. This excludes costs related to personal equipment, like turnout suits, as well.

<sup>15</sup> The researcher specifically asked battalion chiefs how many employees were working overtime on the current shift.

The program is funded through a combination of local industrial fees and city and county funds.<sup>16</sup>

In 2018, the marine company was closed. Having a water rescue company is a best practice for any local government with a large body of water within its boundaries, like the Savannah River. While the researcher recognizes that governments cannot always afford to offer levels of service that represent best practice, the ability of the City of Savannah to provide water rescue on the Savannah River is extremely important. Another primary value of the marine company's boat is its water pumping capability which allows it to serve as a portable fire hydrant and large capacity flowing device (i.e., water cannon) along the waterfront.

Even though firefighters working in special operations have more advanced training that is critical to the safety of citizens and preservation of property, they do not receive any additional skill-based pay. It should be noted that all city departments are undergoing a classification and compensation study that will review the levels of pay of all employees.

## Options

1. **Adjust Battalions.** The consistently uneven workload among the battalions may warrant review. Given that Battalion 1 is the busiest of the three with the largest number of stations, it may be appropriate for Battalion 1 to transfer management of a station to Battalion 2. Of course, the station would need to be adjacent to Battalion 2, such as Station 8, which houses one engine company.
2. **Search for Funding Opportunities for Marine Company.** Because of the importance of the marine company for water rescue on the Savannah River and its hydrant capacity, the city should search for additional funding for it. The *ISO and Efficiency Analysis* study includes an option that the City of Savannah work with tax-exempt public authorities so that the latter provide payments in lieu taxes for the fire and rescue services that they receive. This option is relevant for the marine company.
3. **Fill Vacant Firefighter Positions.** The department should hold its annual recruitment and training academy to reduce the number of vacancies and amount of employee overtime worked. While the researcher recognizes that using overtime to fill shifts when the department is facing vacancies is reasonable and can be cost effective, the action does not represent best practice. Rather, the department should continue to review how many positions it needs based on the desired levels of service and then fill vacant positions.

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<sup>16</sup> [www.savannahga.gov/679/Hazardous-Materials-Response-Team](http://www.savannahga.gov/679/Hazardous-Materials-Response-Team)

4. **Research Professional.** Nearly all of the senior management discussed their challenges with having insufficient support staff. In particular, the battalion chiefs discussed how their administrative assignments, such as those affiliated with accreditation, inhibited their ability to spend time with their subordinates, i.e., companies. The addition of a civilian research professional who could assist with the battalion chiefs on these special projects could be one solution. A certified firefighter should not be necessary as this position would be working on data collection and management and researching and writing reports.
5. **Provide Skill-Based Pay.** In coordination with the classification and compensation study, the department should review the appropriateness of skill-based pay for employees assigned to special operations companies.

## Logistics Division

The Logistics Department manages the support functions for the department, including training, service support, planning and research, data management, fleet maintenance, fire inspection, fire investigation, and quarter master.

### PLANNING AND RESEARCH

A battalion chief is responsible for departmental planning and research, including maintaining the records management system (RMS). The RMS is used to track incidents by type, location, duration, response time of companies, and other important data. The battalion chief also manages the risk assessment program that assigns a risk level to every property in the city. This risk analysis guides the department in determining service levels (i.e., workforce) required. The position also spearheads and coordinates any required data collection and reporting, such as for ISO and accreditation.

### TRAINING

All firefighters are trained internally through formal instruction and company-led practice drills. Formal training courses are certified through the Georgia Firefighter Standards and Training Council (GFSTC), the Emergency Management Institute, and/or the Federal Emergency Management Agency, or meet the National Fire Protection Administration (NFPA) requirements.<sup>17</sup> The SFD's Training Unit primarily uses a traditional classroom format but occasionally offers training online. The department has established minimum annual training requirements for each rank of firefighter that meet all national accreditation requirements and conform to generally accepted best practice.<sup>18</sup> The Training Unit posts its courses quarterly, and firefighters register for them. Almost always, firefighters take courses during their regular

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<sup>17</sup> Savannah Fire Department, *2015 Standards of Cover*.

<sup>18</sup> GFSTC requires a minimum of 24 hours of training annually (recertification hours).

shifts. Therefore, a firefighter at training is also on-duty and included in the department’s daily personnel count.<sup>19</sup> The department establishes fire companies for those at training so they can respond to a high-risk incident, like a major fire if needed. The company(s) would drive to the event in reserve apparatus.

The types of required training vary somewhat by rank. For the ranks of advanced firefighter through captain, the requirements include 200 hours of Firefighter I & II (NFPA 1001<sup>20</sup>), 18 hours of drills, 10 hours on hazardous materials, four hours of emergency medical responder training, and 24 hours for state recertification. Depending on rank, the employee may also need to take driver operator training or company officer training. The total annual requirements are as follows:

- Firefighter – 116 hours
- Advanced Firefighter – 268 hours
- Master Firefighter – 280 hours
- Captain – 280 hours
- Battalion Chief – 64 hours

Courses vary in length from eight to 80 hours (the single 80-hour course is for the apparatus operator). Over the last couple of years, the Training Unit has increased the variety and number of its course offerings, with twice as many training hours in 2018 as in 2016.

**Table 5. SFD In-House Course Offerings**

<b>Year</b>	<b>Number of Courses</b>	<b>Total Hours of Courses</b>
2016	16	520
2017	25	923
2018 <sup>1</sup>	20	1,192

1. Includes 400 hours of emergency medical technician (EMT) training (two courses)

The Training Unit is composed of a battalion chief, three captains, and an administrative secretary, all of whom work Monday through Friday on a 40-hour work week. The unit is responsible for all training courses as well as department recruitment.<sup>21</sup> Each of the captains is assigned a shift, A, B, or C, to oversee training. For some courses, the unit brings in experts (from within the department) to provide training as well. For comparison, the Charleston Fire

<sup>19</sup> For example, if a firefighter is a member of a four-person company and is at training, the remaining three company members remain at the station. If there is an incident, the company and apparatus would respond to the call and the firefighter at training would have to join them at the incident site separately.

<sup>20</sup> National Association of Fire Protection basic training courses

<sup>21</sup> For a discussion of the SFD’s recruitment efforts, please see *Savannah Fire Department Personnel Report*.



Department employs a training director and five trainers, and the Columbus Fire and Emergency Services Department has a training chief, two training captains/paramedic instructors, five lieutenant trainers, and an administrative secretary.<sup>22</sup>

The fire chief assigns a battalion chief and the captains to the Training Unit each year although a firefighter can request to remain with the unit for an additional year. The current battalion has served in this role for multiple years and has been working to improve the quality of the classes offered. However, in all cases, assignments are at the discretion of the fire chief. Because captains are assigned to the unit, rather than requesting it, not all have as strong a desire to serve as instructors.<sup>23</sup> While they are all knowledgeable in the profession and practice of firefighting, their skills in actually training will naturally differ. By rotating captains annually, the trainers also lack longevity to develop their skills and perfect their courses. Additionally, few of the instructors attend national conferences that would allow them to further develop their skills and learn about practices occurring in departments in other states. There is currently little reason to invest in professional development for trainers because it is an annual assignment.

The Training Unit surveys its firefighters through course evaluations, demonstrating an honest desire to improve the quality of its training and meet employee expectations. The survey results for 2017 indicate that the training generally meets expectations but that there is room for improvement.

**Table 6. 2017 Internal Survey Results: Rate the Level of Training Provided by Course**

	<b>Fire Suppression</b>	<b>Driver Operator</b>	<b>Incident Command</b>	<b>Health and Safety</b>	<b>Special Operations</b>	<b>Career Development</b>
Does not meet expectations	13.64%	12.50%	19.54%	13.64%	21.84%	32.18%
Meets expectations	61.36%	63.64%	58.62%	67.05%	55.17%	50.57%
Exceeds expectations	25.00%	23.86%	21.84%	19.32%	22.99%	17.24%

<sup>22</sup> *Charleston Fire Department 2017 Annual Report and Columbus Consolidated FY 2017 Budget*. One of the trainers is dedicated to EMS program management. Staffing includes training for special operations and EMS.

<sup>23</sup> All the trainers have the same minimum qualifications to be an instructor: Certifications for NQP Fire Officer II, NIMS ICS 400, and NPQ Fire Instructor I. All have a minimum of six years with the SFD and a valid class B or F driver’s license.



The Institute of Government’s survey on personnel issues within the SFD included two questions specifically on departmental training.<sup>24</sup> The results generally reflected the department’s internal survey findings. Of the 260 survey respondents, 41.1% ranked the department’s training as “excellent” or “good,” and 28.1% replied that it “needs improvement” or “needs much improvement” (see Table 7). However, the respondents also strongly believed that their training enables them to perform their jobs extremely well or sufficiently. Less than 2% of the respondents felt that their training left them unprepared to perform their job (see Table 8).<sup>25</sup> Because approximately 9% of the respondents did not believe they could perform their job to the level they felt was necessary, the department may want to further research what is missing in the overall training program and address any deficiencies.

**Table 7. Survey Question: How would you rank the training provided by the Savannah Fire Training Unit?**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Excellent	11.1	29
Good	30.0	78
OK/average	27.3	71
Needs improvement	13.5	35
Needs much improvement	14.6	38
I do not receive training	3.5	9
<b>Total</b>	<b>100%</b>	<b>260</b>

**Table 8. Survey Question: From the amount of job training I receive,**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
I can perform my job extremely well	45.8	119
I can perform my job ok/good enough	41.2	107
There are instances when I cannot perform my job to the level I believe is necessary	8.8	23
I am not prepared to do my job	1.9	5
No opinion	2.3	6
<b>Total</b>	<b>100%</b>	<b>260</b>

While the Training Unit focuses on in-class training, individual companies practice drills (e.g., pulling hoses) and perform basic training at the direction of their captains, typically at the station or a nearby location. Captains record the type and hours of training in a log book.

<sup>24</sup> See the Institute of Government study *Savannah Fire Department Personnel Report* for information about the employee survey.

<sup>25</sup> Because the survey was anonymous, the positions of the respondents who feel unprepared are not known.

Generally, company captains coordinate multi-company training exercises. Because the training captains are focused on developing and presenting courses, they rarely review these company training drills to ensure they are being performed properly or offer any sort of external review. With the many administrative demands placed on battalion chiefs, they also lack the time to regularly oversee these drills, particularly multi-company drills. Several battalion chiefs in their interviews said they would like to have more time to participate in multi-company drills as this experience is particularly important to prepare for and oversee multi-company incidents like structure fires but their time is very limited due to administrative responsibilities. Because basic performance training and drills are undertaken during regular shifts, time must be found outside of a company's other responsibilities (i.e., responding to calls, community outreach, and cleaning and maintaining the station, apparatus, and other equipment) to perform them.

The SFD recently built a new training facility located midtown along the eastern side of Savannah. Formal training courses are offered at the facility. It also includes a structure that allows companies to practice suppressing live fires. Some participants in the focus groups considered the facility to be of high quality but a far drive from some stations and thus not particularly convenient.<sup>26</sup> The department also rents the facility to private organizations. So far, rental opportunities have been limited, but there is the potential to raise additional revenue for the department.

Currently, external training opportunities, such as at the Georgia Public Safety Training Center (GPSTC), are fairly limited because of budget constraints and the department's need to maintain minimal staffing levels.<sup>27</sup> Participants in the focus groups commented that they had attended training at GPSTC during their personal time (i.e., without pay). In recent years, a few battalion chiefs each year have been given the opportunity to attend a national conference. During their interviews, several battalion chiefs indicated that this opportunity was very beneficial, allowing them to learn about practices from other ISO 1 departments across the country. A goal of the department is to eventually have sufficient funding for captains to attend this conference as well. Opportunities for employees to have some degree of external training are important to ensuring they are exposed to new ideas and practices.

## Options

1. **Permanent Training Positions.** The SFD should consider making the Training Unit's battalion chief and captains into permanent assignments to improve programmatic continuity and training quality. Firefighters would apply for the positions and thus would enjoy the work and likely be more engaged. Because the captains would be

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<sup>26</sup> SFD's response on the draft of this report stated that, "the location allows for safe training and support without hindering the public with emergency operational drills includes: live fire and smoke, elevated water streams, heavy apparatus movement." Email dated January 29, 2019.

<sup>27</sup> In November 2018, SFD removed its marine company from service and adjusted minimum daily staffing to 86. See footnote 10.

performing the training over several years, they would have the opportunity to improve their skills, and it would make prudent financial sense to invest in their professional development such as attending national conferences. The training captains would also have the time to refine their courses. One consideration with permanent trainers is their need to stay current in responding to incidents. Therefore, it may be appropriate for captains in these positions to serve for five to ten years rather than 15 to 20. Of course, if a firefighter in a training position wants to return to the Operations Department, he or she could apply for a transfer earlier. Both the Columbus and Charleston fire departments have permanent training assignments.

2. **Onsite Reviews.** The department should make a concerted effort to have both battalion chiefs and captains from the Training Unit review company drills and basic training. External oversight reduces the risk of companies inadvertently performing their critical tasks incorrectly and supports consistency in performance across companies. Battalion chiefs may also want to establish a goal for a minimum number of monthly multi-company training exercises. The assistant chief of operations should help the battalion chiefs “find time,” such as by reducing the number of required meetings or at least allowing battalion chiefs to simply call-in (i.e., hold conference calls) for daily meetings.
3. **Alternative Schedules for Trainers.** To maximize the availability of trainers to work with firefighters, the department may want to consider staggered schedules, such as hours from 10:00 am to 7:00 pm or having one trainer work a Tuesday through Saturday schedule. Before making such a change, it would likely be worthwhile to determine whether firefighters would want courses later in the day or on Saturdays.
4. **Webinars.** For classroom training, the Training Unit should develop webinars so that firefighters can receive their training while at the station, eliminating any travel delays of participants that must respond to calls. Webinars can be “live” with the teacher present or pre-recorded, depending on the complexity of the material. For more complex material, live webinars would likely be more beneficial. Webinar technology is affordable and easy to use for both the instructor and participants. Additionally, webinars can be interactive when live, allowing firefighters taking the training to ask questions. Finally, many training webinars include a testing component to ensure that participants have understood the material presented.
5. **External Training.** Firefighters receive some external training for specialties beyond the SFD’s level of instruction such as advanced TRT training; however, opportunities are limited due to financial constraints. Ultimately, additional external training would require increasing the minimum number of firefighters paid for that day. With multiple financial demands facing the city, this would be difficult, but providing this special

benefit to a firefighter could be a way to create incentives for additional professional growth and superior work performance, and could improve morale. Again, the department would want to survey employee interest in offsite training opportunities.

6. **Rent Out Training Facility.** The department should continue to build relationships with private and nonprofit organizations to rent out space in its training facility and thus raise additional revenue. The department should research and work with the City Manager's Office to advertise the facility's rental possibilities.

## **STATIONS, APPARATUSES, AND SAFETY EQUIPMENT**

### **Fire Stations**

The 15 fire stations that house SFD employees are of varying ages and levels of repair. According to interviewees, some of the stations are quite nice, and some are not. Six of the stations are less than 20 years old, including the newest, Station 15, which was recently built. In contrast, Station 14 is a 20-year old modular trailer with a separate building akin to a shed that stores the apparatus. Fortunately, this station is a fully-funded capital project and construction for a replacement station is scheduled to begin this year. When asked to rate whether their assigned stations were "well maintained and comfortable" in a department-wide employee survey, the respondents offered mixed results, reflecting the diverse quality of the stations. Nearly half (48.8%) of the respondents strongly or slightly agreed with the following statement: "My assigned station is well maintained and comfortable." Another 13.8% of respondents were neutral, and 37.4% either strongly or slightly disagreed. To maintain the stations and improve their quality, the department must continue to invest in capital maintenance for its stations. For FYS 2015–2018, the department spent just \$33,415 on average annually from the capital budget to maintain its fire stations.<sup>28</sup>

Carcinogens from diesel exhaust create a significant cancer risk for firefighters.<sup>29</sup> To minimize this risk, fire departments are developing strategies to ensure fire station bays (i.e., where the apparatuses are stored) have sufficient air circulation or capture the carcinogens. Cleansing the air in the bays is critical for a safe working environment. When asked how the department addresses air quality in its station bays, the fire chief (recently retired) said that the policy is to keep the bay doors open. For this strategy to actually clean the air, there must be bay doors on either side of the building to permit a cross breeze. The current status of bay ventilation varies by station, with the newer stations (5, 11, 12, and 15) having carbon monoxide (CO) alarms systems and automatic exhaust vent systems. The remaining stations have various kinds of

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<sup>28</sup> Savannah Fire Department capital spending report: Fire Building Maintenance – project number PB0840. This figure excludes the capital project spending for the Sweetwater Fire Station (Station 15), the fire training facility, and the Bradley Fire Station (Station 12) built in 2013.

<sup>29</sup> [www.fccancer.org/index.cfm?zone=/unionactive/view\\_page.cfm&page=Diesel20Exhaust202620More](http://www.fccancer.org/index.cfm?zone=/unionactive/view_page.cfm&page=Diesel20Exhaust202620More)

ventilation systems and corresponding differences in effectiveness. Appendix A lists the status of each station and the department's efforts to reduce health risks to SFD employees.

### **Apparatuses and Safety Equipment**

The SFD has an extensive fleet of 36 different apparatuses, including pumpers (i.e., engines), aerial ladder trucks, rescue trucks, and a hazmat truck. The department's fleet is divided into frontline (26) and reserve (10) apparatuses. The department's apparatus replacement policy, which conforms to best practice, is as follows:

- Engines/pumpers and rescue trucks are driven for 10 years as frontline vehicles and then are transferred to reserve status for an additional five years.<sup>30</sup>
- Aerial ladder trucks are driven for 12 years as frontline vehicles and then are transferred to reserve status. Trucks are driven for a longer period of time because they generally have less mileage than engines and rescue trucks.

Reserve vehicles are only used when the primary apparatus is unavailable, such as when it is being repaired. Retaining reserve apparatuses for such instances is necessary, and the number of apparatuses the department keeps on reserve adheres to ISO 1 guidelines. In accordance with its apparatus replacement schedule for 2019 and 2020, the department will need to transition four engines and one ladder truck from service at an approximate cost of \$4.1 million. According to departmental vehicle records, the department should also replace its two tiller ladder trucks, which were both purchased in 2007, at an estimated replacement cost of \$1.4 million each.<sup>31</sup>

Apparatus maintenance schedules are set based on national fire standards. The department hires the city's Fleet Services Department to service its vehicles. Fleet Services employs two certified mechanics to work on fire apparatuses, although they work on other city vehicles as well.<sup>32</sup> The department has instituted a policy of purchasing the same model of apparatus. By doing so, the department can save time on repairs because Fleet Services can keep commonly used parts in stock. While standardizing a model for apparatuses is not a common practice, it makes sense and other fire departments may want to research implementing a similar policy.

One challenge the SFD faces with its fleet is the repair time required for its apparatuses. When a frontline vehicle is out of service for standard maintenance or repair, the department must rely on a reserve vehicle, which may not be as reliable as the newer one. This unreliability creates unnecessary risk for the department when responding to emergency calls. The average time an

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<sup>30</sup> When engines are replaced, the department purchases all associated equipment, such as hoses, with it.

<sup>31</sup> These are scheduled for replacement in 2021 and 2022.

<sup>32</sup> Officially, Fleet Services has four mechanics and a supervisor assigned to the Fire Department. However, two mechanic positions have been historically kept vacant so in practice, there are two mechanics to work on the fire department's fleet.

apparatus was out of service to be repaired or maintained in 2017, according to the Fleet Services database records, was nearly seven weeks (47 days). Furthermore, an additional 7.7 days was needed in 2017 to receive parts. The researcher interprets these data to mean that the SFD waited on average nearly 56 days (47 + 7) in 2017 for Fleet Services to maintain or repair an apparatus.<sup>33</sup> The median number of days an apparatus was out of service in 2017 was considerably lower, 30 days, with an additional three days' wait for parts. Yet, this lower number still translates to over a month that an apparatus was not available. Table 9 shows the average number of days SFD apparatuses were out of service to be maintained and repaired for the years 2016 – 2018. SFD has recommended different options to improve the timeliness of apparatus maintenance and repairs, such as using private vendors for preventative maintenance and Fleet Services adding an alternative 2<sup>nd</sup> shift in case emergency repairs are needed, i.e., repairs after 3:30 pm.

**Table 9. Average Apparatus Maintenance and Repair Days Out of Service (OOS)**

	<b>Avg. Days OOS 2016</b>	<b>Avg. Days Delay Parts 2016</b>	<b>Avg. Days OOS 2017</b>	<b>Avg. Days Delay Parts 2017</b>	<b>Avg. Days OOS 2018<sup>1</sup></b>	<b>Avg. Days Delay Parts 2018<sup>1</sup></b>
Pumper	55.1	4.3	51.1	8.8	64.0	3.8
Ladder	65.9	5.9	38.7	5.1	58.6	6.6
Rescue	38.0	1.9	40.8	7.5	54.0	8.6
Hazmat	48.9	13.2	13.3	0.4	101.9	0.7
<b>Average All Apparatuses</b>	<b>53.8</b>	<b>4.5</b>	<b>46.0</b>	<b>7.6</b>	<b>62.2</b>	<b>5.1</b>
<i>Median Days All Apparatuses</i>	45.3	3.1	29.7	3.2	52.7	2.6

1. Through September 3, 2018.

Source: Fleet Services database via Savannah Fire Department

In 2018, the department paid more than \$252,000 to Fleet Services for vehicle maintenance. This figure included maintenance and repair for all of its vehicles, including smaller one like the passenger trucks used by building inspectors. These smaller vehicles should have relatively low repair and maintenance costs compared to the apparatuses though.

The department has standardized policies and procedures for ensuring that the personal safety equipment the firefighters use is clean and in good repair. For example, the SFD has established replacement policies for all personal gear like turnout suits and requires regular testing of self-contained breathing apparatuses. Each firefighter is assigned one turnout suit, which is cleaned by an extractor<sup>34</sup> after being used during a fire. When the turnout suit is being cleaned, the

<sup>33</sup> Email correspondence with SFD employee Marcus Wilson, September 24, 2018.

<sup>34</sup> An extractor is a special washing machine that removes carcinogens from fabric.

firefighter is given a reserve suit. The department has three extractors at different stations. The interviewees, which included an employee firefighters' union representative, felt that these practices adequately safeguard firefighters from carcinogens. Employee survey responses to a question about personal safety gear were very favorable. In response to the statement, "The SFD provides me with the personal safety equipment (turnout gear, SBCA, etc.) that I need to perform my job," 67.7% of the respondents strongly agreed and 22.7% slightly agreed. Less than 10% of the responses were neutral, slightly disagreed, or strongly disagreed. The department may want to research why a few employees feel they are not given sufficient personal safety equipment and address those concerns.

## Options

1. **Invest in Capital Maintenance of Fire Stations.** The capital investment to replace stations 15 and 14 is a positive sign for ensuring safe and appropriate living conditions for the city's firefighters. Continuous investment in capital maintenance can reduce the need for major costs down the line. The SFD should work with the city's Office of Management and Budget and Real Estate Services Department to review the current capital maintenance budget and determine whether additional funds are appropriate.
2. **Exhaust Filtration System.** Because of the serious health impacts of diesel exhaust, the department should test the air quality at each of its stations and consider purchasing air filtration systems for all facilities that do not currently have one. These systems are mounted to the ceiling of a bay and work by forcing harmful exhaust through multiple filters, which trap particulates and absorb harmful chemicals. The department could also research grant opportunities to offset the cost of this expense.
3. **Contract for Apparatus Maintenance.** The department should consider contracting out for apparatus maintenance in order to reduce downtime for its fleet. A fire apparatus maintenance company is located in Savannah. The department could ask that company to submit a maintenance contract bid to determine whether contracting would be cost effective as well as result in a higher level of service.

## FIRE PREVENTION

The SFD recently integrated its fire inspections (i.e., fire marshal) and fire investigations units to create a new Fire Prevention Division. In regard to fire inspections, this division enforces fire codes and reviews commercial building plans for fire safety. Its second primary function is to research the causes of fires. Under the new organizational structure, the division will have a total of eight employees.<sup>35</sup>

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<sup>35</sup> The former chief investigator is being promoted to division chief, according to an email correspondence with Fred Anderson on January 3, 2019.

- 1 Division Chief
- 1 Deputy Division Chief (working supervisor over the inspectors)
- 4 Fire Inspectors
- 2 Fire Investigators

The new organizational structure of the department conforms to several other departments the researcher reviewed, including the two comparable departments of Columbus and Charleston. FD’s new organizational model for fire prevention is similar to that of the comparison fire departments, Charleston and Columbus. However, in Columbus and Charleston, fire prevention is a direct report to the fire chief and organizationally equal to an operations and logistics (called divisions in Columbus and Charleston). In both of these departments, a division chief oversees fire inspections and fire investigations. These departments also include fire education and community outreach within their fire prevention divisions.<sup>36</sup> To give perspective on staffing, Columbus employs a total of 11 full-time positions in its division, and Charleston has 13.5 full-time equivalent employees.

Prior to the units’ consolidation, both appeared to be functioning well under the leadership of the newly promoted division chief.<sup>37</sup> The fire inspectors work Monday through Friday, 8:00 am to 5:00 pm. They are also on call for evening shifts on a rotating basis to ensure that bars and nightclubs are within occupancy limits. For working in the evenings, the fire inspectors receive compensated leave rather than paid overtime. The unit has significantly increased the number of fire inspections and plan reviews in the last couple of years.

**Table 10. Annual Number of Fire Inspections and Building Plan Reviews**

	<b>Fire Inspections</b>	<b>Plan Reviews</b>
2015	2,880	575
2016	2,492	613
2017	3,156	665
2018	3,021	789

The SFD Fire Arson Unit is composed of two certified peace officers who investigate all fires in the city, and the unit is its own law enforcement agency. For small fires where the source is rather obvious, like a stove fire, the incident commander will write up the report and a fire investigator will review it, typically within one day. For more complex and larger fires, the investigators will manage the scene and collect and analyze evidence. This unit works independently of the Savannah Police Department unless a fatality is involved. In these

<sup>36</sup> The Columbus Fire Department refers to this division as the Fire Marshal Division.

<sup>37</sup> Prior to consolidation, the chief fire investigator concurrently served as the interim fire marshal. Therefore, joining the two units reflects what had been occurring informally.



instances, the Savannah Police Department works with SFD until death by homicide is ruled out. The chief investigator believes the investigators have access to needed training.

**Table 11. Annual Number of Fire Investigations**

	<b>Investigations by Arson Unit</b>	<b>Investigations by Incident Commander</b>	<b>Total Investigations</b>
2016	166	988	1,154
2017	107	820	927
2018	45	428	473

One area of concern for the division is the age of the vehicles they drive. Like other code enforcement personnel, fire investigators drive across the city every day to inspect commercial buildings, and fire investigators drive to fires. The average age of the eight vehicles assigned to the division is 11.5 years old.<sup>38</sup>

**Options**

1. **Elevate Fire Prevention to a Department.** Best practice would have Fire Prevention be its own department, similarly to Operations and Logistics. Fire prevention is distinctly different from logistics which is a support arm of the department and operations which is centered on incident response. This change would also highlight the importance of these services. Additionally, this change would eliminate any potential reporting conflicts between the Division Chief of Fire Prevention, who also serves as the department’s internal affairs investigator, and his superiors. Currently, he reports to the Fire Chief for issues related to internal affairs and the Assistant Chief of Logistics for all other responsibilities.
2. **Administrative Secretary.** The division has relatively few staff compared to the Charleston and Columbus fire departments. Given the extensive paperwork the division is required to complete, a cost-effective way to increase efficiency would be to hire an administrative secretary. With administrative help, the division chief estimates that staff could complete approximately 1,500 more fire inspections annually.<sup>39</sup>
3. **Purchase New Vehicles.** The city maintains a vehicle replacement schedule for all departments. Finance and Fleet Services Divisions may want to review current vehicle purchasing practices to ensure that the Fire Prevention Division’s vehicles are being replaced appropriately.

<sup>38</sup> The 2004 Ford F-250 is currently being used by the Training Division but will be used by the second investigator when he or she starts with the department.

<sup>39</sup> Based on in-person interview, August 2018.

4. **Accelerant Detection Canine (Arson Dog).** Similar to a police dog, an arson dog assists with fire investigations by detecting the presence of fire accelerants if they have been used to start a fire. Also like a police dog, an arson dog can be nice way to engage the community in the work of the fire department. Various grants can used to purchase an arson dog, but the local government must take on the additional costs for the animal’s upkeep. The Columbus Fire Department currently has an arson dog and finds the animal very useful. SFD may want to review the benefits and limitations to acquiring an arson dog as part of its fire investigation efforts.
  
5. **Include Public Outreach in the Fire Prevention Division.** Including fire education and community outreach responsibilities within the Fire Prevention would be a natural fit. Both the Charleston and Columbus fire departments include education and outreach in their similar divisions. Currently, SFD only has a public information officer (PIO) dedicated to this responsibility because firefighters perform the outreach activities. Therefore, under this option, the PIO would be transferred to the Fire Prevention Division. The following section of this report specifically discusses SFD’s education and community outreach activities in more detail.

## Public Information and Community Outreach

The SFD community outreach primarily consists of firefighters giving personal assistance to residents through its smoke detector program, home fire safety surveys and exit drills, blood pressure checks, and by regularly attending homeowners’ associations meetings. Based on discussions with firefighters, the most popular outreach activity is its smoke detector check and distribution. The department also performs apparatus displays at community events; safety discussions; fire safety talks at schools, senior care facilities, and other venues; fire station tours;; and career discussions. It also offers a youth fire setter intervention program. Table 12 shows an overview of the SFD’s total community outreach activities in 2016 and 2017.

**Table 12. Community Outreach Activities: 2016 and 2017<sup>40</sup>**

<b>Activity</b>	<b>Number</b>	<b>Hours</b>	<b>Adult Attendees</b>	<b>Youth Attendees</b>	<b>Total Attendees</b>
Apparatus Displays	129	222	3,621	6,969	10,580
National Night Out	1	1.5	52	5	57
School / Daycare Presentations	6	14	185	273	458
Station tours	62	54.5	415	1,202	1,617

<sup>40</sup> Data on outreach related to the smoke detector program and speaking at community groups were not provided.

Public Education Event	46	52	653	922	1,575
Community Meetings	357	255	5,910	133	6,043
Neighborhood Activity	26	38	1,080	580	1,660
Home Fire Safety Inspection / Smoke Detector Install	57	66	122	10	132
Juvenile Fire Outreach Prog.	1	1.5	6	28	34
Fire Blitz	21	26	135	8	143
Operation Clean Sweep	3	6	125	50	175
Community Risk Reduction	16	59	263	1	264
<b>Total</b>	<b>725</b>	<b>795.5</b>	<b>12,567</b>	<b>10,181</b>	<b>22,738</b>

By far, the most frequent method of community outreach is community meetings, i.e., attending homeowner association meetings to remind residents about fire safety. A couple of focus group participants questioned the usefulness of attending these meetings so frequently. The department is committed to apparatus displays as a way to educate the community about the fire department and fire safety. It is likely that some of these displays were at schools and thus the school presentation number is somewhat understated. However, the level of youth fire safety education appears to be quite low. When asked about public outreach activities during the employee focus groups and more specifically about visiting schools, the participants stated that such outreach is not performed very often and that they felt it is an area in which the department could improve. It may be worthwhile for the SFD to redirect public outreach efforts from so many community meetings to visiting schools. It should be noted that in 2016 and 2017 Savannah dealt with hurricanes Matthew and Irma which occurred during Fire Prevention Week.<sup>41</sup> Because of these disasters, the SFD had numerous public outreach cancellations, lowering its performance figures. To put this outreach effort in perspective, the Charleston Fire Department participated in 923 public outreach events with 11,962 adult and 15,773 youth attendees in 2017.<sup>42</sup>

In 2015, the SFD surveyed city residents to learn their priorities for community outreach programs through a “process of direct comparison.”<sup>43</sup> The responses showed that the most desired programs were fire prevention inspections (52%), public fire safety education (44%), smoke detectors (44%), blood pressure checks (33%), and community emergency response training (23%).

Social media has been a critical venue for community outreach and informing the public about the SFD’s activities and promoting fire safety. Social media is also an excellent resource for

<sup>41</sup> For nearly 100 years, the National Fire Protection Association has sponsored Fire Prevention Week. During this time, fire departments across the county focus on educating children, adults, and teachers on how to stay safe during a fire.

<sup>42</sup> Charleston Fire Department. *2017 Annual Report*.

<sup>43</sup> Savannah Fire and Emergency Services. *2015 Standards of Cover*, p. 82.

recruitment, particularly when trying to reach a younger demographic. The SFD has its own Facebook page and Twitter account, which staff actively update. The department does not appear to have its own YouTube Channel, but videos of SFD firefighters posted by individuals can be found on the website. Likewise, the department does not maintain an Instagram account. During focus groups, participants stated the fire chief was not supportive of firefighters posting information about the department on their personal Facebook pages. The participants viewed this attitude as inhibiting their pride in the SFD and their work.

The public information officer is the only employee in the department dedicated to public outreach and education. For events, she schedules requests for firefighters to perform programs. The department does not have a school district-wide education program or schedule for fire safety education. Rather, the department only responds to requests from a particular school administrator. In these instances, on-duty firefighters from the closest fire station go to the school and offer the program. Focus group participants expressed support for firefighters working more frequently with schools and getting to know people in their neighborhoods through informal gatherings like barbeques and by handing out candy on Halloween.

The department also maintains a partnership with the Savannah–Chatham County Public School System’s (SCCPSS) Firefighting College and Career Pathway. Such programs are a good way to encourage service into firefighting as well as generally promoting the mission of a fire department.

## **Options**

1. **Expand Fire Safety Education.** The department may want to devote more effort to working with schools and increasing its youth fire safety education program. Educating children serves two important goals: It increases the safety of children and their families in case of fire, and it also helps build relationships between firefighters and the community. Rather than waiting for a school to ask for an education session, the department’s leadership, such as the new deputy chief for fire prevention, should develop a comprehensive program with SCCPSS to visit every elementary school within city limits annually. A regular calendar could be established to allow sufficient planning for the fire department and ensure that the visits do not conflict with other events. To the extent firefighters have limited time to visit schools, they may consider attending fewer homeowner association meetings. The SFD could also work with the homeowner associations to have them disseminate safety messages via emails and Facebook posts to their members.
2. **Public Safety Educator.** With the expansion of emergency medical service (EMS) responsibilities, SFD firefighters will no longer have the time to provide as many public outreach programs as they have in the past, such as performing smoke alarm checks or providing youth fire safety education. To overcome the limited availability of

firefighters, the department could consider hiring a public fire safety educator who would develop and provide the fire education programming. The Columbus Fire Department employs a certified public educator for this purpose. The “friendly firefighter” is an important component of youth fire safety education. The department would still likely need to bring in a firefighter for this purpose. One option could be to create a new safety officer position that would operate as a one-person company with his/her own vehicle; thus, the officer could quickly leave for an incident if one arose during a school demonstration.

3. **Social Media Presence.** The department already maintains a Twitter account and Facebook page but much more could be done to improve the department’s social media presence as a way to increase information about fire safety and serve as a recruitment tool. The department could create its own YouTube channel that posts both brief videos on fire safety and recruitment videos. Likewise, an Instagram account that encourages firefighters to post pictures of “life at the station” or on Twitter can show the general public and possible recruits about life as a firefighter, including both the critical work they do and the comradery that firefighters share. Allowing this kind of media freedom for employees demonstrates trust in the firefighters to use appropriate judgment when posting pictures and Twitter. Of course, the department can develop guidelines or regulations defining what is appropriate content.
4. **Partnerships with Nonprofit Organizations.** Promoting personal safety is a mission of both the fire department and many nonprofits such as the Red Cross. The department should grow the number and quality of its partnerships with nonprofits that have compatible missions to leverage its public outreach and education efforts, such as joint public service announcements and special events (e.g., CPR classes, blood drives, car seat safety checks). Likewise, specialized fire education and safety programs could be developed for the elderly and those with physical disabilities in partnership with nonprofits who assist these populations.
5. **Fire Service Exploring Program.**<sup>44</sup> While the department does work with SCCPSS on its college and career academy firefighter pathway, the department does not maintain a Fire Service Exploring Post (i.e., branch of the program). Exploring programs can be a positive way to increase youth engagement with a fire department and encourage motivated recruits. As an initial step, the department could conduct a survey to gauge student interest. Due to their lower call volume, managing an Explorer’s Program would likely be most appropriate at a Battalion 3 station.

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<sup>44</sup> The Fire Exploring Program is a career-oriented program that allows youth ages 14–20 to learn more about the firefighting profession.

## Conclusion

The Savannah Fire Department is a nationally recognized and highly professional organization. The public can feel confident that the department's firefighters can effectively perform their work. However, as in any organization, there is room for improvement. In particular, the department may want to consider converting its training positions into permanent posts rather than having captains assigned on an annual basis. The SFD could increase its youth fire safety education as well. However, when the department begins providing EMS, it may need to hire a public safety educator. This position would bring a level of expertise to the program and increase its quality. The department should also expand its use of social media as a form of public outreach, education, and recruitment. An Instagram account with contributions from firefighters showing their life on the job would allow the public to better understand the daily life of a firefighter. A department YouTube Channel could provide important fire safety and emergency medical videos as well as recruitment information. To develop the videos, the department could work with its nonprofit partners like the Red Cross or local hospitals. Finally, the department should work with other city departments to improve maintenance of its capital assets. The SFD must ensure that sufficient investment is made in station maintenance and review opportunities to privatize apparatus fleet maintenance to reduce the downtime of these emergency vehicles.

## Appendix A

### Status of carcinogen protections for Savannah Fire Department<sup>45</sup>

1. 4 Fire stations (5, 11, 12, and 15) with carbon monoxide (CO) alarm systems with automatic exhaust vent systems installed and operational.
2. The station 14 bay is separate from the station. New construction will start this year for replacement, and like all future stations will have the same capability above.
3. Station 7 has exhaust/venting automatically when the bay doors are opened.
4. In five stations (2, 3, 4, 6, and 13) the automatic is mode not working and/or has manually operated ventilation. Stations 4, 6, and 13 have bay doors on either side to exchange air.
5. Four stations (1, 8, 9, and 10) have unsupported / outdated muffler exhaust with alarm, and automatic ventilation systems. Stations 1, 9, and 10 have bay doors on either side to assist with air exchange.
6. SFD is working toward improving the systems at other stations with working CO alarms activating auto ventilation.
7. All apparatus checks are conducted outside the station, and the City of Savannah has a no "idling policy" which we enforce.
8. Eight fire stations have units assigned with portable CO monitors, which can be used to survey the bay should a condition of elevated CO become a concern.
9. All fire stations have a mobile bay floor fan to move/exchange air.

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<sup>45</sup> Per the SFD's response to the draft of this report. Email correspondence January 29, 2019.



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# **Savannah Fire Department ISO and Efficiency Analysis**

Final Report

December 2018



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## Introduction

This report is one of four that the University of Georgia's Carl Vinson Institute of Government has researched and written on the operations of the Savannah Fire Department (SFD) at the request of the City of Savannah. The SFD has earned an ISO 1 rating, the highest a fire department can achieve, representing generally accepted best practices in fire suppression management. Because fire protection and suppression are heavily reliant on manpower, this best practice also translates into needing more employees. This report discusses SFD's ISO<sup>1</sup> rating and the potential impacts on the department's future ISO rating of changing fire suppression activities under three options. All three options involve reducing personnel, but at different levels and in different contexts. The analysis discusses both the estimated cost saving and likely impacts on service levels from implementing each option.

## National Standards and Savannah Fire Department Standards of Cover

In organization reviews, the Institute of Government researchers base their analyses of local government departments and services on best practice. In the case of fire service, best practices are those that have been generally acknowledged through national studies and standards such as research by the National Institute of Standards and Technology (NIST)<sup>2</sup> and the National Fire Protection Association (NFPA)<sup>3</sup> standards 1710 and 1500.<sup>4</sup> One key national standard that is widely accepted is that a residential structure fire is best responded to by at least 15 firefighters, excluding any command personnel. With regard to commercial and industrial structures, there is less consensus about the staffing needed for effective coverage because each fire department typically has very specific risks that need to be mapped and individually assessed for response staffing needs.

Based on national studies and on local assessments of higher risk structures and areas, the SFD has established two staffing-related standards of coverage: (1) 17 firefighters for Moderate Risk fires such as fires in residential structures, and (2) 21 firefighters for High Risk fires such as fires

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<sup>1</sup> ISO refers to the quality rating assigned by the Insurance Services Office, Inc, a private, for-profit firm.

<sup>2</sup> Robinson, B. (Ed). 2010. *Technical Note 1661 Report on Residential Fireground Field Experiments*. Washington, DC: NIST, US Department of Commerce. Retrieved from [ws680.nist.gov/publication/get\\_pdf.cfm?pub\\_id=904607](http://www680.nist.gov/publication/get_pdf.cfm?pub_id=904607).

<sup>3</sup> The National Association of Fire Protection "is an American association that creates standards and codes for use by local governments....The NFPA's mission is to reduce fire hazards and their impact on quality of life through the provision of codes and standards as well as research, training and education." See [www.safopedia.com/definition/94/national-fire-protection-association-nfpa](http://www.safopedia.com/definition/94/national-fire-protection-association-nfpa).

<sup>4</sup> NFPA Standard 1710 concerns resource deployment and staffing, including the recommended practice of assigning four firefighters to a company, including the company commander. NFPA Standard 1500 focuses on safety protocols such as the "two in, two out" rule.

in commercial or industrial structures. These staffing levels include a battalion chief and a safety officer. The Institute of Government recognizes that not all local governments have the resources to provide fire suppression at the levels outlined under best practices; however, the research team also cannot recommend any practice that could detrimentally impact the safety of firefighters or the general public.

## **Background on ISO Ratings and Savannah's ISO**

ISO is an evaluation of a fire department's fire suppression capabilities and is performed by representatives from Insurance Services Office, Inc. Because of the quality of this evaluation, ISO ratings have become a standard benchmark for fire service quality and are regularly used by insurance companies to determine property insurance premiums. ISO, Inc. assigns a numerical rating to a department, ranging from 1 to 10, based on assigned credits, with 1 being the highest rating. To earn an ISO 1 rating, a fire department must have a combined rating of at least 90 points out of a possible 105.5,<sup>5</sup> which SFD has achieved. Some ISO credits are assigned to department operations under the following main categories: equipment, staffing levels, training, and community risk reduction.

Traditionally, ISO ratings have been an important component of residential property insurance premiums. Fire departments with lower ISO ratings are generally believed to reduce homeowner insurance premiums because of the fire suppression capabilities that the ISO rating represents. Better fire suppression means fewer property losses. As the formulas used to create insurance premiums have become more sophisticated, the reliance on ISO ratings has changed. Now, many factors affect insurance premiums, including the age, construction material, and loss history of a property. Institute of Government faculty researched the potential financial impact on residential property insurance premiums in Savannah if the SFD's rating changed from an ISO 1 to an ISO 2. The research team found that this change would likely have very little impact on residential property insurance premiums. ISO ratings make a more pronounced change in premium costs when a department moves from an ISO 4 to an ISO 3.

Because ISO has become so accepted as a performance benchmark, some departments can fall into the trap of focusing too much on the ISO rating number itself and not fully communicating the importance of the factors that underpin the rating. For example, in the SFD employee focus groups conducted as part of this research, several participants stated that the ISO rating was not of great value to them, and some did not fully understand what it represented.<sup>6</sup> Some in the

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<sup>5</sup> In addition to direct fire suppression activities, which equal a maximum of 100 credits, a department can earn up to a total of 5.5 points for community risk reductions by performing fire prevention programs (i.e., fire marshal), public safety education, and fire investigations.

<sup>6</sup> Four 2.5-hour focus groups consisting of SFD employees with ranks of captain or lower were conducted between August 29 and August 31, 2018. Participants were randomly selected by Institute faculty.

focus groups perceived the department's ISO rating as merely a way for the fire chief to receive additional accolades or get support from city leadership. Had the department's leadership more fully expressed the importance of the ISO rating to all employees, including what department operations and policies led to the rating, there might be more appreciation for it. However, those employees had a very important point: receiving an ISO 1 rating should not be the main objective for a department; rather, providing excellent fire protection to the public and minimizing risks to firefighters are the real goals. Examples of comments from participants about ISO ratings included the following:

*ISO is not important to us.*

*I care about people on the trucks and protecting them and the citizens.*

*Benefit to community based on insurance, and to the chief*

*...benefit in status to the fire department*

*We should be talking about four people saves lives, not the ISO rating.*

The following statement captures the majority of comments from focus group participants about the SFD's ISO rating:

*...Nice to say you are ISO 1, [but] public has no idea what it means. The communication in the department, they don't tell you what it means, [such as] better grant money, equipment, or just stricter staffing ... most of the people on the floor don't know what it is either. Firefighters just care about having the tools to safely do our job ... Nothing has changed for us as a result of accreditation or ISO 1 ... supposed to lower insurance rate, we aren't politicians, we have no idea how it works.*

Points or credits assigned to a department by ISO, Inc. are divided into three main categories: emergency communications (10%), water supply and distribution (40%), and fire department fire suppression operations (50%). In Savannah, Chatham County now manages emergency communications so the fire department does not control any ISO points associated with that service. A fire department also receives credit for its water supply, which includes checking fire hydrants and inspecting and testing water flows. The Savannah Public Works and Water Resources Department is responsible for all water supply activities. In this analysis, we assume service levels and any ISO credited points associated with emergency communications and water supply remain unchanged. Table 1 shows that the maximum possible credits earned from emergency communications and water together is 50. The SFD received a total of 47.08 points in these two categories. Reducing service levels in these two areas would likely not save money but instead would potentially lead to serious increases in safety risk.

When evaluating ISO credits, the department and the City of Savannah need to appreciate the benefits and costs associated with each respective category (referred to in SFD's most recent ISO

report as “items”). To better understand how SFD achieved its ISO 1 rating, Table 1 shows the general allocation of credits from ISO, Inc. in its last review, which occurred in 2014.

**Table 1. Fire Suppression Rating Schedule (SFRS) Earned Credits for Savannah Fire Department**

<b>FSRS</b>	<b>SFD Earned Credits</b>	<b>Credits Available</b>
<b>Emergency Communications</b>		
Emergency Reporting	3.00	3
Telecommunications	3.28	4
Dispatch Circuits	2.85	3
<i>Subtotal Emergency Communications</i>	<i>9.13</i>	<i>10</i>
<b>Water Supply</b>		
Supply System	27.95	30
Hydrants	3	3
Inspection and Flow Testing	7	7
<i>Subtotal Water Supply</i>	<i>37.95</i>	<i>40</i>
<b>Fire Department</b>		
Engine Companies	6.00	6
Reserve Pumpers	0.50	0.50
Pump Capacity	3.00	3
Ladder Service	3.5	4
Reserve Ladder and Service Trucks	.48	.50
Deployment Analysis	8.81	10
Company Personnel	11.97	15
Credit for Training	8.55	9
Credit for Operational Considerations	2.00	2
<i>Subtotal Fire Department</i>	<i>43.81</i>	<i>50</i>
Divergence*	-1.45	0
Community Risk Reduction	3.29	5.50
<b>Total Credit</b>	<b>92.73</b>	<b>105.5</b>

\* Divergence: “Factor mathematically reduces the score based on the relative difference between the fire department and water supply scores. The factor is introduced in the final equation.” *Public Protection Classification Summary Report Savannah and OPA*. 2014, July. Insurance Services Office, Inc., p. 22.

**Engine Companies.** Under the subheading, *Fire Department*, the first ISO item concerns the department’s engine companies.<sup>7</sup> This item “reviews the number of engine companies, their pump capacity, hose testing, and the equipment carried on the in-service pumpers.”<sup>8</sup> In layman’s terms, this item analyzes the capacity of a fire department to bring a sufficient quantity of water to a fire and extinguish it. Having a sufficient number of staffed engines

<sup>7</sup> An engine is an apparatus that can deliver water from a hydrant to extinguish a fire. A company is a set of firefighters assigned to “ride” or work on that apparatus.

<sup>8</sup> Insurance Services Officers, Inc., Inc. 2014, July. *Pump Protection Classification Summary Report: Savannah & OPA, Georgia*. Marlton, NJ: Insurance Services Office, Inc., p. 14.

located throughout a jurisdiction is the underlying goal of this item. With 15 engine companies, the SFD meets the NFPA 1710 criteria. The department also has a policy mandating that a minimum of two engine companies respond to all first alarm structure fires. Each fire station has one engine company (stations may include other apparatus like ladder trucks); thus, eliminating a company to reduce costs would create gaps in service that would risk the life and property of Savannah residents and businesses. In Savannah, all engines are staffed with three or four personnel.

The number and availability of engine companies also includes recognition of automatic aid agreements with other departments, as these increase the fire suppression capacity of a department. Currently, SFD has an automatic aid agreement with Chatham Emergency Services, formerly Southside Fire Department<sup>9</sup> and leadership is finalizing an agreement with the Pooler Fire Department. An automatic aid agreement with Pooler FD will provide an important benefit to residents and businesses on the western side of Savannah, as Pooler fire companies may be able to respond to fires in this area of the city more quickly than Savannah's own companies located downtown or on the south side.

**Reserve Pumpers.** Reserve pumpers are needed in case a primary engine is out of service. Because these are engines that a government has already purchased, their associated costs are only for maintenance. Thus, eliminating a sufficient number of reserve pumpers would unnecessarily increase community risk for little cost savings.

**Pumper Capacity.** Beyond having a sufficient number of pumper engines, fire departments need to ensure they have sufficient capability to move water from a hydrant to a fire, measured in gallons per minute (gpm). On this item, SFD is credited as having adequate pump capacity to meet the standard for basic fire flow of 3,500 gpm.

**Ladder Service.** Similarly to engine companies, ladder companies (i.e., aerial apparatus) allow a fire department to suppress fires and rescue individuals in buildings that are three stories or higher. ISO, Inc. assigns credits based on the number of ladder companies in a service area relative to the number of and various heights of buildings that are three or more stories or require a fire flow greater than 3,500 gpm, including those with sprinkler systems. In other words, the more tall buildings a jurisdiction has, particularly dispersed across a large geographic area, the more ladder companies will be required. Even if a fire incident does not need aerial support, the firefighters may require the tools and equipment typically stored on a ladder truck such as for forcible entry, ventilation, salvage, lighting, and utility control. At the time of writing, Savannah had four ladder companies to meet the demands of NFPA 1710.

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<sup>9</sup> Standards of Cover, 2015, pg. 138.

**Reserve Ladder and Service Trucks.** Like reserve pumpers, reserve ladder and service trucks are needed when the primary trucks are out of service. Likewise, reducing the number of reserve ladder trucks would result in negligible cost savings, particularly relative to their importance.

**Deployment Analysis.** Approximately 10 percent of the total points available from ISO come from a deployment analysis. This item provides a more holistic assessment of a department's engine and ladder companies to serve a jurisdiction's "built upon areas." The credits associated with this item are correlated to the number and position of engine and ladder companies. Any reduction in the number of ladder or engine companies would also result in a credit reduction for this item.

**Company Personnel.** In assessing fire department operations, the single largest source of credits is for company personnel (maximum of 15 points). Credit is assigned to a department based on the number of firefighters and company officers who are "available to respond to reported fire alarm structure in the city" (i.e., on duty).<sup>10</sup> Therefore, officers who are off-duty or on military or family leave, disability, or the like are not considered in personnel strength calculations. Departments also receive credit based on fire companies from other departments that are available and used under automatic aid agreements, such as SFD's agreement with Chatham Emergency Services. The addition of Pooler as a resource could increase credits for this category to the extent that the department can provide engine and ladder companies to an incident in Savannah.

SFD's current staffing standard has a maximum of 97 personnel on duty with staffing of four firefighters per engine/truck/rescue company (see last row in Figure 1). However, the current reality is that at any given time 90 firefighters (excluding the fire chief and two assistant chiefs) are on-duty, the minimum allowable staffing level under current departmental policy. With 90 on-duty personnel, 16 of SFD's 23 companies have four people who are distributed across the department's stations. Only two stations, 9 and 10, do not have at least one company with four people. Reducing the number of on-duty SFD firefighters, such as moving from four to three firefighters on an apparatus, would likely lower the department's ISO rating.

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<sup>10</sup> Insurance Services Office, Inc., Inc. 2014, July. *Pump Protection Classification Summary Report*, p. 17.

Figure 1. Savannah Fire Department Staffing Levels

Number of Personnel on Duty	Engine 1	Engine 2	Engine 5	Engine 6	Engine 8	Engine 4	Engine 11	Engine 12	Engine 13	Engine 14	Engine 15	Truck 5	Truck 12	Rescue 1	Rescue 2	Engine 16	Truck 13	Engine 9	Truck 1	Engine 3	Truck 2	Engine 7	Engine 10	Battalion Chief 1	Battalion Chief 2	Battalion Chief 3	Haz Mat 2	Safety 1
90	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	3	1	1	1	1	1
91	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	3	1	1	1	1	1
92	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	3	1	1	1	1	1
93	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	3	1	1	1	1	1
94	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	3	1	1	1	1	1
95	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	3	1	1	1	1	1
96	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	3	1	1	1	1	1
97	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	1	1	1	1	1

Source: SFD 2015 Standards of Cover

The department’s staffing levels were designed to meet industry standards. For example, a 2010 study from NIST found that having 15 firefighters assemble on scene is necessary to effectively manage a low-risk residential fire.<sup>11</sup> (SFD categorizes a residential fire as moderate risk for its deployment policies and procedures.) The NIST research is based on a 2,000 sq. ft. two-story, single-family home with no basement. The NIST study did not consider high-hazard structures. The SFD standard of cover for residential structure fires of 17 responders (15 firefighters plus a battalion chief and a safety officer) matches the NIST research. For more high-risk commercial and industrial fires/incidents, the SFD has posited a standard of 21 or more depending on the nature of the risk.

The Institute of Government research team reviewed the staffing levels of four comparable fire departments of similar size and ISO rating to the SFD: the Charleston Fire Department in South Carolina, the Columbus-Muscogee Fire Department and the Macon-Bibb Fire Department in Georgia. These comparisons have two primary limitations: services delivered and land area.<sup>12</sup> The Charleston and Columbus-Muscogee fire departments provide emergency medical services (EMS)<sup>13</sup> across their jurisdictions, but Savannah and Macon-Bibb do not. Furthermore, the cities of Savannah and Charleston are much smaller geographically than the consolidated governments of Macon-Bibb and Columbus-Muscogee. With these qualifications, Table 2 shows that the number of SFD employees per capita is less than the Charleston or the Macon-Bibb fire departments and would likely be smaller than Charleston even if SFD began providing EMS. (For more information about SFD providing EMS services, please see *Savannah Fire Department: Analysis of Emergency Medical Services*.) The number of SFD employees per square mile is also

<sup>11</sup> Robinson, 2010.

<sup>12</sup> The physical size of a jurisdiction is important because fire protection is based on having enough resources to cover an area (with structures).

<sup>13</sup> Columbus Fire and Emergency Services contracts with private ambulances to supplement its services.



slightly less than that of the Charleston Fire Department. Thus, the SFD staffing levels appears to be similar to that of other regional ISO 1 fire departments.

**Table 2. Staffing Comparison between Savannah Fire Department and Comparable Departments**

Fire Department	Personnel (FTE)*	Population	FD FTE / 1,000 Residents	FD FTE / Sq. Mile
Savannah FD	351	146,444	2.40	3.40
Charleston FD	392.5	134,857	2.91	3.60
Columbus FD	378	194,058	1.95	1.75
Macon-Bibb FD	438	152,663	2.87	1.75

Source: City of Charleston fiscal year (FY) 2018 budget; Columbus County FY 2018 Budget – with 14 positions funded from a special revenue account; Macon-Bibb County FY 2019 Budget; SFD July 2018 personnel roster, includes vacant positions. US Census: 2017 population estimates and land area.

Note: FTE = full-time employee

\* Includes all personnel assigned to the fire department

**Training.** Credits in the training category reflect a department’s training facilities and the amount of training firefighters receive in a variety of fire-related topics.<sup>14</sup> SFD received high marks for training in its ISO report. The cost to provide training is relatively low because the vast majority of employee training occurs while firefighters are on duty. The department only dedicates three captains, a training supervisor (battalion chief), and an administrative secretary to oversee all of the department’s training classes. The SFD’s *2015 Standards of Cover*, which reviews different aspects of its operations, discusses the training unit in more depth. In regard to training, the Institute of Government research team does not believe significant cost savings can be achieved without seriously sacrificing the quality of services and the safety of the firefighters.

**Operational Considerations.** The department received full credit for its operating procedures and incident management systems, which are overseen by the department’s senior management. Again, there would be no benefit from trying to reduce costs associated with this category as such changes would likely only decrease the department’s effectiveness.

**Community Risk Reduction.** Reducing the occurrence of fire is the most cost effective way to protect the public and property. SFD received some but not full credit on the item related to community risk reduction, which includes fire prevention and code enforcement, public fire safety education, and fire investigation programs. Rather than looking to decrease costs in this area, the city may want to increase resources in programs that have been shown to be effective

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<sup>14</sup> Topics include facilities, company training, classes for officers, driver and operator, hazardous materials, recruit training, and pre-fire planning and inspections.

in other communities. See the Institute of Government companion report, Savannah Fire Department Review of Operations<sup>15</sup> which discusses these programs in more depth.

## Overview Savannah Fire Department Budget

The SFD’s originally approved FY 2018 operating expenditures equaled \$33,129,274, which included authorization for 361 full-time positions (see Table 3). Based on the initial council-approved budget, personnel expenditures made up 76.3 percent of all departmental expenditures. The next largest category was Other Expenses, which represented 11.6 percent of the total budget. Nearly all of the expenditures in this category were dedicated to paying for the department’s fire engines and trucks. Since the budget was originally approved, well over 30 positions have either been eliminated or are vacant;<sup>16</sup> however, personnel continues to account for an overwhelming portion of the department’s budget and is the only category in which significant cost savings could reasonably be reached. The department needs to maintain a minimum number of apparatus both for first-line use and in reserve to ensure personnel have the equipment needed to suppress fires and rescue people in danger.

**Table 3. Savannah Fire Department Adopted Budget, FY 2018**

<b>Spending Category</b>	<b>Approved Expenditure*</b>	<b>Percent of Total</b>
Personnel Services	\$25,281,926	76.3%
Contract Services & Commodities	\$1,622,773	4.9%
Internal Services	\$2,384,465	7.2%
Other Expenses	\$3,840,110	11.6%
<b>Total All Categories</b>	<b>\$33,129,274</b>	<b>100%</b>

Source: Budget Detail Line Report.

\* Excludes adjustments to the Fire Rescue Fund

## Savannah Fire Department Workload

Because of their many older buildings, several neighborhoods within the City of Savannah continue to see structure fires while areas with newer buildings have far fewer fires. Figure 2 illustrates the different service demands across the city. Even though call demand varies significantly by battalion and station, the SFD must ensure adequate coverage for all residents and properties, requiring stations and companies be located across the city.

<sup>15</sup> Forthcoming, winter 2019.

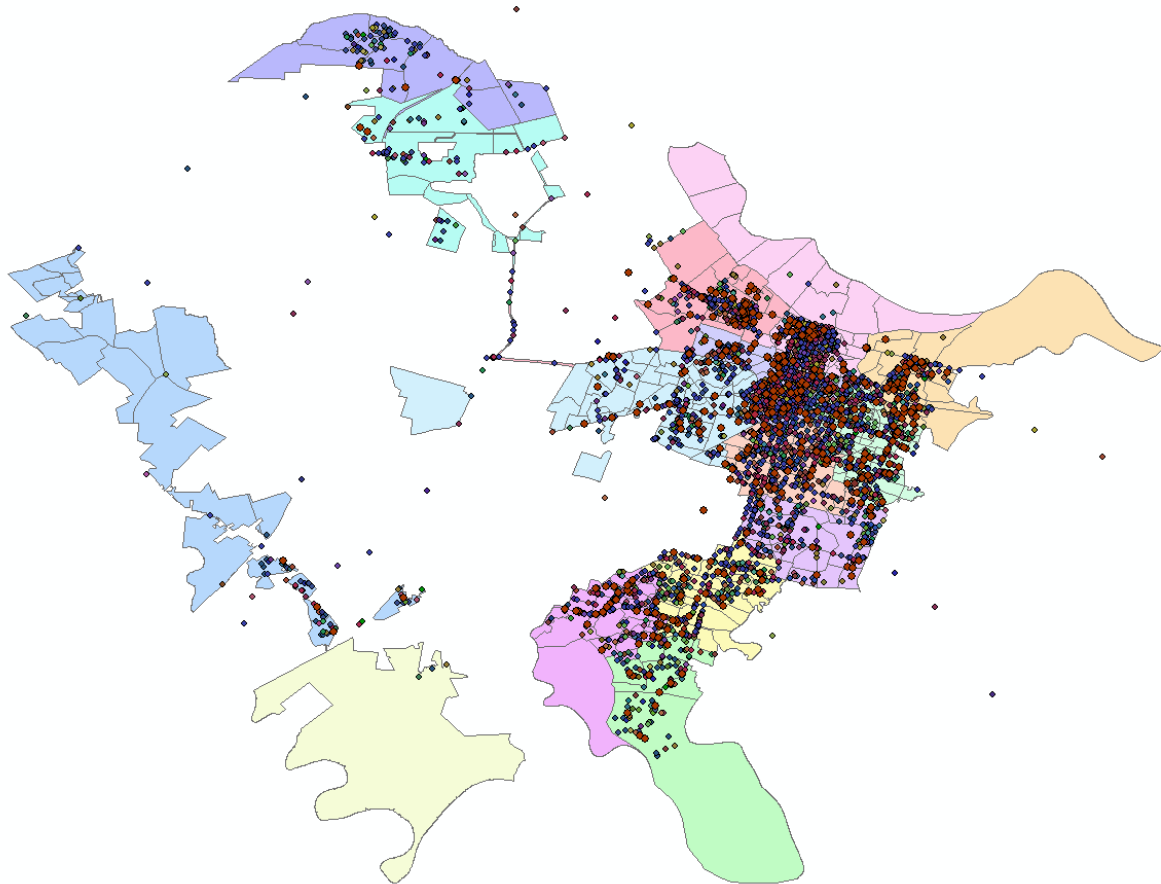
<sup>16</sup> As of the July 2018 personnel roster.

**Figure 2. Savannah Fire Department Incident Data by Fire District, 2017**

Red Dots = Fire incidents

Blue Dots = All other incidents

Colored areas represent different fire districts (i.e., station service area)



SFD organizes the management of its fire stations into three battalions. See Appendix A for a map designating the stations. Battalion 1 is located on the northeastern side of city and includes the Historic District (stations 3, 4, 5, 6, 8, and 9). Battalion 2 covers the city south of Battalion 1 (stations 1, 2, 7, 10, and 11). Battalion 3 protects the western side of Savannah (stations 12, 13, 14, and 15). Battalion 1 is the busiest, typically receiving about 60 percent of all calls, while Battalion 2 receives 34–35 percent, and Battalion 3 just 5–6 percent annually.<sup>17</sup> Table 4 gives the number of calls by battalion in 2017, using the data from Figure 2. Unfortunately, the table excludes incidents that were outside of a particular fire district, even if only slightly (i.e., the

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<sup>17</sup> Savannah Fire Department *2015 Standards of Cover*. The Standards of Cover also included data for 2013–2015.

dots in the white area of Figure 1).<sup>18</sup> Of the total number incidents in 2017, the Institute research team was able to locate 96 percent within a specific fire district (station service area).<sup>19</sup>

**Table 4. Calls by Battalion, 2017**

	<b>Percent</b>
Battalion 1	59.7%
Battalion 2	34.4%
Battalion 3	5.9%

Reviewing incident data by risk level allows one to better appreciate the manpower and service levels needed to keep residents, visitors, and property safe in Savannah. In 2017, the SFD responded to 7,812 calls with varying degrees of risk, as categorized by the department (see Table 5). High-risk calls include difficult rescues such as from a high angle or a trench. Building and structure fires (with or without extracting a victim), gas explosions, ruptures of gas lines or leaks, and chemical spills are examples of moderate/high-risk incidents. Moderate-risk incidents also vary; examples include cooking fires, chimney fires, overheated motors, swift water rescues, and extracting individuals from machinery. Low/moderate-risk incidents range from animal rescues to assisting police or other government agencies to water evacuation to smoke or odor removal. Finally, low-risk incidents can involve fire suppression incidents, such as for vehicles, motor homes, boats, dumpsters, open fields (grass fires), and incinerators (fire contained) as well as a variety of rescues, including vehicle accidents with or without injuries and a stalled elevator. Null calls are false alarms. However, remember that firefighters do not know that a call is false until the company arrives at the scene or it is cancelled.

**Table 5. Savannah Fire Department Incidents by Risk Level, 2017**

<b>Call Risk Level</b>	<b>Count</b>	<b>Percent</b>
High	1	negligible
Moderate/High	426	5.4%
Moderate	395	5.1%
Moderate/Low	516	6.6%
Low	3,537	45.3%
Null	2,937	37.6%
<b>Total Incidents</b>	<b>7,812</b>	<b>100.0%</b>

<sup>18</sup> A limitation of GIS.

<sup>19</sup> Only counting incidents within a specific fire district can result in fewer cases because it would omit incidents located directly on the border of two or more districts.

Using incident data from 2016 and 2017, Table 6 shows the total number of moderate- and high-risk calls by incident type, the total number of companies that responded to those incidents, and the average number of companies that responded to a single incident. Because every call is unique and requires different levels of effort, this analysis is *not* assessing how many companies should have gone out on a call. For high-risk incidents, the average number of companies that responded was 8.25 (33/4). A total of 922 moderate/high-risk incidents occurred during the time period, with a total of 5,350 companies responding. On average 5.8 companies responded to moderate/high-risk incidents (5,350/922).<sup>20</sup> To suppress residential fires (building fires and fires in structures other than a building coded 111 and 112, respectively), the SFD sent on average 8.3 companies to respond.<sup>21</sup>

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<sup>20</sup> The calculated average company response from the 15 distinct response averages is higher, 6.88, because of several smaller company responses to gasoline and gas (natural or LPG) leaks.

<sup>21</sup> Our excludes battalion chiefs and safety officers but ISO, Inc. does in its analysis

**Table 6: Savannah Fire Department High and Moderate/High Risk Incidents and Company Response, 2016 and 2017**

<b>Incident Description*</b>	<b>Risk</b>	<b>Total Incidents</b>	<b>Total Companies</b>	<b>Average Company Response</b>
High-angle rescue	High	1	8	8.0
Trench/below-grade rescue	High	3	25	8.3
Air or gas rupture of pressure or process vessel	Mod/High	1	8	8.0
Building fire	Mod/High	355	2,968	8.7
ChemiCommand Aid: hazardous material spill or leak	Mod/High	22	93	4.2
Excessive heat, scorch burns with no ignition	Mod/High	7	48	6.9
ExtriCommand: extrication of victim(s) from building/structure	Mod/High	11	52	4.7
Fires in structure other than in a building	Mod/High	25	178	7.1
Fireworks explosion (no fire)	Mod/High	1	10	10.0
Fuel burner/boiler malfunction, fire confined	Mod/High	1	9	9.0
Gas leak (natural gas or LPG)	Mod/High	391	1,671	4.3
Gasoline or other flammable liquid spill	Mod/High	66	181	2.7
Oil or other combustible liquid spill	Mod/High	36	86	2.4
Outside gas or vapor combustion explosion	Mod/High	1	17	17.0
Overpressure rupture of air or gas pipe/pipeline	Mod/High	2	5	2.5
Overpressure rupture of steam pipe or pipeline	Mod/High	1	8	8.0
Refrigeration leak	Mod/High	2	16	8.0
<b>Total</b>		<b>922</b>	<b>5,350</b>	

\* Wording for incident descriptions comes from SFD CAD data.

## Options

Based on a review of department operations through the lens of SFD's most recent ISO report, reductions in personnel is the area where significant department cost savings could be

achieved. This section considers three options for reducing personnel, each with its own benefits and performance impacts. Option 1 would substantially reduce the SFD manpower by limiting the size of a company to a maximum of three firefighters, down one person from the current four. Option 2 would consolidate a ladder company with a stand-alone rescue company. Option 3 would eliminate one ladder company and Option 4 would partially reduce the staffing for the Haz Mat 2 Company. The analyses for the first four options are based on SFD's current staffing policies and practices. When considering any of these options, it must be remembered that reductions in personnel will result in slower response times for some incidents to some degree. The challenge for Savannah leadership is to decide whether the benefits from an option outweighs its concomitant costs.

### **OPTION 1: REDUCING ALL COMPANIES FROM FOUR TO THREE PERSONS**

To appreciate the significance of changing all of SFD's companies from four to three persons, the research team examined the potential cost savings from the change as well as the additional time it would likely take SFD companies to fully assemble for a residential fire. The analysis adheres to NIST findings that at least 15 firefighters, excluding a battalion chief and a safety officer, are needed at a residential fire to effectively perform the 22 critical tasks of firefighting.<sup>22</sup> Note that changing the SFD staffing policy to all three-person crews would very likely reduce the department's ISO rating to a 2. Even more importantly, doing so means that the SFD would fail to meet NFPA Standard 1710, which states that four-person crews are the most effective. Therefore, while the Institute of Government is presenting analysis on this option, the research team is not recommending it.

As mentioned earlier, SFD is currently only staffing the department at its minimum standard of 90 on-duty personnel (excluding the fire chief and two assistant chiefs). Under this staffing level, 16 companies maintain four-person crews. To determine the actual number of employees that would no longer be needed to fill these 16 positions, a relief factor was calculated, using a methodology supplied by the SFD. A relief factor calculates the number of employees that are needed to fill one 24-hour position due to employee absences from vacations, sick leave, disability, and so forth. Table 7 presents the shift relief factor estimate for the total number of positions that could be eliminated by moving to all three-person companies.

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<sup>22</sup> Robinson, B. (Ed). 2010. *Technical Note 1661 Report on Residential Fireground Field Experiments*, p. 26 contains a list of the 22 critical tasks of firefighting.

**Table 7. Relief Factor Calculations for Firefighter Positions and Total Reduction in FTEs**

Number of hours per 24-hour post each year	8,760
Total hours employee is scheduled to work	2,912
Average hours an employee is absent per year	667
Total hours an employee is available to work	2,245
Relief Factor: Number of FTEs needed, on average, to cover one 24-hour post*	3.9
Total number of positions affected**	16
Total reduction in FTEs	62

Source: Calculation steps from Local Government Performance Center, figures supplied by SFD.

\*For reference, if no employees were ever absent for any reason, the relief factor would be 3.

\*\*Based on a minimum staffing of 90 on-duty firefighters

Estimated cost savings for this staffing change are based on the combined salary, benefits, and personal safety equipment no longer required for these positions. Other departmental costs are excluded from estimated savings because the demand for services does not change nor do operating and capital costs related to stations or equipment. Because the company commander (captain) and engineer (master firefighter) are needed regardless of the size of the crew, the salary savings are based on the average salaries of all of SFD’s advanced firefighters in FY 2018, which equaled \$42,127. According to the Savannah Human Resources Department, personnel benefits approximate 48 percent of salaries.

In FY 2018, the SFD paid \$4,587 for a complete set of turnout gear and a self-contained breathing apparatus (SCBA).<sup>23</sup> According to SFD, the maximum lifespan for turnout gear is 10 years, with replacement sooner if needed after inspection. This adheres to an NFPA standard. The lifespan for a SCBA is 12–15 years, and it is replaced in conjunction with the department’s apparatus replacement schedule. Recognizing that equipment may get damaged and not last its entire lifespan, the research team estimated an eight-year lifespan for the complete set of turnout gear and SCBA.

Table 8 presents the estimated annual savings from eliminating 62 positions, which amounts to \$3,901,125.

<sup>23</sup> Turnout gear includes a suit, gloves, a hood, a helmet, boots, and eye protection. The SCBA (\$6,000) is part of the equipment on an apparatus and is shared by a shift, so the cost for this was divided by three (shared by the shift) except for the face mask, which is assigned to each firefighter (\$300). The SFD provided data on the cost and lifespan of equipment.



**Table 8. Estimated Annual Savings: Maximum Three-Person Companies, 2018**

<b>Cost Description</b>	<b>Dollar Amount</b>
Average salary, advanced firefighter	\$42,127
Benefit-to-salary ratio	.48
Annual benefits	\$20,221
Personnel costs, 1 position	\$62,348
Total reduced positions (Table 7)	62
<i>Subtotal Personnel Savings</i>	<i>\$3,865,576</i>
Turnout & SCBA, one position	\$4,587
Total reduced positions	62
Estimated life span of gear	8 yrs.
<i>Subtotal Equipment Savings</i>	<i>\$35,549</i>
<b>Total Estimated Annual Savings</b>	<b>\$3,901,125</b>

Understanding the potential impact on service levels is at least as, if not more, important than cost saving when considering personnel changes of this magnitude. Using 2017 SFD fire incident data, Institute faculty first considered the manpower impact on fire suppression if the number of companies called to fire incidents had remained the same but all companies had three persons instead of a mix of three or four persons. A total of 907 fire-coded incidents are included in the analysis.

Table 9 shows how many fewer firefighters would have been at a fire incident on average, holding the number of fire companies constant, if SFD had sent only three-person companies. The table presents results under two scenarios: the change from the low-staffing level of 90 firefighters on duty and from the high-staffing level of 97 firefighters on duty. The “Change from the Current Low Level” represents the most likely impact (as SFD currently applies the low-level 90 personnel standard). One important type of incident is structure fires, (i.e., 111 and 112 incident codes), which include residences. As such, the research team segregated category 111 and 112 incidents from all fire incident types because SFD classifies several other categories of fire as low risk. Low-risk fires would typically require (in most cases but not all) fewer firefighters to suppress them. The analysis indicates that there would have been, on average, four fewer firefighters (-3.9) suppressing a building fire with three-person companies compared to current the low-level staffing standard. For all other types of fire incidents, an average of two fewer firefighters would have been on the scene.

**Table 9. Change in the Number of Firefighters at a Fire with All Three-Person Companies\***

<b>Type of Fire (Incident Category)</b>	<b>Change in Firefighters: Low Staffing (90)</b>	<b>Change in Firefighters: High Staffing (97)</b>
Building fires (111, 112)	-3.9	-5.3
All other fires (113-173)	-2.0	-2.8

\* 2017 data

Previous studies have assessed how quickly firefighters can perform the 22 critical tasks required to effectively extinguish a fire. According to the NIST study referenced at the beginning of this report<sup>24</sup>, “four-person crews operating on a low-hazard structure fire<sup>25</sup> (house fire) completed all the tasks on the fireground (on average) seven minutes faster—nearly 30 percent—than the two-person crews. The four-person crews completed the same number of fireground tasks (on average) 5.1 minutes faster—nearly 25 percent—than the three-person crews.”<sup>26</sup> This research was based on keeping the number of fire engines constant. From the analysis in Table 9, having fewer SFD firefighters at a building fire will likely result in them performing substantially more slowly and less effectively than they currently do.

Because fewer firefighters results in slower task completion and therefore less safe and effective fire suppression, SFD would likely need to send more companies to fires rather than simply having fewer firefighters at an incident. This result would have meant two additional companies being called out for building fires and one additional company for all other fires, on average. Sending out additional companies to fire incidents means a longer time for all needed companies to respond to a fire and fewer companies available for other incidents. A longer time to get water on a fire also means it grows, exponentially.

Response times are important in firefighting due to the dynamic of flashovers or the tendency for fires to expand in a particularly rapid and dangerous manner after they reach a certain size. Changing from three- to four-person companies would not *entirely* change response times. That is, the response time for first fire companies (or vehicles) would not change. The difference that a staffing reduction causes would be at the margins of the standards of coverage. For example, an incident that requires 17 staff under the SFD’s standard of cover could be met using current staffing of four firefighters per engine/truck with four companies plus a battalion commander (who travels in an SUV). Under the lower staffing proposal of three firefighters per engine/truck, the same fire would require five engine/truck companies (15 people) plus one battalion commander and one safety officer.

<sup>24</sup> Robinson, B. (Ed). 2010. *Technical Note 1661 Report on Residential Fireground Field Experiments*.

<sup>25</sup> SFD classifies the type of residential fire studied by NIST as a moderate/high-risk incident.

<sup>26</sup> Robinson, 2010, p. 10.

One of the critical issues that must be assessed when reducing the size of SFD’s companies is the resulting change in overall response times to an incident. The Institute research team assumes that the safety officer would either travel to the scene with the battalion commander or in a separate vehicle as these two positions are typically called for incidents ranging from moderate to high risk. To assess the additional time that would be needed to meet SFD’s standard of coverage, Institute faculty created a fire response model using actual SFD fire incidents. See Appendix B for the specific steps used to develop the simulation model. Table 10 shows the simulation results. Using these findings, the research team estimates that requiring one additional company to suppress a moderate/high-risk fire incident (incident types 111, 112) could add approximately three minutes, on average, to the time needed to reach the SFD’s standard of cover.

**Table 10. Estimated Change in Response Time from Change to All Three-Person Companies**

Total simulated slow time (in seconds)	186,653
Total real slow time (in seconds)	141,038
Total simulated added time	90,802
Count of high/moderate-risk incidents	367
Average added simulated time per incident to reach standard (in seconds)	247.42
Average slow company real time in seconds	384.30
Average slow company real time in minutes	6.40
Total real slow time as a percentage of simulated slow time	0.75.6%
Adjusted average added time (in seconds)	186.95
Adjusted average added time (in minutes)	3.12
<b>Adjusted Average Added Response Time (in minutes: seconds)</b>	<b>3:07</b>

For an explanation of the process used to produce the simulation estimate, see Appendix A.

The following is SFD’s current operating response standard for building fires:

*For 90 percent of all building fires, the total response time for the arrive of the ERF, staffed a minimum combination of 17 firefighters and officers, is 13 minutes and 02 seconds in urban areas; the ERF shall be capable of completing the 22 critical fire ground tasks outlined by the National Institute of Standards and Technology (NIST).<sup>27</sup>*

Therefore, the additional three minutes and seven seconds incurred by reducing company size to a maximum of three people represents an increase of 24 percent above the Savannah Fire Department’s current performance benchmark for building fires. Adding three minutes to the

<sup>27</sup> Savannah Fire Department 2015 Standards of Cover, p. 159.

response time for a building fire would undoubtedly increase property losses as well as injuries and perhaps deaths among residents, visitors, and firefighters. To the extent that losses increase significantly over time, Savannah residents could experience higher residential property insurance premiums, which are fundamentally based on losses paid by an insurance company, regardless of ISO.

During the SFD employee focus groups conducted as part of this research, the participants were asked their opinions about moving to only three-person companies. None supported the idea, and their comments centered on concerns about the safety of firefighters and being unable to perform their jobs as effectively. Below are examples of the comments they shared.

*I don't care what you call us [ISO], I just want to know we have enough people to do our jobs safely...having personnel on scene and available in a proper amount of time...*

*We should justify staffing based on what is safe to firefighters and public.*

*What we care about is having four people on the truck...it is pure hell from 8 to 8 (riding with three), because that one extra person can help...why doesn't council come ask us?*

*It isn't the ISO 2 — it is about the staffing and the safety. If you are going to be a professional fire department, you need four people [in a company].*

Reactions specifically to the proposal of having three-person companies included the following:

*Puts firefighters at risk*

*Consider two-in, two-out rule [can't achieve with one company]*

*I am in a three-person company, I used to be in four-person company...It is a big difference, when you work as a company unit, [when] we get on fire scenes, we work as a company. If there is another company, we still work as a company...three equals two...driver is operating the truck.*

*It is a major safety concern. A company suffers by only having three. What about areas that have a lot of high-rise structures? It also creates an accountability issue...one operating equipment, one managing the scene...what is left? It becomes working like volunteers do [because career firefighters arrive at a scene together and can coordinate a task more quickly]...*

## **OPTION 2: ELIMINATING ONE RESCUE COMPANY**

For this option, Institute faculty analyzed the benefits and limitations of eliminating one stand-alone rescue company and converting an aerial (i.e., ladder) truck company to a combined aerial/rescue company. For background, technical rescue companies receive additional specialized training such as for confined spaces, trenches, and collapsed structures and extrication from vehicles. Technical rescue vehicles carry specialized equipment for these types of incidents. Likewise, a ladder truck also stores more commonly used rescue equipment but does not have the full spectrum of equipment available on a heavy rescue truck.

The Savannah Fire Department currently has two stand-alone technical rescue companies with technical rescue trucks, and one combined aerial/rescue company. Each of the companies is assigned four people on duty. The stand-alone companies are located at stations 3 and 7, and the combined aerial/rescue company is located at station 5. As data on workload presented earlier shows, stations 3 and 5 are two of the busiest stations in the city. Although station 7 is also relatively busy, it receives about 40 percent fewer calls than the other two stations according to historical data.<sup>28</sup> Under Option 2, the personnel at stations 3 and 5 would not change. Please note that all manpower descriptions and estimated savings are based on the department’s low-level staffing (90 on-duty personnel).

Under Option 2, the rescue company at station 7 would be eliminated and the aerial-only company at station 2 would be converted into a combined aerial/rescue company, similar to the one currently located at station 5. Station 7 has one other assigned company: a three-person engine. With the elimination of the rescue company, only having a three-person engine company may be insufficient to address even low-risk incidents. Therefore, the engine company would likely need to be increased to four persons. Because an efficiency goal does not negate the need for technical rescues, this option includes changing the ladder company located at station 2 to a four-person combined ladder/technical rescue company. Currently, this aerial company only has three people, meaning that company would need to increase by one person. Station 2 also has a four-person engine company assigned to it. The department could reduce the size of this company to three people because the engine company at station 7 would now be larger, as would the aerial (with rescue) company. The net change across the department would be three fewer positions. Table 11 outlines the personnel changes.

**Table 11. Change in Manpower Under Option 2**

	Station 7			Station 2		
	Engine Company	Aerial Company	Rescue Company	Engine Company	Aerial Company	Rescue Company
Current	3	0	4	4	3	0
Option 2	4	0	0	3	4 (w/TRT)*	0
Change	+1	0	-4	-1	+1	0

\* Aerial company becomes the technical rescue team.

The three positions eliminated would likely include a captain, a master firefighter (engineer), and an advanced firefighter. The SFD does not currently provide certification-based pay, so the technical rescue teams are not paid more than firefighters assigned to other companies.

<sup>28</sup> 2017 geocoded call data and call data presented in the Savannah Fire Department’s *2015 Standards of Cover*.

Therefore, the estimated cost savings can be based on the department's average salaries for these positions. For the cost savings calculations, the same assumptions and methodology used under Option 1 are applied here. Table 12 presents the estimated annual cost reductions, which total \$915,758.

**Table 12. Estimated Annual Savings by Eliminating One Rescue Company, 2018**

<b>Cost Description</b>	<b>Captain</b>	<b>Master Firefighter</b>	<b>Advanced Firefighter</b>
Average salary	\$61,095	\$49,341	\$42,127
Benefit-to-salary ratio	.48	.48	.48
Annual benefit	\$29,326	\$23,684	\$20,221
Personnel costs, 1 position	\$90,421	\$73,025	\$62,348
Reduced positions (relief factor)*	4	4	4
<i>Subtotal Personnel Savings</i>	<i>\$361,684</i>	<i>\$292,100</i>	<i>\$249,392</i>
Turnout & SCBA, one position	\$8,387	\$8,387	\$8,387
Total reduced positions	4	4	4
Estimated life span of gear	8 yrs	8 yrs	8 yrs
<i>Subtotal Equipment Savings</i>	<i>\$4,194</i>	<i>\$4,194</i>	<i>\$4,194</i>
Estimated savings, each position	\$365,878	\$296,294	\$253,586
<b>Total Estimated Annual Savings from Eliminating 1 Company</b>			<b>\$915,758</b>

\* The relief factor of 3.9 is rounded to 4 because this option involves single 24-hour positions.

The Institute research team does not propose selling the existing rescue truck currently assigned to station 7 as it would likely continue to be of some use. Rather, the rescue truck could be stored at station 2 with the combined aerial/rescue company and be available for use by that company when specialized technical rescue equipment is needed. Because this truck would not be driven frequently, it could have a much longer usage life than the department's other apparatus.

Two issues regarding service impacts arise under this option. Response times from the rescue company would likely be slower because it would now be located south of station 7, and the company would have to travel farther to reach vehicle accidents on Interstate 516. Of course, the department could move the aerial/rescue company from station 2 to station 7; however, doing so would lengthen the time required for that truck to reach fire districts 11 and 10 in the southeastern part of the city, which do not have an aerial truck. The relative frequency and risk of building fires would need to be assessed against the rescue benefits of moving the aerial/rescue company north to station 7. As discussed under Option 1, there is also the challenge of simply removing one company from service on general response time for moderate/high- and high-risk events like building fires. However, because Option 2 only

involves the loss of one three-person company, the impact would be far less severe than what was estimated for Option 1, converting the department to all three-person companies.

**OPTION 3: ELIMINATING AN AERIAL TRUCK COMPANY**

Under Option 3, the three-person aerial truck company located at station 13 (in Battalion 3) would be eliminated and the four-person engine company at that station would begin driving a quint. A quint is a specific type of fire apparatus that combines the capabilities of both an engine and a ladder/aerial truck. This type of apparatus is called a “quint” because it provides five functions: pump, water tank, fire hose, aerial device, and ground ladders. However, it is important to remember that although the vehicle can perform multiple functions, the crew can only work as an engine company or as a ladder company at one time. Therefore, the workload and remaining capabilities of Battalion 3 and stations 13 and 14 in particular would become more important. Table 13 lists the company type, staffing, and percentage of all incidents in 2017 for each station in Battalion 3. The locations of incidents in 2017 were very similar to those presented in the department’s *2015 Standards of Cover*, which gave incident numbers by station from 2013 to 2015.

**Table 13. Manpower and 2017 Incident Data, Battalion 3**

	<b>Station 12</b>	<b>Station 13</b>	<b>Station 14</b>	<b>Station 15</b>
Engine	1 (hazmat)	1	1	1
Aerial truck	1	1	0	0
Total personnel	8	7	4	4
Pct. of incidents	1%	2%	3%	<1%

The number of calls from stations 12 and 15 within Battalion 3 are the fewest in the department, including fire calls. Therefore, the potential risk of removing one company from this portion of the city should be relatively small compared to Battalions 1 and 2. The impact on incident response times from having one fewer company would be less here than elsewhere in the city. Additionally, Fire Districts 12 and 15 do not have hotels nor other high-rise structures (it is a residential area) so the need for aerial support is far less critical. Finally, once the automatic aid agreement with the City of Pooler is finalized, Battalion 3 would receive support from that fire department when needed.

The estimated annual savings from implementing Option 3 would be the same as Option 2, \$915,758. For simplicity, the research team assumes that this change would not take place until the fire department needs to purchase a new engine and at that time would select a quint. Therefore, no additional capital expenditures are included in this option. If the department



chose to purchase a quint truck immediately, the cost would likely range from \$700,000 to \$800,000.

**OPTION 4: RESTRUCTURING HAZ MAT 2**

With Option 4, the hazardous material single-position company (Haz Mat 2) would move from a 24-hour shift to include two traditional 40 hour week (8-5, M-F) positions. This change results in eliminating the need for two full-time positions.<sup>29</sup> Currently, the Haz Mat 2 Company is manned by master fighters. The positions in this company are responsible the records management of hazardous materials used and stored in Savannah as well as overseeing hazardous material incidents. For hazardous materials (haz mat) incidents, a haz mat company captain should have sufficient expertise to oversee the technical management of the scene (of course a battalion chief would also be present); thus this position should not need to be a 24-hour shift. However, the position’s other responsibilities related to hazardous materials safety must still be completed. Because of this latter work, the research team suggests retaining two master firefighter positions but moving them to a 40-hour, Monday – Friday shift. Table 14 shows the cost reductions from changing from a 24-hour shift to two 40-hour positions (i.e., eliminating two positions). The net estimated personnel savings equals \$147,197.

**Table 14. Estimated Annual Savings from Restructuring Haz Mat 2 Company, 2018**

<b>Cost Description</b>	<b>Master Firefighter</b>
Average salary	\$49,341
Benefit-to-salary ratio	.48
Annual benefit	\$23,684
Personnel costs, 1 position	\$73,025
Reduced positions (from relief factor)*	2
<i>Subtotal Personnel Savings</i>	<i>\$146,050</i>
Turnout & SCBA, one position	\$4,587
Total reduced positions	2
Estimated life span of gear	8 yrs
<i>Subtotal Equipment Savings</i>	<i>\$1,147</i>
Estimated savings, each position	\$147,197

\* The relief factor of 3.9 is rounded to 4 because this option involves a single 24-hour position.

<sup>29</sup> One 24-hour shift requires 4 positions after the relief factor.



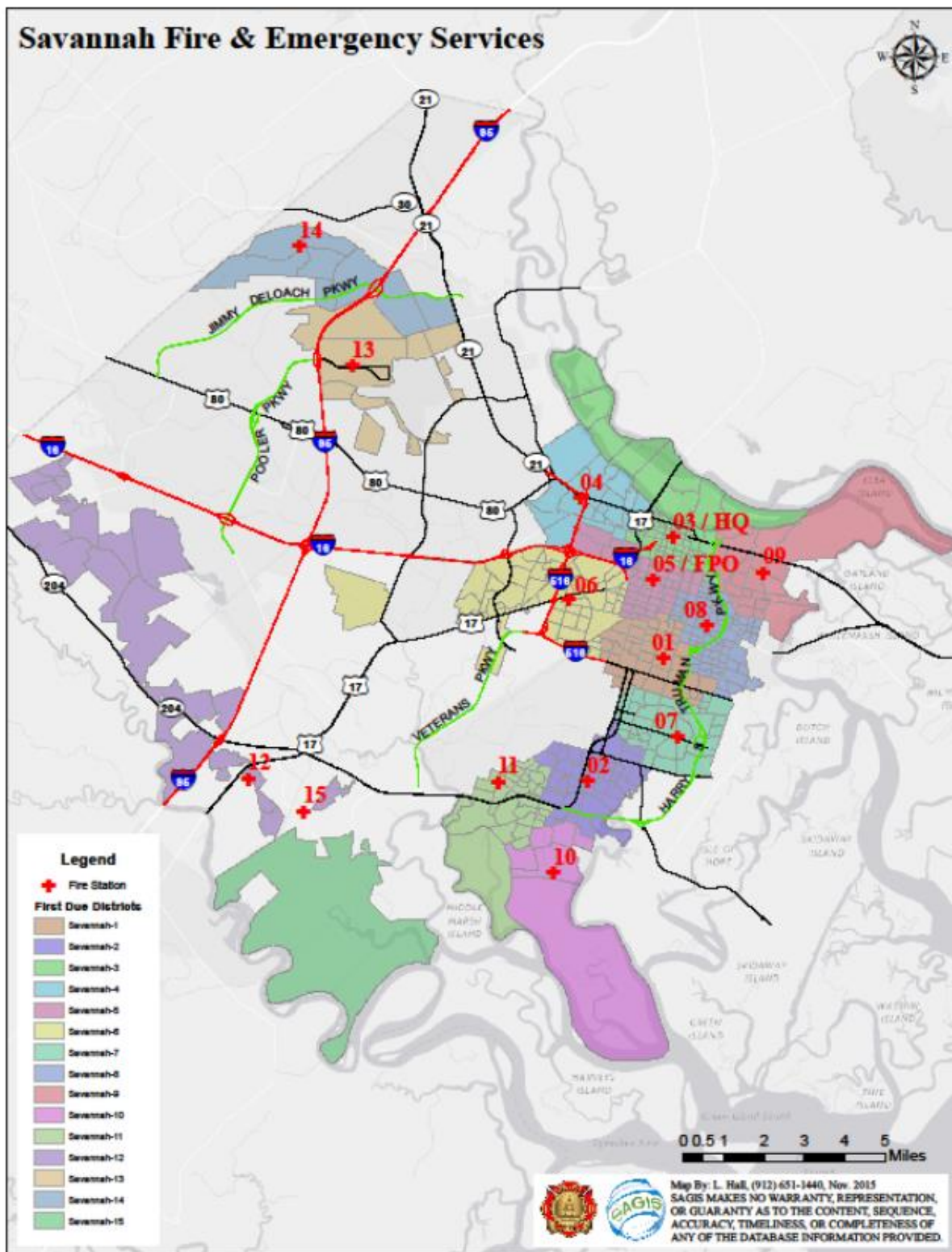
## **OPTION 5: SERVICE REIMBURSEMENT**

The citizens and businesses of Savannah pay for the critical services provided by the Savannah Fire Department through general property taxes. Fire departments, by their nature, are expensive compared to many other public services because they require significant manpower and expensive capital equipment. Because of cost supplying fire protection, city leadership should consider working with public authorities that currently receive the fire services from the SFD but are exempt from paying property taxes. These authorities could contribute a negotiated payment-in-lieu of taxes (PILOTs) to help offset some of the costs for the benefits they receive from the City of Savannah.

## **Conclusion**

This report analyzed the Savannah Fire Departments' ISO rating and various cost-savings options. Because personnel comprise the largest expenditure in the department, Institute of Government faculty assessed the potential dollar savings and service impacts of three different personnel reduction scenarios. The first, reducing the number of firefighters in a company from a maximum of four to a maximum of three, would result in substantial cost savings but would increase the time it would take the department be fully staffed to reach a structure fire by 24 percent (3 minutes). This option is also in opposition to national standards. The second and third options would eliminate one company but at different locations in the city while the fourth option partially reduces the single-shift hazardous materials company. These options save far less money than Option 1 but would also result in far less disruption to service standards. The last option presented focuses on the city collected more money rather than reducing costs to help offset General Fund commitments to the SFD.

## Appendix A: Savannah Fire Department Fire Districts (stations)



## Appendix B – Travel Simulation

The Institute of Government researchers took the following specific steps to create the response time simulation if all SFD companies had only three assigned people:

- 1) Built a database of fire incidents and a database of fire companies servicing an incident and their respective travel times.
- 2) Developed a program that would loop through the database of fire service incidents.
- 3) Assessed each incident to identify the set of companies that responded to the incident and the number of firefighters responding.
- 4) Identified incidents that were of moderate to high risk, i.e., the incidents that would need additional companies to respond in order to achieve the standard of cover.
- 5) Identified the fire district in which the incident occurred.
- 6) For each fire district, identified the geographic mean of the point of all incidents, i.e., the point that would represent the average distance that a company from an outside district would need to travel to reach an incident in the district.
- 7) Programmed the established sequence of companies that respond to an incident in the district in question, i.e., the response sequence. Because the scope and cost of the current study does not afford the programming of the thousands of individual subdistrict response patterns, the analysis was simplified by (1) identifying the subdistrict in which the geographic mean of the incident point was located, and (2) programming the response pattern for this individual district.
- 8) Identified the last in the sequence of companies in the response sequence to actually respond to the incident.
- 9) Identified the next company in the response sequence and the fire station where that company is housed.
- 10) Employed Google Distance Matrix API to identify the travel time from each fire station to the location of each geographic mean of the incident points in each district.
- 11) Employed the Distance Matrix to identify the travel time between the fire station housing the next company in the sequence and the geographic mean of the incident locations in the district of the incident. This analysis did not distinguish between engines and trucks and thus assumed no difference in what type of company would be needed. By doing so, this assumption could create a slightly optimistic response time.
- 12) For each incident studied, determined the longest existing travel time for the last arriving company. Used the Google Distance Matrix API to identify the travel time for this company to the geographic mean of incidents in the district where the incident in question occurred.
- 13) Identified the added time needed for the additional companies to arrive at the incident scene. Subtracted the longest existing travel time (from the step above) from the

estimated travel time for the additional company required to meet the standard of cover when there are only three firefighters in a company.

- 14) Calculated summary statistics for the additional travel time, e.g., identified the average additional travel time (based on Google Distance Matrix) for the additional companies and calculated the difference between the longest travel time company (slow company) and the additional company.
- 15) Estimated the relationship between actual fire companies' travel times and the simulated times drawn from the Google Distance Matrix.<sup>30</sup> Calculated the proportion of the average of the slowest companies' actual times to reach an incident against the average simulated times of these same companies (from the Google Distance Matrix). Applied this proportion to the average simulated travel times for the additional companies being called due to the need to meet coverage standards.

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<sup>30</sup> Actual SFD company travel times are faster than the simulated travel times because of the ability of fire vehicles to run with lights and sirens and to travel at speeds that are greater than posted speed limits.



**Carl Vinson  
Institute of Government  
UNIVERSITY OF GEORGIA**

# **Savannah Fire Department EMS Analysis**

**Final Report**

**December 2018**

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## Introduction

This report is one of four produced by the University of Georgia's Carl Vinson Institute of Government on the operations of the Savannah Fire Department (SFD) at the request of the City of Savannah. This report evaluates the SFD's current strategic goal to expand its services to Savannah residents and visitors by providing basic life support emergency medical services by 2023. The report first analyzes how offering emergency medical services (EMS) will affect SFD's workload and availability to manage its current responsibilities. The report then outlines the two primary methods fire departments use to provide EMS (without ambulance transport) and how those options might work in Savannah. The report ends with a discussion of other important issues beyond workload that the SFD should address before providing EMS as well as several options for SFD to consider in preparing for EMS implementation.

## Current Status of Savannah Fire Department EMS

Over the last two decades, a growing number of fire departments across the country have begun providing EMS to the communities they serve. EMS is divided into two levels of care: basic life support and advanced life support. EMS may or may not also include ambulance transport. Because fire stations are strategically located and firefighters are trained and equipped to quickly reach a service call, they can, and often do when appropriate, provide the quickest response to an emergency. Furthermore, providing EMS is viewed by fire departments, community leaders, and the public as a valuable service without significant additional costs because fire stations must be manned to extinguish all fires, even if there are fewer of fires. In other words, EMS could be viewed as complementary to but not a substitute for fire suppression service.

Based on their levels of training and certification, emergency medical personnel (i.e., EMTs, paramedics) can provide different levels of service.<sup>1</sup> In Georgia, new EMTs can be licensed as either basic (EMT-B) or advanced (EMT-A).<sup>2</sup> With both levels, medical responders must have a minimum level of training and be certified. As the level of medical care increases, so does the required training and skills of the people providing the emergency care. EMT-Bs can provide basic life support functions but are limited to performing noninvasive procedures such as the use of an automated external defibrillator, airway maintenance, CPR, spinal immobilization, bleeding control, and fracture management. An EMT-A is licensed to provide certain medications under medical control orders including glucose for diabetic emergencies. The EMT-A can also initiate an IV for fluids. An EMT-paramedic (EMT-P) is the highest licensed

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<sup>1</sup> Certification and licensure are provided by states.

<sup>2</sup> Previously, there was also an intermediate level, EMT-I. Those professionals with an EMT-I have had their certification grandfathered, but no new EMT-I level certifications are being awarded in Georgia.

pre-hospital medical care provider and can administer many medications and perform manual interventions.

According to SFD’s current strategic plan,<sup>3</sup> the City Council of Savannah approved a citywide strategic plan that includes having the Savannah Fire Department begin providing basic medical emergency services by 2023. The SFD is in the initial stages of preparing to provide EMS to Savannah residents and visitors. Firefighters are being trained as EMT-Bs but will not provide ambulance transport. Instead, firefighters will go out to a medical call and stay until ambulance service arrives. The understanding of the Institute of Government research team is that SFD personnel will only be responding to the most serious medical emergencies, so-called hot calls. The strategic plan also indicates that the department will begin providing advanced life support care by 2025.

## Impact on SFD Workload

Currently, SFD firefighters respond to emergency medical calls that involve vehicle accidents with injuries. However, having SFD personnel respond to all critical (i.e., “hot”) calls will significantly increase their workload. In this report, “hot” calls are defined as those in which the dispatcher believes a timely response is needed due to the nature of the reported injury and the EMS company runs with lights and siren. The Savannah Fire Department supplied the Institute of Government research team with a database of medical calls for service in Chatham County. These calls were coded for different levels of risk and for location. The researchers mapped the “hot” calls for two time periods: the most current year’s period for which data were available ( **10/2016–9/2017**) and for the total data set, a period between **10/2014–9/2017**. These data represent the likely increase in workload that SFD will face when the department expands EMS.

For the period between 2014 and 2017 (partial years), the total count of medical hot calls was 67,379 for all of Chatham County. Because the research team was only able to geographically plot 97 percent of the records, we adjusted these located calls to account for the 3 percent of calls that were not geo-located to arrive at an estimate of the annual number of medical calls within the response area, for the Savannah Fire Department. The adjusted figure for the number of hot calls within the City of Savannah was approximately 45,689. For the vast majority of call responses, only one ambulance or EMS unit responded. In 1.9 percent of the cases, two ambulances or EMS units responded.

Table 1 shows the number of EMS units that responded within each fire district (i.e., fire station service area) during the 2014–2017 period. If SFD had provided EMS during this period, then the numbers in Table 1 would have been each station’s respective workload. The geocoded data covered several years of calls. To estimate the number of calls in a single year, the research team

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<sup>3</sup> Savannah Fire & Emergency Services Strategic Plan 2016–2020



used the geocoded proportions to allocate the share of the calls for the most recent 12-month period (October 2016 to September 2017). For the October 2016 to September 2017 period, 20,016 hot EMS calls occurred within the City of Savannah. Similarly, the research team used the geocoded proportions of these calls to estimate a distribution of a single year’s calls for each of the 15 fire districts. For clarity, a fire station serves its fire district so the terms are often interchanged.

**Table 1. Critical Emergency Medical Calls in Savannah, 2014–2017**

<b>Station</b>	<b>EMS Calls - 10/2014–9/2017 (partial years)</b>	<b>EMS Calls - 2017 (10/16–9/17)</b>	<b>Percent of Total</b>
Station 1	5,130	2,247	11.23%
Station 2	4,575	2,004	10.01%
Station 3	7,339	3,215	16.06%
Station 4	2,773	1,215	6.07%
Station 5	7,491	3,282	16.40%
Station 6	3,164	1,386	6.93%
Station 7	2,918	1,278	6.39%
Station 8	4,903	2,148	10.73%
Station 9	2,523	1,105	5.52%
Station 10	1,029	451	2.25%
Station 11	2,576	1,129	5.64%
Station 12	315	138	0.69%
Station 13	602	264	1.32%
Station 14	347	152	0.76%
Station 15	4	2	0.01%
<b>Total Calls</b>	<b>45,689</b>	<b>20,016</b>	<b>100.0%</b>

As Table 1 indicates, the distribution of calls varies substantially among the fire service districts. If the calls had been distributed equally among the service districts, each district would have been responsible for about 6.67 percent of all calls. Grouping the calls by battalion,<sup>4</sup> 61.7 percent of the EMS calls were located in Battalion 1, 35.5 percent were in Battalion 2, and just 2.8 percent were in Battalion 3 (Table 2). This call distribution closely resembles the current workload for the department.<sup>5</sup> Adding critical medical calls to the SFD workload results in a 266 percent increase in the number of calls over the current number for 2017.

<sup>4</sup> Battalion 1 includes stations 3, 4, 5, 6, 8 and 9; Battalion 2 includes stations 1, 2, 7, 10, and 11; and Battalion 3 includes stations 12, 13, 14, and 15.

<sup>5</sup> See SFD report on ISO and Efficiency for more information about SFD current workloads.

**Table 2. SFD Call Volume: Current Fire Calls and Critical EMS Calls, 2017**

	<b>Current Calls*</b>	<b>EMS Calls</b>	<b>Total Calls</b>	<b>Percent Increase</b>
Battalion 1	4,490	12,351	16,841	275%
Battalion 2	2,582	7,109	9,691	275%
Battalion 3	442	556	998	126%

\*These calls represent approximately 97% of calls that Institute researchers were able to geocode specifically within fire districts (i.e., excludes calls made in the white portions of Figures 1 and 2, which are areas that are not part of the City of Savannah).

To help determine how EMS provision will affect the SFD’s current workload, the research team mapped both types of call data for 2017. Figure 1 shows the geocoded incidents that the SFD actually responded to in 2017. Calls that involved fires (using incident codes in the 100s) are marked by a cherry red circle that is slightly larger than other incident calls. Figure 2 shows **both** the geocoded fire incident calls and the geocoded hot EMS calls. This second map shows the total incidents that the SFD would have responded to if it had been offering EMS in 2017. Obviously, extensive geographic overlap for fire and EMS service need by location exists, and this suggests the potential for some synergies where both of these services to be provided by the Savannah Fire Department. Note that the data do not show when during the year the calls occurred.

Figure 1. Fire Incidents in Entire SFD Service Area, 2017

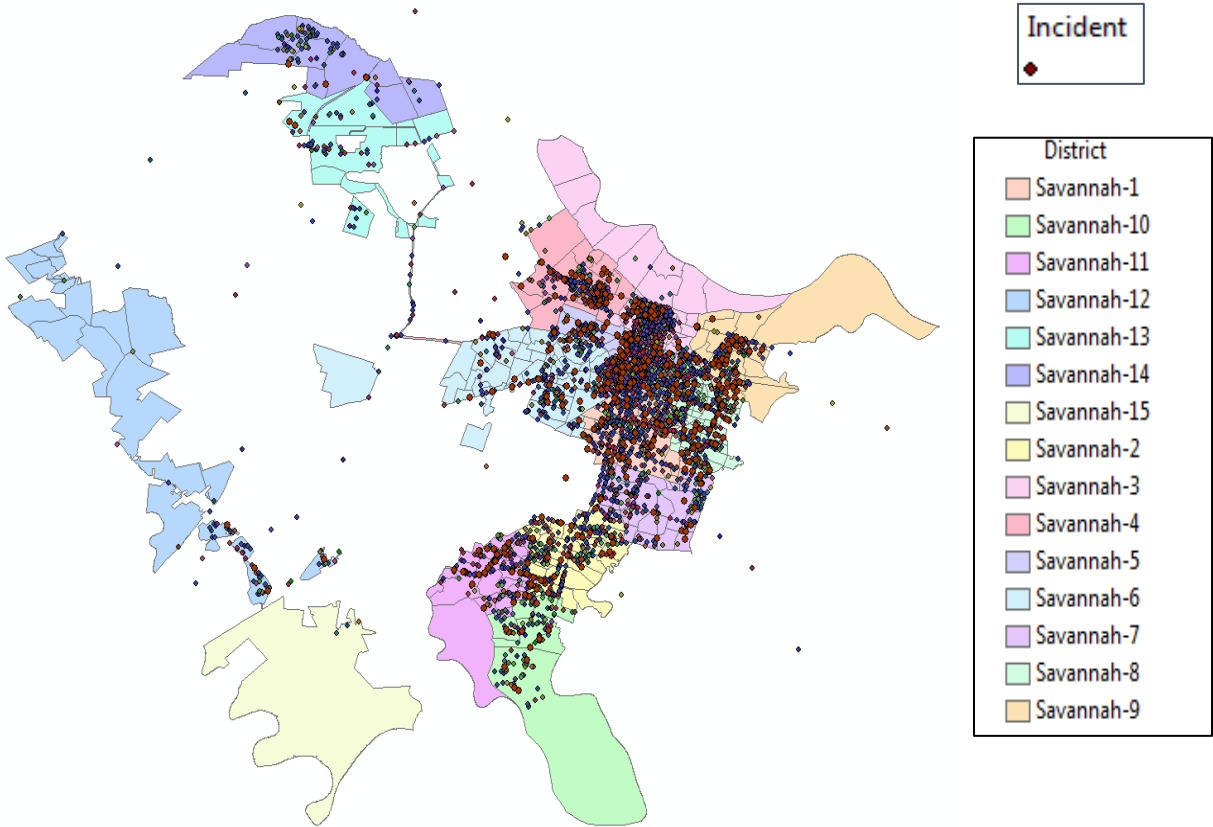
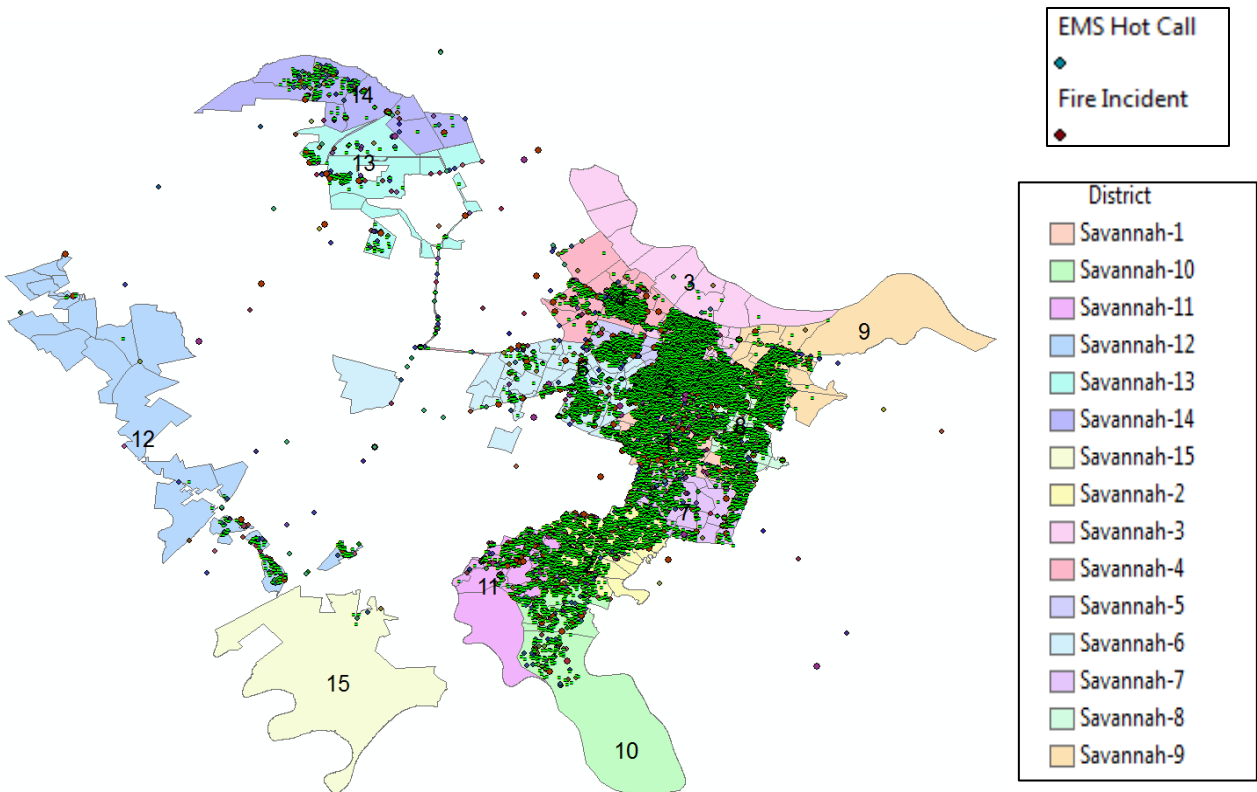


Figure 2. Critical EMS and Fire Incidents in Entire SFD Service Area, 2017



## SIMULATION OF AVAILABILITY

A key question is how providing emergency medical services will affect the availability of SFD fire companies to respond to fire and other service calls that may come in at the same time as EMS calls. When SFD begins providing EMS, the department will likely experience a substantial surge in call volume (see Table 2). Unfortunately, because the SFD has not had extensive experience with call volume surges, it is not possible to analyze historical call volume data as a guide to understanding the potential impact of EMS on current service quality. Because the addition of medical calls represents an unprecedented change to SFD practices, the Institute of Government research team decided to conduct a Monte Carlo simulation, which can help to understand changes of this type.<sup>6</sup>

The key to developing a Monte Carlo simulation is to combine known probabilities with a certain amount of randomness (which represents the unknown aspects of the situation). Once these have been combined to create a pattern of results, researchers then run the simulation multiple times. Using the results from these multiple iterations, the researchers can then

<sup>6</sup> Monte Carlo simulations are used to model the probability of different outcomes in a process that cannot easily be predicted due to the intervention of random variables. This technique is used to understand the impact of risk and uncertainty in prediction and forecasting models.

describe the range of results and the dominant patterns that occurred in most of the simulation runs. By running the simulation a number of times, one can get a fairly good idea of the range of possible values for service overlaps and gaps. The simulation tends to emulate what might happen in different years and therefore can present a more complete picture of the likely long-term impact of an unknown (such as the addition of EMS calls to SFD's regular workload).

To run the simulation, the research team needed to make certain assumptions regarding the time it takes, on average, to respond to different types of incidents. The researchers identified four basic types of incidents: (1) moderate/high risk calls, e.g., fire service calls; (2) other service calls with low to moderate risk; 3) fire calls that are not risk rated and tend to require less time to address; and (4) EMS calls as they would be conducted by the SFD. The researchers assumed that fire service calls and all other moderate/high risk calls take an average time in service of 60 minutes, which includes the turnout time, travel time to the incident and back to the station, and the fire response time. For other risk-rated fire service calls (i.e., moderate and low risk calls) and EMS calls, the researchers assumed a total time in service of 30 minutes.<sup>7</sup> For fire calls that are not risk rated, the researchers estimated an average in-service time of 15 minutes.<sup>8</sup> The service times for SFD's current categories of calls (1, 2, and 3 above) were based on actual call response times (see below). In-service time is defined as time when the firefighters cannot respond to other calls.

#### Average SFD Time for Companies Dispatched, by Risk Level

- Average Time on All Calls: 0:23:49
- Average Time on Moderate/High Risk Structure Fire Calls (111 & 112): 1:20:04
- Average Time on All Moderate/High Risk Calls: 1:04:17
- Average Time on All Moderate Risk Calls: 0:24:24
- Average Time on All Low Risk Calls 0:25:07
- Average Time on all No Risk Calls: 0:14:55

A year comprises approximately 8,760 60-minute periods. The Savannah Fire Department operates 23 companies<sup>9</sup> out of 15 fire districts. Consequently, were fire incidents to occur in perfect sequence in each fire district and were each company able to address a fire, the

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<sup>7</sup> The time required for SFD to respond to EMS calls can vary depending on a number of factors. For example, when SFD companies are the first to arrive on a medical call, they must assess the patient and then discuss the patient and hand him or her off to the transport provider. This EMS system interface between the first responder and the transport provider is based on several tangibles (level of training of the first responders, how much treatment is initiated, and whether one of the firefighters is needed to ride to the hospital with the ambulance crew) and some intangibles (trust and the relationships built over time).

<sup>8</sup> Because the risk level of a call for service is unknown until the company has made its investigation, the SFD does not (except on rare and exceptional occasions) pull a company that is responding to nonrisk calls, such as false alarms, until the department can confirm it is nonrisk. Consequently, the Institute researchers included such calls in the simulation.

<sup>9</sup> Excluding the battalion chiefs, safety officer, and hazmat 2.

department would have the capacity to respond to 201,480 one-hour fire incidents or 402,960 half-hour incidents without overlap. Obviously, incidents do not occur in a perfectly sequential manner. Rather, they tend to occur according to certain probabilities, with more incidents taking place in certain hours, days, months, and locations (or fire districts). Consequently, the research team analyzed the incident data for both fire calls and EMS calls. For each data set, the researchers identified probabilities for a fire or EMS incident occurring in a particular district, month, day of the week, and time of day (one of 24 hours or one of 48 half hours).

Hence, the simulation model essentially populates a data set that fills in the 402,960 half-hour incident slots in a manner that simulates the probabilities that occurred in the study data. Because of these probabilities, the chance of an overlap among companies being in service (and therefore not available for an additional call) is much greater than one in 402,960 per half hour. During busy times and in busy districts, the chance of a service company that would normally respond to an EMS call being unavailable is substantially higher.

Because the purpose of the simulation is to identify the increased potential for overlapping calls for service on companies due to answering EMS calls, it is important to determine the kinds of EMS calls that SFD companies would likely respond to. Typically, fire departments respond to what are called “hot” or priority EMS calls. Currently, Chatham County 911 dispatch codes each EMS call as either “hot” or “cold.” The Institute research team obtained a sample data set of coded Chatham County EMS calls (2014–2017). Nearly 50 percent of all the recorded calls in the data set were coded as hot (see Table 3). In a subset of the dataset representing one year’s worth of the most recent cases, the percentage of hot calls was even greater, suggesting that the number of calls being categorized as priority is growing (see Table 4).

**Table 3. Chatham County Hot Calls, October 1, 2014–September 30, 2017**

Hot EMS Calls	67,379
Total EMS Calls	135,802
Percent Hot EMS Calls	49.6%

**Table 4. Chatham County Hot Calls, October 1, 2016–September 30, 2017**

Hot EMS Calls	29,519
Total EMS Calls	47,593
Percent Hot EMS Calls	62.0%

The researchers presented these data to experts in the field, who suggested that the coding of hot/cold responses in Chatham County may be skewed toward the hot response, as most EMS calls do not require lights and sirens, i.e., the calls are coded as hot when they might not ultimately be. These experts suggested that a conservative estimate would be that 30 to 40 percent of total calls should be dispatched as using lights and sirens. Another consideration is Savannah’s strong tourism industry; medical issues with tourists are more likely to be priority cases.

By geocoding the addresses of the Chatham County EMS calls, the Institute research team was able to estimate the number of hot EMS calls (20,016) that were located within the Savannah city limits and therefore would potentially be added to the workload of the Savannah Fire Department service. This estimate, presented in Table 5, is based on 2017 data.

**Table 5. SFD Current and “Hot” EMS Calls, 2017**

<b>Call Type</b>	<b>Number</b>	<b>Percent</b>
Moderate/High Risk	427	1.5%
Low/Moderate Risk	4,448	16.0%
Not Rated Risk	2,937	10.6%
EMS	20,016	71.9%
<b>Total</b>	<b>27,828</b>	<b>100.0%</b>

Typically, multiple companies respond to moderate and high-risk calls, such as structure fires. Therefore, the simulation also accounts for the number of SFD companies that responded to the different categories of calls. With more companies responding to a call, there is a higher risk of call overlap.

Institute researchers ran the Monte Carlo simulation 10 times. Table 6 presents the average value for the results of the multiple simulation runs, capturing when two or more calls occurred during the same time period for the same fire district. As the data indicate, the vast majority of service call overlap would be with calls requiring a half-hour of a company’s time, i.e., SFD’s low/moderate-risk calls and EMS calls. Nearly 88 percent of the service calls are of the variety that the research team assumes will take a half-hour to address (see Table 5). Similarly, the low number of full-hour duplicates is due to the fact that only 1.5 percent of all incidents are

moderate/high risk, which would take full hour of service. However, note that both half-hour and quarter-hour incidents are indicated as an overlap when these types of incidents occur during the same hour period as a full-hour incident.

**Table 6. Results of Simulation for Call Overlap, SFD Current Plus EMS, 2017**

<b>Incidents of Overlapping Calls</b>	<b>Count</b>
Full-Hour Overlapping Calls (Mod/High Risk)	2
Half-Hour Overlapping Calls (Low/Mod Risk, EMS)	8,061
15 Minute Overlapping Calls (Not Rated Risk)	155
<b>Total Overlapping Calls</b>	<b>8,218</b>

To understand the implications of this simulation, it is useful to see how SFD’s current call volume compares to these findings for SFP current plus EMS calls for service.<sup>10</sup> The research team ran the same simulation using only SFD’s calls from 2017, and the findings are presented in the Table 7.

**Table 7. Results of Simulation for Call Overlap, Current SFD Calls Only, 2017**

<b>Incidents of Overlapping Calls</b>	<b>Count</b>
Full-Hour Overlapping Calls (Mod/High Risk)	2
Half-Hour Overlapping Calls (Low/Mod Risk, EMS)	104
15-Minute Overlapping Calls (Not Rated Risk)	87

The results in Tables 6 and 7 indicate that when thousands of additional EMS calls are added to SFD’s current call workload, the number of times that service requests are overlapping within the same time period for the same fire district increases substantially, particularly with regard to the half-hour service calls that include both EMS and lower-risk fire service calls. For these calls, the simulation findings suggest that were the SFD to respond to EMS calls, this could translate into more than 8,000 instances when multiple vehicles from the **same** fire station would be out on a call at the same time. In addition to alerting fire service managers to the increased potential for gaps in service personnel availability, these findings suggest that were the SFD to use the current set of fire service vehicles for the purposes of responding to EMS calls, it would result in substantial additional wear and tear on vehicles that are expensive to purchase and maintain.

### **SFD STAFFING WITH EMS CALLS**

Due to the substantial increase in call volume and workload that adding EMS will bring, the research team next compared the current staffing levels of SFD with other ISO I fire

<sup>10</sup> Refers to all the different types of service calls currently run by the SFD, including fire, technical rescue, Hazmat, investigating alarms and the like.



departments that provide EMS. Because Savannah appears to have a higher than average percentage of hot calls and due to its large tourism industry, using per capita measures of firefighters is inappropriate. Therefore, the research team compared the total number of traditional fire plus EMS calls per firefighter for SFD with the Columbus Fire and Emergency Services Department and the Charleston Fire Department. The Columbus Fire Department provides all EMS for the county through an integrated fire/ambulance design. The Columbus Fire Department supplements its own fleet and personnel by contracting for six 24-hour and one peak 12-hour private ambulances. Therefore, the department’s firefighter-to-call numbers are understated. Charleston is a very strong comparable department because it also serves a waterfront city with a vibrant a tourism industry. Charleston Fire does not transport patients and also only responds to priority EMS calls. Table 8 shows that when considering authorized positions, Savannah has a substantially higher firefighter-to-call ratio than Charleston. Because SFD had several firefighter positions vacant at the time this report was written, the firefighter-to-call ratio was in reality larger than that presented in the table. The data indicate that Savannah would definitely need to fill all vacant positions and may need to hire additional personnel to meet the demand generated by expanding its services to include responding to hot EMS calls.

**Table 8. Comparable Fire and EMS Calls per Firefighter, 2017**

<b>Department</b>	<b>Total Fire &amp; EMS Calls</b>	<b>Total Firefighters<sup>1</sup></b>	<b>Calls per Firefighter</b>
Savannah Fire Department	27,828	326	85
Charleston Fire Department	22,978	325	71
Columbus Fire Department	31,659	347	91 <sup>2</sup>

<sup>1</sup>Excludes all civilian personnel and firefighters assigned to Training, Investigations, Fire Marshall, Logistics and Support, and Public Information units. For SFD, includes approved but vacant positions from personnel roster.

<sup>2</sup>Excludes personnel from private ambulance companies. Therefore, this ratio overstates the workload of existing Columbus firefighters.

Sources: Comparable Department Sources: City of Charleston Fiscal Year (FY) 2017 Operating Budget and FY 2018 Operating Budget, Columbus Consolidated Government FY 2017 Operating Budget, Columbus Fire and Emergency Services 2018 Standards of Cover,

Other important departmental personnel for SFD to consider when expanding EMS is having an EMS coordinator and an individual specifically assigned to EMS training. Both Charleston and Columbus Fire Departments have these positions. Currently, SFD has a Medical Services Officer (based on the department’s organizational chart) who could provide the critical medical expertise necessary when expanding EMS. SFD has also hired a contractor to provide EMS training to all firefighters for their EMT certifications. Because the firefighters will need to regularly update their training, the department should consider hiring one additional full-time trainer dedicated to EMS. This person may not need to be a certified firefighter.

## Methods of EMS Provision

For fire departments that provide medical first-responder services (i.e., EMS) but do not transport patients to the emergency room in ambulances, there are two typical ways personnel reach the patient: using fire apparatus or via a quick response vehicle.<sup>11</sup> With both means of transport, the assumption is that the responders are dual-certified firefighter/EMTs. The benefits and limits of each method of reaching a person in medical distress are described below.

Several departments that provide EMS but not transport respond to medical calls using traditional fire apparatus like engines or ladder trucks. These vehicles are outfitted with any additional medical equipment needed to treat patients. Fire personnel stay with the patient until an ambulance arrives that will transport the injured party to an emergency room. Using existing fire apparatus has three primary benefits. First, the department does not need to purchase new vehicles before beginning service provision. Second, extra firefighters are not needed because EMS calls are simply an extra assignment for on-duty fire personnel. Finally, the level of medical service is quite high because an entire company responds to the call.

Using existing fire apparatus to respond to medical calls also has several drawbacks. First, fire apparatus will need to be serviced and replaced more frequently due to the additional mileage. Because these are very expensive pieces of equipment, this can be very costly if there are a substantial number of medical calls. Diesel fuel costs will also increase as these large vehicles have very low gas mileage. The risk of driving accidents will rise because the vehicles are on the road more often. The risk of traffic accidents is greater in older neighborhoods with narrower streets. Beyond costs, fire safety is also a concern. When a fire company is out on a medical call, the personnel are not available to respond to fire calls. Therefore, an available company that is farther away must respond to the fire call, lengthening the response time. The risk associated with not quickly reaching a structure fire or other type of fire call (e.g., hazardous materials, vehicle fire, dumpster fire) increases with the number of companies that are responding to medical calls. This risk of unavailability is the focus of the overlap call analysis discussed in the previous section. Because of these challenges, using existing apparatus and companies to respond to medical calls is most appropriate for fire districts that have relatively few fire and/or medical calls.

The other common method fire departments use for EMS calls without ambulance transport is the quick response vehicle (QRV). QRVs are passenger trucks that have been outfitted with specialized medical and fire equipment to handle both EMS calls and small fires such as grass or dumpster fires. Two dually trained (firefighter and EMS) personnel typically work from a

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<sup>11</sup> Quick response vehicles are also known as rapid response vehicles.

QRV. The cost for a QRV is typically around \$120,000, including all required equipment. Because these vehicles are much smaller than a traditional fire engine or ladder truck, operating costs such as gas and maintenance are far lower. QRVs are not equipped to handle structure fires, and the staff assigned to them typically serve in a support function to regular fire companies for these types of calls. Most importantly, because the QRV unit is the first responder to medical calls, the engine and ladder companies remain available for other calls. Only when there are concurrent EMS calls in a fire district would a traditional fire company respond. Of course, the two additional personnel are also a significant cost; despite the additional personnel costs, this model uses significantly fewer resources per medical call than relying on an entire engine, rescue, or aerial/ladder company.

## Estimated Cost of EMS – Hybrid Service Delivery Model

As stated earlier, Chatham County’s EMS data show that SFD would have responded to 20,016 EMS calls in 2017 had it already been providing this service. Table 2 showed that of these calls, 61.7 percent occurred in the Battalion 1 service area, 35.5 percent were in Battalion 2’s service area, and the remaining 2.8 percent were located in Battalion 3’s area. Because Battalion 1 is also the busiest area for regular fire calls, it is reasonable to assume that the vast majority of the 8,218 overlapping service calls would occur in Battalion 1 (see Figure 1). The Institute of Government researchers estimated the cost of adding one QRV unit that would primarily serve the Battalion 1 service area (as well as some EMS calls in the Battalion 2 area). The QRV unit would be the primary responder for EMS calls and would help to minimize safety risk from call overlap in this fire service area.

The cost projection shown in Table 9 assumes that the QRV unit responds to 85 percent of all EMS calls within the Battalion 1 service area and 25 percent of Battalion 2’s EMS calls for a total of 12,275 calls. Because multiple medical calls will likely occur simultaneously in Battalion 1, the research team assumed that the QRV unit would not be able to respond to every medical call. The researcher team also assumed that the QRV unit can respond to some EMS calls in the Battalion 2 area because a substantial number of the EMS calls in 2017 occurred in Fire Districts 1 and 7 (stations 1 and 7), which are located at the most northern end of Battalion 2. Fire District 1 is adjacent to Battalion 1 fire stations as well.

**Table 9. Estimated Calls for EMS Served by a QRV Unit**

	Total EMS Calls	Served by QRV EMS Unit
Battalion 1	12,351	10,498
Battalion 2	7,109	1,777
Total		12,275

Based on 2017 call data

Those 12,275 calls translate to 6,137.5 hours of active service (30 minutes per call) or 70 percent of all time available in a year. Because there will be times when no EMS calls come in, this unit will be extremely busy: so busy, in fact, the department may want to consider making this unit work 12-hour shifts because the firefighters working in the QRV may get little sleep.

The EMS calls that the QRV unit does not respond to will be served by existing SFD companies. The workload of these companies, particularly those in Battalions 1 and 2, would still increase substantially even with a QRV unit (see Table 10). However, the workload distribution between Battalions 1 and 2 would be closer than is currently the case. In fact, Battalion 2 would become busier than Battalion 1. Because of the workload growth that EMS will bring, the department may need to add a second QRV exclusively for Battalion 2 in the future. The department should closely track response times and employee fatigue during the initial months of EMS implementation to better assess this option. Battalion 3 would still have the least number of calls and thus should be able to manage the additional service demand with relatively little risk of overlapping calls or employee fatigue. If concurrent calls occur at a station in Battalion 3, then another company should be available to assist.

**Table 10. Battalion Calls: Current and EMS with QRV Unit**

	<b>Current Calls</b>	<b>Remaining EMS Calls</b>	<b>Total Calls</b>	<b>Percent of All Calls</b>
Battalion 1	4,490	1,853	6,343	41.6%
Battalion 2	2,582	5,332	7,914	51.9%
Battalion 3	442	556	998	6.5%

Adding a new QRV unit and expanding EMS will increase costs to the city. The question for city leadership is whether the additional expenditure is worth the benefit of having SFD firefighters reach a person in severe medical distress quickly to provide lifesaving assistance. The Institute research team assumes that two people will be working from each QRV unit: a Master Firefighter, who has advanced driving skills, and an Advanced Firefighter. Using a methodology supplied by the SFD, a relief factor was calculated to determine the number of employees that are needed to fill one 24-hour position due to employee absences from vacations, sick leave, disability, and so forth (See Table 11).

**Table 11. Relief Factor Calculations for Firefighter Position and Total Reduction in Full-Time Employees (FTEs)**

Number of hours per 24-hour post each year	8,760
Total hours employee is scheduled to work	2,912
Average hours an employee is absent per year	667
Total hours an employee is available to work	2,245
Relief Factor: Number of FTEs needed, on average, to cover one 24-hour post*	3.9

Source: Calculation steps from Local Government Performance Center, figures supplied by SFD.

\*For reference, if no employees were ever absent for any reason, the relief factor would be 3.

The estimated cost for the EMS unit is based upon the combined salary, benefits, and personal safety equipment required for these positions. The salaries for the two firefighters are based on the average salaries of all SFD employees in those positions in FY 2018. According to the Savannah Human Resources Department, personnel benefits approximate 48 percent of salaries.

Personal fire equipment costs are included in the calculation because these positions will also be expected participate in fire suppression calls when needed and available. In FY 2018, the SFD paid \$4,587 for a complete set of turnout gear and a self-contained breathing apparatus (SCBA).<sup>12</sup> According to SFD, the maximum lifespan for turnout gear is 10 years, with replacement sooner if needed after inspection. This adheres to a National Fire Protection Association standard. For a SBCA, the lifespan is 12–15 years, and it is replaced in conjunction with the department’s apparatus replacement schedule. Recognizing that equipment may get damaged and not last its entire lifespan, the research team estimated an eight-year lifespan for the complete set of turnout gear and SCBA.

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<sup>12</sup> Turnout gear includes suit, gloves, hood, helmet, boots, and eye protection. The SCBA (\$6,000) is part of the equipment on an apparatus and is shared by shift so the cost for this was divided by three (shared by shift) except for the face mask, which is assigned to each firefighter (\$300). The SFD provided data on the cost and lifespan of equipment.

**Table 12. Estimated Annual Personnel Cost for QRV EMS Unit**

<b>Cost Description</b>	<b>Master FF</b>	<b>Advanced FF</b>
Average Salary	\$49,341	\$42,127
Benefit to Salary Ratio	.48	.48
Annual Benefit	\$23,684	\$20,221
Personnel Costs, 1 position	\$73,025	\$62,348
Reduced Positions (relief factor)*	4	4
<i>Subtotal Personnel Cost</i>	<i>\$292,100</i>	<i>\$249,392</i>
Personnel Gear One Position	\$8,387	\$8,387
Total New Positions	4	4
Estimated Life Span of Gear	8 yrs	8 yrs
<i>Subtotal Equipment</i>	<i>\$4,194</i>	<i>\$4,194</i>
Estimated Cost Each Position	\$296,294	\$253,586
<b>Total Estimated Annual Personnel Cost</b>	<b>\$549,880</b>	

\* The relief factor of 3.9 is rounded to 4 because this option involves single 24-hour positions.

The QRV vehicle is estimated to cost \$120,000, with a useful life of five years.<sup>13</sup> With an interest rate of 3 percent, the annual amortized cost for the QRV would be **\$26,203**.

Based on conversations with a manager of a private EMS company,<sup>14</sup> Basic life support EMS services would cost approximately \$1.30 per call. This cost is so modest because SFD would not administer medications to patients, as this is only permitted with advanced EMS training. Because medical supplies would be for all calls, not just those from the QRV unit, we multiple \$1.30 by the total number of EMS calls of 20,016 for a cost of \$26,021. If the SFD was to begin carrying Narcan on all of its engines and the QRV unit, the estimated annual cost would be approximately \$3,588. (Drug cost of \$130 per dose × 24 companies × 15 percent usage rate).<sup>15</sup> Total medical supplies with Narcan would cost **\$29,609**.<sup>16</sup>

Because the QRV is a standard truck, the maintenance and gasoline costs would be far less than for a fire engine or ladder truck. The research team estimates **\$1,000** per year for vehicle maintenance (regular and specialized tune-ups, tires, etc.). To determine gasoline expenditures, the research team calculated the SFD's current diesel fuel cost per call by dividing the total

<sup>13</sup> A typical lifespan for a patrol vehicle that is also being driven throughout a shift is five years, so the same standard was applied here.

<sup>14</sup> Gordon Williams, Grady EMS email correspondence.

<sup>15</sup> 23 existing companies plus the QRV unit. Narcan's expiration date is 12 months, but the research team also assumes that 15 percent of the companies will have to administer the drug once annually. This cost includes the annual one-hour required training.

<sup>16</sup> In an ideal scenario, medications given would be replaced by the transport agency, which can bill patients being transported.

number of companies that responded to all calls in 2017 (estimated to be 12,240<sup>17</sup>) by the 2018 diesel fuel budget of \$172,000, for an average fuel cost of \$14 per call (i.e., trips of an apparatus). Because this fuel cost does not take into account apparatus being driven for public outreach events and training exercises, the cost per call is reduced by 25 percent to \$10.50. Because the QRVs get substantially better gas mileage than fire engines (10–12 vs. 3–4 miles per gallon), the cost per call for the QRV is reduced to \$2.50. Therefore, estimated annual gasoline cost for the QRV unit is  $\$2.50 \times 12,275 = \$30,688$ .

For the remaining EMS calls that would be answered by existing companies, the diesel fuel cost is estimated at \$81,281 (7,741 calls x \$10.50 per call). Summing both the QRV gasoline costs and the additional diesel fuel equals **\$111,969** in new fuel costs for SFD to provide EMS citywide. For perspective, total gasoline and diesel costs in the department’s 2018 operating budget was \$208,840.

Note that this cost does not include the additional maintenance costs and earlier replacement of fire engines and ladder trucks due to the difficulty in calculating all of the additional mileage from each of the 20,016 EMS calls to the closest fire station. Furthermore, these estimates are merely to provide Savannah leaders with a rough appreciation for the additional costs associated with SFD offering basic life support EMS citywide. In fact, the department may realize after implementation that a second QRV unit is needed to meet call demand in Battalion 2. With that important caveat, Table 13 sums all of the specific expenditures discussed.

**Table 13. Estimated SFD Annual Cost to Provide EMS Citywide**

Personnel QRV Unit	\$549,880
QRV Capital	\$26,203
Medical Supplies	\$29,609
QRV Maintenance	\$1,000
Total Fuel	\$111,969
<b>Total Estimate Cost*</b>	<b>\$718,661</b>

\* Excludes additional maintenance costs and replacement costs for fire apparatus to respond to EMS calls. Costs shown are based on 2017 and 2018 data.

## **Additional Issues to Address**

Beyond workload management, several additional issues should be addressed before full implementation.

<sup>17</sup> Total call volume equaled 7,812 in FY 2017. 5,350 companies responded to 922 moderate/high risk incidents. For the remaining incidents (6,890), the Institute research team assumed one company responded for a total company response of 12,240.



## **IMPLEMENTATION PLAN**

This report raises issues and provides some preliminary data for Savannah leadership to consider before SFD begins offering EMS. However, it is not a substitute for a detailed implementation plan. The department needs to complete a plan, including assigning responsibilities, deciding upon a service delivery method (e.g., QRV, engines, hybrid), planning for possible call overlap, establishing a long-term training program, finding a reliable medical supplier, analyzing and deciding upon any scheduling changes, creating protocols with Chatham County 911 and Chatham Emergency Services, to name only a few key issues. Senior leadership at SFD is working on an EMS plan, and the Medical Services Officer is currently reviewing policies that the department will need.

Based on comments from employee focus groups, which are discussed in more depth in the next section, Institute of Government faculty recommend that the fire chief include line-employee representatives in plan development. Employees should have some input in the plan because they will ultimately be responsible for executing EMS. Because EMS expansion is a huge change for the department, SFD leadership should also regularly communicate with employees about the department's decisions. Employees have a right to know how they will be impacted.

## **CHATHAM COUNTY 911 COMMUNICATIONS CENTER**

SFD needs to develop protocols with the Chatham County 911 Communication Center to ensure a smooth transition when SFD begins replying to EMS calls. In particular, SFD should work with the county on EMS dispatch protocols to ensure mutually agreeable terms. Furthermore, SFD may want to work with the Communication Center to ensure that all 911 operators receive additional training on questioning callers so that SFD is only responding to hot calls and not ones that are actually low priority. These low priority calls will continue to be managed solely by Chatham County Emergency Services. Because SFD will be so busy responding only to hot calls, the department does not have the resources to also respond to calls unnecessarily.

## **CHATHAM COUNTY EMERGENCY SERVICES (CCES)**

SFD also needs to develop protocols with Chatham County Emergency Services regarding the response time for ambulances arriving to transport patients treated by SFD firefighters. By offering EMS, SFD could create an unconscious incentive for ambulance drivers to prioritize response to other emergency calls because they know SFD patients are receiving care.

## **REVIEW EMPLOYEE COMPENSATION**

As discussed previously, the SFD and city leadership will need to consider whether firefighters will receive additional compensation for their new EMT certifications and greatly expanded workload. SFD may want to interview chiefs from comparative fire departments that also offer



EMS to learn what may be an appropriate pay increase as well as research salaries in these departments.

### **IMPACT ON COMMUNITY OUTREACH**

Beyond responding to calls, SFD firefighters regularly perform community outreach activities. These activities are important for fire prevention and fire safety. The increased firefighter workload, particularly in Battalions 1 and 2, would likely mean these personnel would no longer have as much, if any, time to perform these outreach activities. For example, the Columbus Fire and Emergency Services Department operates fire safety education under the Division of Fire Prevention/Training and employs a certified public educator to provide public safety lessons at the county schools. Likewise, Charleston FD community outreach is managed under the Fire Marshal's office. The department may need to research alternative methods for providing community outreach such as hiring a community educator who would handle the bulk of these activities. However, firefighters in Battalion 3 should still be able to perform outreach activities in their district based on the current and estimated call volume.

### **EMS TRAINING**

SFD has contracted with a consultant to train all of its firefighters in EMS basic life support and prepare them for their certification test. Employees who participated in the focus groups (see next section) and had already completed or were currently taking the EMS training believed the instructor was very qualified. However, they were concerned with how much of the training was online in order to accelerate firefighters through the course. The tradeoff with having as many employees as possible go through EMT training quickly is the loss of hands-on experience. SFD leadership may want to have an outside fire department that provides EMS review the training course to ensure that all of SFD's firefighters will be proficient in lifesaving skills. The department must also plan for how those firefighters who have completed their EMT training will retain their skills while the department prepares to offer EMS. Hiring a consultant has allowed the department to quickly begin offering EMT training, but it is a short-term solution. The department will need to hire a permanent trainer to fill this role because all firefighters will need ongoing training and certification.

### **ISO RATING**

By expanding EMS, the SFD's ISO (Insurance Service Office) credits may be slightly impacted. More specifically, ISO, Inc., which provides the ISO rating, assigns credits for personnel based on their availability to suppress fire. To the extent that firefighters are fully engaged providing EMS and thus not available to respond to fire-related calls, the department would receive less credit for those employees. ISO, Inc. would prorate the number of employees providing EMS and may not give full credit per firefighter depending upon their availability for fire response.

## SFD Employee Support for EMS

As part of the research process, Institute of Government researchers conducted several interviews and facilitated focus groups. More specifically, the researchers interviewed the fire chief, two deputy fire chiefs, every battalion chief, the acting fire marshal/chief fire investigator, the fleet captain, and a representative of the International Association of Firefighters, Local 574. The research team also held four, three-hour focus groups to hear from line personnel about a variety of issues affecting the department. During each of these conversations, SFD employees were asked their thoughts about starting to offer EMS.

Department leadership overall appears to support starting EMS, but that opinion was not universal. Those in favor of providing EMS believe that lives can be saved because SFD firefighters can arrive at a scene within four minutes. Additionally, providing EMS is important to keep fire departments relevant when the number of structure fires is decreasing nationally. Several stated that younger firefighters are embracing EMS. Support for EMS among employees who participated in the focus groups was more mixed. Employee support for EMS may increase when key concerns are addressed.

Both SFD leadership and participants in the focus groups raised several concerns with SFD offering EMS. Many of these concerns have been discussed in the previous sections of this report, but they bear repeating because, if they are not addressed, employee support for EMS could seriously suffer. Low support could easily result in greater turnover, particularly among more experienced personnel. Concerns were raised regarding the following:

- Some participants were not really sure why the department is providing EMS. The benefit from this higher level of medical response service appears to have not been fully articulated to employees.
- The most significant issue was knowing how the department will manage the greatly expanded workload, particularly regarding call overlap and meeting fire suppression needs.
- Concerns were expressed about the wear and tear on existing fire apparatus. Several people in both the interviews and focus groups discussed the benefits of using a QRV for EMS calls.
- The lack of communication about how the department will implement EMS is a concern shared by many. This can result in incorrect information being shared and unnecessary rumors. For example, when people spoke about the increase in workload from EMS, the estimated number of additional calls varied widely different and were far greater than the actual number that the department is likely to receive. Furthermore, there were questions about the long-term plan with EMS. Will the department eventually provide advanced life support too? Will SFD take over ambulance transport? There was far less support for taking on ambulance service.

- 911 calls will need to be prioritized appropriately; otherwise, there will be too many calls for the department to manage (i.e., by going to low-priority calls)
- Some expressed concern over getting all of the firefighters trained and keeping them trained because the training process will take multiple years.
- After workload, compensation was the second most frequently discussed issue. Likely, most of all employees believe they deserve some level of extra compensation because of the additional required training and greater workload. Compensation was mentioned multiple times in the focus groups and as well as from several battalion chiefs in reference to employee support for EMS. Addressing compensation will be a critical factor in garnering employee support for EMS.
- With EMT certification, employees will be more marketable, which could result in greater turnover. SFD leadership will need to work harder to raise and sustain high employee morale or the department will lose people.
- Firefighters will face additional risks and responsibilities when the department begins providing EMS. The firefighters need to know they will be supported if something bad happens.
- The question was raised about whether starting EMS was appropriate now because of the fiscal stress facing the department, particularly as the department is very short on personnel.

## Options

This section presents several options for the SFD to consider and perhaps implement based on the analysis offered in this report.

1. **Explain the Need.** SFD and city leadership should thoroughly explain to all SFD employees how citizens and visitors will benefit from the department responding to hot EMS calls rather than relying on Chatham County Emergency Services. An important component of this conversation is showing data on ambulance response times for critical calls and comparing it to the four-minute response of SFD companies.
2. **Develop a Comprehensive Implementation Plan.** If the SFD has not already developed a comprehensive implementation plan for EMS, then it should do so immediately. If the department already has a plan, then it needs to be communicated to all employees because they appear to be unaware of it.
3. **Protocols with Chatham County Emergency Services.** SFD should create communication and service protocols with Chatham County Emergency Services to eliminate potential lapses in communication that could result in harm to a patient. Likewise, the department should work to minimize any duplication of effort or having SFD personnel unnecessarily waiting for an ambulance to arrive and transport a patient.

4. **Training with Chatham County 911 Communications Center.** The SFD may want to work with the county's 911 Communications Center to ensure that all 911 operators are properly trained to assess when a call is truly critical (hot) or low priority (cold). The goal is to minimize SFD firefighters being sent out on EMS unnecessarily.
5. **Hire a Permanent EMS Instructor.** The SFD will need to continually offer EMT training to its employees, so it may be prudent to hire a permanent instructor. This person could develop a long-term EMT training strategy and may be able to provide flexible training opportunities, such as training firefighters at stations rather than at the Training Center. For example, the training strategy could mandate that all personnel working at a particular station who have not yet received EMT training must take it. Perhaps two nearby stations could take training together.
6. **Develop Performance Assessment Benchmarks.** The department will need to assess how well its EMS program is working after implementation. To do so, it will need to have already created performance benchmarks and a method for collecting, tracking, and evaluating the data. Only through assessment will the department be able to improve its service delivery. The department is already very skilled at tracking performance, so this task should not be too difficult for staff.

## Conclusion

This report explored the potential impact on the SFD workload when it begins to offer EMS services. With the tremendous increase in call volume (20,000 new calls), the department will need to fill vacant positions and likely hire personnel who are primarily dedicated to responding to EMS calls. The estimated annual cost to begin offering EMS to Savannah residents and visitors, beyond costs related to training firefighters and the additional wear and tear on current fire apparatus, is \$718,500. Additionally, SFD will need to address several other important issues like developing a comprehensive implementation plan, establishing protocols with Chatham County Emergency Services and the 911 Communications Center, reviewing firefighter salaries, and determining who will offer SFD community outreach services.



**Carl Vinson  
Institute of Government  
UNIVERSITY OF GEORGIA**

# **Savannah Fire Department Personnel Report**

Final Report

December 2018

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## Introduction

This report is one of four that the University of Georgia's Carl Vinson Institute of Government is producing on the operations of the Savannah Fire Department (SFD) at the request of the City of Savannah. The SFD has earned an ISO 1 rating, the highest a fire department can achieve, representing generally accepted best practices in fire suppression management. Beyond fire suppression, personnel management is a critical component to organizational effectiveness. Using data collected from an employee survey, employee focus groups, and interviews with the SFD's leadership team, this report presents the current status of personnel management in the department. The report also offers options to address some of the challenges that came to light during the research process. The data indicate that the SFD has some serious morale and workplace climate challenges, including low morale; dissatisfaction with pay; perceptions of inequity in regard to promotions, discipline, and transfers; poor communication; and distrust of senior management. Fortunately, SFD employees highly respect their supervisors and are dedicated to their work, so with appropriate actions, the department should be able to change the organizational culture.

## Methodology

This Institute of Government research team used the following methodologies to research the status of personnel management within the SFD:

- Phone and in-person interviews with SFD's leadership team, i.e., the fire chief, assistant chiefs, and battalion chiefs<sup>1</sup>
- Interview with a representative from the International Association of Firefighters, Local 574, i.e., the SFD's local employee union
- Four focus groups composed of SFD line employees
- An electronic survey sent to every member of the Savannah Fire Department

Institute faculty interviewed 17 SFD leaders in July 2018 (with follow-up interviews in July and August). The conversations ranged in length from 50 minutes to 1.5 hours and covered a wide range of topics such the challenges facing the department, stations and equipment, community outreach activities, training, offering emergency medical services (EMS) citywide, and personnel issues. Because the department is effective at managing fire operations, several conversations focused on personnel management, specifically the organizational culture, interdepartmental communication, salaries and compensation, promotions, discipline, and recruitment. This report only includes information from the interviews related to personnel topics. The information on general operations and EMS are discussed in separate reports.

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<sup>1</sup> Institute faculty also conducted a phone interview with Captain Marcus Wilson, who is responsible for fleet and equipment maintenance. While this interview included some discussion of department personnel issues, the focus was on the status of the department's vehicle maintenance program.

The four focus groups were held in late August 2018 and were composed of SFD employees with the rank of captain and below. For each focus group, Institute of Government faculty randomly selected 15 employees to participate. The sample was stratified by years of service with the department to ensure a diverse level of experience in the focus groups. The focus groups were 2.5 hours in length and were held over two days. A total of 32 employees decided to participate in the focus groups (eight in each). The following topics were discussed during the focus groups:

- The importance of ISO 1 and accreditation to the SFD
- SFD offering EMS
- SFD community outreach
- Personnel issues: salary, promotion, discipline, station transfers, recruitment
- Stations and equipment

Finally, the Institute of Government research team administered a workplace climate survey to all SFD employees. See Appendix A for a copy of the survey with all of the responses. Employees were emailed a hyperlink to the anonymous online survey, and they had three weeks to complete it.<sup>2</sup> To encourage employees to answer the survey questions, the city manager sent an initial email explaining the purpose of the survey and Institute of Government researchers sent two follow-up reminder emails while the survey was open. A total of 258 surveys were completed, a 79.4 percent response rate.<sup>3</sup> Of the respondents, 17.5 percent identified themselves as not white/Caucasian compared to 25.6 percent within the entire department. An additional 24.1 percent declined to provide their race/ethnicity. The survey did not ask respondents to identify their gender. Because the SFD has so few women on staff, doing so could become an identifier. The survey asked a total of 35 closed-ended questions and two open-ended questions. For the open-ended questions, the allowable response length was limited to require respondents to focus on their most important thoughts. In addition to workplace climate questions, a few more “operational” questions were included in the survey. The responses to these questions are included in the report that specifically focuses on the review of operations entitled, *Savannah Fire Department Operational Review*. Since period when employees responded to the survey, the Savannah Fire Chief announced his retirement.

Because the survey asked sensitive personnel questions, the Institute researchers felt it was important for the survey to be anonymous. However, an important methodological limitation to anonymous surveys is that they cannot control for multiple responses from one individual. Consequently, the survey lacks the academic rigor of confidential surveys. However, Institute of Government faculty reviewed the results and did not find repetitive responses to the open-

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<sup>2</sup> The survey was “live” from September 28 to October 12, 2018.

<sup>3</sup> A total of 326 emails were sent requesting employees to complete the survey.



ended questions. Furthermore, the survey responses reflect very strong beliefs and preferences, supporting the strength of the data.

This report discusses personnel issues by subject, integrating the data from all three sources: the survey, focus groups, and interviews. After the data are described, options for addressing the issue may be presented, if appropriate. Many direct quotations from focus group participants and open-ended survey responses are used to illustrate and support the quantitative survey results. Because the focus group quotes were verbally communicated, they can be a bit unclear when read. To improve clarity, some participants' statements were edited,<sup>4</sup> but the meaning or intent of the quotations has not been altered. Brackets within a quote indicate the author has included a subject or reference for the statement.

## Employee Dedication

The survey results showed overwhelmingly that employees of the Savannah Fire Department are dedicated to their profession. Over 77 percent strongly agreed with the following statement: *Doing my job well gives me a strong sense of personal satisfaction*. In contrast, only 3.4 percent of respondents either strongly or slightly disagreed with that statement (see Table 1).

**Table 1. Survey Question: Doing my job well gives me a strong sense of personal satisfaction.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	77.1	205
Slightly agree	16.5	44
Neither agree nor disagree	3.0	8
Slightly disagree	0.4	1
Highly disagree	3.0	8
Total	100%	266

The survey also included an open-ended question that asked the respondent what he/she likes best about the SFD. Of the 249 written responses, the top three subjects related to comradery, serving the community, and having pride in being a firefighter. More than 100 statements (102) specifically mentioned colleagues, crew, station, and/or teamwork as what the respondent likes best about working at the SFD. Sixty-seven stated that they like helping others and serving the community, and 50 wrote about having pride in their job and profession.

Although the focus group participants spoke more about what they would like changed in the department, several mentioned their passion for the work. Below are examples of comments

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<sup>4</sup> Misspelled words in survey responses have also been corrected.

from the focus groups and qualitative portion of survey. There were dozens of written responses to the survey similar to those shown below.

*Firefighters will work together to make any situation work.*

*Getting to do the job I love with a crew that is serious about providing the best care to the public.*

*Helping the public.*

*I enjoy my job and the work I do in my job.*

*I love being a firefighter. The nature of my job is highly satisfying.*

*I still love this job and wouldn't want to do anything else.*

*I enjoy doing the career I've chosen, which is helping people in their time of need; we strive to be one of the best departments in the state and in the nation.*

*The ability to help Savannah.*

*The chance to make a meaningful and positive impact on the community I live in.*

*The firefighters have a genuine concern for saving lives and property.*

*We are here because we want to be here...It [firefighting] is our calling, not the money.*

*Working with the public and educating them about fire safety.*

## **Work Climate**

To gauge overall workplace climate, the survey included several general personnel questions. The results of the survey and focus groups reveal a department that has clear morale challenges and needs personnel reforms that will address line employee distrust of senior management. The fire chief's recent retirement announcement provides an opportunity for the new chief to focus on addressing the department's organizational culture and workplace climate challenges.

As a basic, introductory question to workplace climate, the survey asked respondents about their overall work satisfaction (see Table 2). While the responses were not particularly affirmative, they were far more positive than the responses to several other workplace questions asked later in the survey. This result may be due to employee dedication to the fire profession and the general comradery within the companies and fire stations. As Table 2 shows, 41.2 percent of respondents were somewhat or highly satisfied with SFD as a place to work; 16.5 percent were neutral; and 42.3 percent were either somewhat or highly dissatisfied. The city may want to ask this question next year to see if employee attitudes have improved after a new chief has been hired and has had a chance to address some specific personnel policies. In addition, the City of Savannah has recently begun a citywide classification and compensation study. The results and eventual implementation of this study has the potential to address SFD employees' concerns.

**Table 2. Survey Question: Please rate your overall satisfaction with SFD as a place to work.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Highly satisfied	10.0	26
Somewhat satisfied	31.2	81
Neither satisfied nor dissatisfied / neutral	16.5	43
Somewhat dissatisfied	27.7	72
Highly dissatisfied	14.6	38
<b>Total</b>	<b>100%</b>	<b>260</b>

Without question, the department has a serious morale problem that appears to stem from perceptions of multiple forms of favoritism and a lack communication. Poor communication from senior leadership can increase perceptions of unfairness because workplace rumors and gossip can fill the information void when policies change or controversial decisions are made. Table 3 shows responses to the question, *How would you rate the overall morale level within SFD?* Almost three-quarters (72.3 percent) of the respondents chose “poor,” and just 6.2 percent selected “good” or “excellent.” An additional 20.4 percent selected “OK/fair.” The survey asked respondents in an open-ended format what they would like to see improved at the SFD. Among the responses, 42 (16.3%) specifically listed morale as needing to be improved or discussed how a personnel issue was negatively impacting morale. As one respondent put it, “I would like to see the senior staff improve morale through allowing companies to have pride in their work instead of constantly shuffling crews around and handing down punitive discipline.” The problem of low morale was also brought up in the focus groups. As one participant stated, “In the house, morale is good. But go to the macro issues, then morale is problematic.”

**Table 3. Survey Question: How would you rate the overall morale level within the SFD?**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Excellent	1.9	5
Good	4.2	11
OK/fair	20.4	53
Poor	72.3	188
No opinion	1.2	3
<b>Total</b>	<b>100%</b>	<b>260</b>

Several of the battalion chiefs in their interviews discussed low morale as a challenge facing the department today. Reasons for it suggested by interviewees included salaries, vacancies, the failed fire fee, and simply the unknowns that exist with the department due to budget reductions. Interestingly, some battalion chiefs said that morale is mediocre (rather than poor)

and that it had been worse. Those in senior leadership who did not realize department morale is an issue may not be talking enough with line personnel. Likewise, two survey responses suggest that a small group of employees are spreading discord and may be to blame for morale problems in the department. While negative gossip is never productive for an organization, morale issues appear to be far more widespread than a handful of negative employees.

The overriding theme arising from the survey responses and focus group comments is a perceived lack of fairness, whether it be with the current pay scale, the promotion process, discipline, transfers, or overall accountability. This issue was most dramatically expressed in answer to the survey question, *Everybody is treated fairly in the SFD*. Disagreeing with this response indicates perceptions of favoritism and inequity in the department. Table 4 shows that nearly half the respondents strongly disagreed that everybody is treated fairly, and only 4 percent agreed with that statement. Responses to other survey questions and comments in the focus groups presented later in this report indicate where specific challenges exist. Some morale-related issues, like the promotions process and even a new pay scale, can be more easily addressed. Other issues like discipline and the attitudes of senior management will require significant trust building and organizational cultural reform. As one survey respondent wrote,

*I would most like to see management improved in the fire department. This is where the organizational culture derives. There is lack of fundamental fairness, core values, and equal opportunity within the organization.*

**Table 4. Survey Question: Everybody is treated fairly in the SFD.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	3.9	10
Slightly agree	9.6	25
Neither agree nor disagree / neutral	12.7	33
Slightly disagree	24.6	64
Strongly disagree	49.2	128
Total	100%	260

## **STATUS AS A LEARNING ORGANIZATION**

Four survey questions focused on the extent to which the SFD encourages high performance standards, open communication, new ideas, and learning from mistakes, all of which are critical for an organizational to maintain a “learning culture.” A learning culture is one in which employees continuously learn and innovation is fostered. Table 5 shows that in regard to performance expectations, perceptions were fairly positive. These responses also reflect the department’s strong operational performance (i.e., being rated ISO 1) and the professional dedication of employees discussed previously. In regard to the statement, *The SFD has a culture*

of expecting high standards of performance from all employees, 58.5 percent of respondents strongly or slightly agreed, while only 23.1 percent slightly or strongly disagreed.

**Table 5. Survey Question: The SFD has a culture of expecting high standards of performance from all employees.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	30.0	78
Slightly agree	28.5	74
Neither agree nor disagree / neutral	28.4	48
Slightly disagree	13.1	34
Strongly disagree	10.0	26
Total	100%	260

Unfortunately, responses to the other three questions portray a department that hinders innovation and communication, both of which are necessary for an organization to truly thrive. Again, the new chief will need to work on changing SFD’s culture to embrace open communication, respecting differing opinions, and helping employees learn from mistakes. Table 6 shows that only 22.3 percent of respondents strongly or slightly agreed that the SFD openly shares information and knowledge, while nearly two-thirds slightly or strongly disagreed. Similarly, only 18.8 percent of respondents strongly or slightly agreed that varying opinions are respected within the SFD, and 65.0 percent slightly or strongly disagreed (see Table 7).

**Table 6. Survey Question: Information and knowledge are shared openly within the SFD.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	6.9	18
Slightly agree	15.4	40
Neither agree nor disagree / neutral	11.5	30
Slightly disagree	35.4	92
Strongly disagree	30.8	80
Total	100%	260

**Table 7. Survey Question: Varying opinions are respected within the SFD.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	4.6	12
Slightly agree	14.2	37
Neither agree nor disagree / neutral	16.2	42
Slightly disagree	23.1	60
Strongly disagree	41.9	109
<b>Total</b>	<b>100%</b>	<b>260</b>

Employees being able to learn from minor mistakes is another critical component for a healthy organizational culture. Working in fear of making mistakes results in stagnation and employees being afraid to grow professionally. Because emergency response requires employees to perform with excellence and a mistake could result in severe injury or loss of life, employees train on their tasks regularly. Supervisors should supportively evaluate and correct any mistakes made either during training or on actual calls. Table 8 shows that when asked to evaluate how the SFD helps firefighters with coaching and counseling for minor mistakes, employees expressed dissatisfaction with the department. However, the responses for this statement were not as negative as those presented in Tables 6 and 7.

**Table 8. Survey Question: For minor mistakes, the SFD helps firefighters with coaching and counseling rather than punishment.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	8.5	22
Slightly agree	20.0	52
Neither agree nor disagree / neutral	20.8	54
Slightly disagree	23.4	61
Strongly disagree	27.3	71
<b>Total</b>	<b>100%</b>	<b>260</b>

Many survey respondents wrote about a lack communication from senior management down to line employees and about senior management being closed to new ideas. These weaknesses were also discussed during the focus groups. Below are examples from the focus groups and responses to the statement: *The thing I would most like improved about the Savannah Fire Department is:*

*Leadership needs to transition department into a learning organization.*

*A culture change from higher leadership that doesn't breed a sense of fear/insecurity for employees.*

*Morale, open communication, and teamwork across the organization. Consistent procedures and work task*

*I would like to see improvement in leadership, communication, teamwork, and discrimination. Senior management resists change, does not support a positive and progressive work environment.*

*Our leaders are not interested in the input or ideas for improvement from the lower ranks. Senior managers are not open to other ideas.*

*New senior staff who are open to new ideas and who would listen to an employee's opinions without fear of being punished.*

*Communication between the higher administration and the relay of information to firefighters on the floor.*

*Communication, the information [from headquarters] that is passed on to employees varies from shift to shift and battalion to battalion.*

*Communication from the top down is almost nonexistent.*

*Communication is lacking for the top to the bottom. Policies are applied when it fits the situation.*

*Communications is a big problem here.*

*Communication top-down is minimal.*

*No communication down on why something is important.*

*Annual meetings with chief often end up with chief responding, "I'll get back to you," but a direct answer is not given.*

## **INSTANCES OF DISCRIMINATION AND HOSTILE WORK ENVIRONMENT**

Discrimination in a workplace can be expressed in a variety of ways. One way is when senior management treats employees unfairly, such as through promotions or assignments. A second is through a hostile work environment. This type of work environment can be created or perpetuated by employees of similar rank, but it often is often allowed to continue because of the proverbial "blind eye" and implicit acceptance by management. Neither kind of discrimination is acceptable. However, a hostile work environment for firefighters is more challenging than in a typical workplace because they live one-third of the year at work surrounded by colleagues.

During the focus groups, disturbing comments suggested that the SFD could be a hostile work environment for women and African Americans. For example, one African American firefighter discussed being called "one of the good ones" as a so-called compliment by a fellow Caucasian firefighter. A few participants discussed that a "barracks" mentality was common at several stations. This was even viewed as acceptable and beneficial to teambuilding and comradery by a couple of participants. Other employees discussed the existence of cliques or the challenge of being different. One person stated, "If you stand up for someone or you are different, then you will have a problem."

To better understand the prevalence of any discrimination in the SFD workplace, the survey asked four questions on this theme regarding race, gender, sexual orientation, and religion. However, because so few women work in the department, particularly as firefighters, a question specifically asking whether the respondent had faced discrimination based on gender would, by definition, have been small. Consequently, when asking whether discrimination was an issue at the SFD, all four questions also included whether the respondent had witnessed any discriminatory acts. Therefore, employees who may not have personally experienced a problem could still verify that one exists.

The findings of the survey, shown in Tables 9–12, do not fully support the comments voiced during the focus groups. However, the survey results show that some level of problem exists, although it does not appear to be widespread. Problems with negative treatment were most common in regard to race, followed by gender. Regardless of frequency, any level of harassment or discrimination should be investigated further. The new fire chief may want to provide an opportunity for employees to speak privately with him/her to learn about any potential issues with discrimination or a hostile work environment and review them.

**Table 9. Survey Question: While working at the SFD, I have been treated negatively because of my race and/or have witnessed other SFD employees being treated negatively because of their race.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Frequently	5.0	13
Sometimes	11.9	31
Rarely	13.1	34
Never	55.0	143
No opinion	15.0	39
Total	100%	260

**Table 10. Survey Question: While working at the SFD, I have been treated negatively because of my gender and/or have witnessed other SFD employees being treated negatively because of their gender.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Frequently	3.5	9
Sometimes	13.1	34
Rarely	12.3	32
Never	57.7	150
No opinion	13.4	35
Total	100%	260



**Table 11. Survey Question: While working at the SFD, I have been treated negatively because of my sexual orientation and/or have witnessed other SFD employees being treated negatively because of their sexual orientation.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Frequently	1.2	3
Sometimes	5.8	15
Rarely	7.3	19
Never	71.1	185
No Opinion	14.6	38
<b>Total</b>	<b>100%</b>	<b>260</b>

**Table 12. Survey Question: While working at the SFD, I have been treated negatively because of my religion and/or have witnessed other SFD employees being treated negatively because of their religion.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Frequently	1.2	3
Sometimes	5.0	13
Rarely	5.0	13
Never	74.6	194
No opinion	14.2	37
<b>Total</b>	<b>100%</b>	<b>260</b>

### **TEAMWORK AND COMRADERY**

Teamwork and comradery in the SFD is another area where survey results do not fully match the vast majority of comments from the qualitative portion of the survey. Teamwork is a critically important aspect of workplace climate in firefighting because, literally, lives depend on each person in each team (i.e., company) working effectively with others internally and across teams to suppress fires or respond to other emergencies. Because firefighters live and work together so closely, strong bonds can develop. Slightly fewer survey respondents strongly or slightly agreed that there is a strong feeling of teamwork and cooperation in the department than those who strongly or slightly disagreed with this statement (see Table 13). The Institute research team finds these responses surprising because of the dozens of qualitative survey responses citing teamwork and colleagues as what is liked best about working at the SFD.

**Table 13. Survey Question: There is a strong feeling of teamwork and cooperation within the SFD.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	11.9	31
Slightly agree	27.3	71
Neither agree nor disagree / neutral	15.8	41
Slightly disagree	23.1	60
Strongly disagree	21.9	57
<b>Total</b>	<b>100%</b>	<b>260</b>

In contrast, several dozen respondents listed teamwork and their colleagues as a strength of the SFD.

*I enjoy the brotherhood and relationship I have developed with some of the guys I have worked with.*

*My crew.*

*My fellow employees and the fact that they get the job done professionally no matter what the circumstances. The citizens of Savannah come first.*

*My station morale is high within the station. The crew assigned here work extremely well and effective together.*

*The comradery between the firefighters.*

*The comradery of the floor. The ability to interact with the public and feel like I am an asset to the community.*

*The day to day work at the company level. Helping members of the community when in need.*

*The employees.*

*The family atmosphere. We are truly a brotherhood as we spend roughly 1/3 of our life with the guys in our station. I also like the work schedule because it allows me to work other jobs.*

*The great employees are the best asset to the department.*

*The people I directly work with.*

*The thing I used to like best about the Savannah Fire Department was the camaraderie.*

This last statement listed is interesting because it is presented in the past tense. A handful of other survey comments were in the same vein. If feelings of employee camaraderie are indeed declining, management at all levels needs to investigate why. This decline could be related to other personnel issues that have created a pall across the organization. It may be related to perceived line-employee conflict with senior management, efforts by senior management to quell the pride firefighters feel for their own companies or stations (which was mentioned as an issue in the focus groups), or simply that firefighters in the same station do not blend well? Depending on why comradery is declining, different actions can be taken to improve teamwork and feelings of cooperation within the SFD. Furthermore, management, particularly captains who serve as front-line supervisors, need to ensure that comradery does not devolve into the

formation cliques. All employees, regardless of gender, color, sexual orientation, and religion, should feel welcome in their stations and treated fairly.

## **OPTIONS**

**Management Training.** To help enforce a cultural shift in the organization, the department should consider having all supervisors take intensive management training, beyond the officer training they currently receive.

**Diversity Training.** Diversity training focuses on understanding what constitutes a hostile workplace in a firefighting environment and how to eliminate one. First, the city should further investigate what is actually occurring at the fire stations. Are issues limited to one or two stations or is the problem more widespread? The department may need to hire an outside consultant with specific knowledge and facilitation skills in this area. This training would require quality in-person training that encourages honest dialog among employees, such as whether firefighters will have to be so careful in what they say and do that comradery will suffer. The ultimate goal of such training is for all employees to appreciate the need for respectful interaction (but what that looks like will vary from person to person).

## **Compensation**

By far, the number one complaint from SFD employees was regarding compensation, and pay in particular. The interviews revealed that senior management perceives low pay to be one of the leading causes of low employee morale. Table 14 shows that less than 10 percent of respondents believe employees are paid fairly, while 87 percent do not. Repeatedly, respondents discussed pay in their open-ended comments. In all, 122 respondents mentioned pay as a thing that most needed improvement in the department (47.5% of all comments). Pay concerns appear to be concentrated in three general areas: low pay, not receiving compensation for additional training and certifications, and most notably, the lack of a fair and clear pay system. The City of Savannah has recently begun a citywide classification and compensation study. The results and eventual implementation of this study has the potential to address SFD employees' concerns.

**Table 14. Survey Question: Employees in the SFD are paid fairly for the work they perform.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	0.8	2
Slightly agree	8.8	23
Neither agree nor disagree / neutral	3.4	9
Slightly disagree	23.5	61
Strongly disagree	63.5	165
<b>Total</b>	<b>100%</b>	<b>260</b>

The fewest pay-related comments centered on raising the level of pay. Below are examples of such comments:

*Our pay is not where it should be.  
 Higher pay. As a master firefighter, I get paid \$15.90 an hour. I risk my life and spend time away from my family. I have to work a second job just to afford a small house and provide for my family. Sad.....  
 I would like to see better pay for firefighters in Savannah.  
 We need to be compensated with better pay.*

Another issue that was raised several times in the focus groups and in the survey concerned the lack of additional compensation for employees who have earned certifications and specializations, such as for hazardous materials, marine, technical rescue, and emergency medical technician (EMT).<sup>5</sup> These certifications are in addition to regular training and enhance the department’s overall capacity because these firefighters have developed more specialized skills and have gained more knowledge. The consultant conducting the classification and compensation study may want to look at comparable fire departments that provide EMS (but without transport) because SFD firefighters are currently training for their EMT certifications.

*Ability to receive adequate pay for certification lever/Experience!  
 Proper compensation for higher levels of training/certifications.  
 I would like to see a pay scale put in place and pay incentives for specialty certifications.  
 Paid for the all the training the firefighter has (hazmat, TRT, etc.).  
 Being paid fairly for training and certifications.  
 Provide monetary compensation for the higher education and levels of training.  
 I believe that our pay plan should be more clearly defined. I also believe that members should be compensated for obtaining extra training, degrees, EMT certifications, etc.  
 ...add specialty pay to promote individual growth in the organization.*

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<sup>5</sup> A separate report entitled, *Savannah Fire Department EMS Analysis*, discusses SFD firefighters earning EMT certification and the department’s plan to provide EMS.

*I would like firefighters to be paid more for extra certifications and job duties beyond basic firefighting.*

*The pay. Some of us are encouraged to get all these specialty certification but is not getting compensated, and at the same time a rookie makes the same as a well-seasoned firefighter, Vet.*

Finally, the vast majority of employees who commented about compensation expressed dissatisfaction with the perceived lack of fairness within the compensation system. Because previous promotions occurred soon after a previous compensation study, some subordinates earn more than their supervisors. Furthermore, employees with far less seniority earn more than a coworker with the same rank, simply because the former was promoted later to the position. Below are examples of comments on what most needs to be improved within the SFD.

*Fair, equitable pay for all employees.*

*A clearly defined and fair pay scale.*

*Pay scale needs to be redesigned.*

*Improve pay so no one a rank below you with less responsibility is being paid more than you are.*

*Pay is a joke, how you move through your range, subordinates making more than supervisors, time and grade is unethical.*

*Pay fairness and step plan.*

*Pay (supervisor should be paid more than subordinate).*

*A pay plan where there is division between ranks and you can move through your pay scale.*

*The pay disparity needs to be fixed. Subordinates should not make more money than their supervisors.*

*Morale is poor because of a lack of pay plan.*

*A pay scale that is understood and achievable.*

*A fair and progressive pay scale.*

*A defined pay plan. Pay should not be the luck of the draw as to which policy you're promoted under.*

*A consistent pay scale that is followed. Two separate captains on the same promotional list making a \$16,000 difference is absurd.*

*Clear pay structure.*

*Pay structure is not fair, not just more money, but fair across the board.*

*Equity of compensation, to include an outline to let employees see how to earn higher wages and what it will take to achieve what is outlined.*

*Fair pay and everyone treated equally.*

*The pay structure at SFD is a disgrace. There is no continuity in the pay structure and especially within the ranks. No way to move up within rank unless we get a cost of living [increase]. People with less time in rank and on job make more than me.*

*Get the pay structure fixed.*

*Equal out the pay between the ranks.*

*I would like there to be a real pay scale that you can actually progress through.*

*Overall morale and equal and fair pay plan.*

*THE PAY! I think is a slap in my face and to others that I fought to get where I am. Then for four years later the city promotes five new captains and received \$XX more than me. Absolutely ridiculous! [Dollar amount deleted to protect anonymity]*

*Our pay system is in desperate need of an overhaul. It is severely dysfunctional and directly effects morale on the department. The fire chief doesn't seem to care one bit. Extremely frustrating!*

*The thing I would like improved would be a pay scale that's even so when 15 people get promoted there's not 15 different pay scales.*

*The PAY!! I do not like having subordinates make more money than me. Please fix this!!!!!!*

## **OTHER COMPENSATION ISSUES**

During the focus groups, participants raised other compensation issues as well. These included comp time and vacation. In regard to comp time, complaints centered on firefighters having been denied requests to use it and firefighters who have accrued comp time being expected to expend it instead of their vacation days. Some participants complained about the lack of a defined process for how vacation dates are awarded. Firefighters request vacation annually, and historically, those with the most seniority have received the first opportunity to select their vacation days. This process was believed to be fair and was important for morale. At the time of data collection, the perception was that the fire chief or his assistants make the selection and that seniority is irrelevant.

Some focus group participants commented that the city's pension benefit is good as did several survey respondents when stating what they like best about working for the SFD.

## **OPTIONS**

**Classification and Compensation Study.** The City of Savannah is already taking the first important step to address the challenges related to compensation by conducting a classification and compensation study. In case that study's findings show that salaries for several positions need to be raised, city leadership may want to start planning now for how the government will pay for any additional personnel costs. Though employees are often willing to have salary changes phased in over a two- to three-year period, morale generally suffers if a pay study is simply not implemented. Furthermore, the city should explicitly explain to all employees the true purpose of the classification and compensation study (determining a competitive salary for each classification of employee) and that it does not guarantee a pay raise. Without clear communication, employees can think they will receive a raise and be upset if one is not deemed appropriate for their positions.

**Discuss the Cost of Employee Benefits.** The City of Savannah offers its employees a very generous benefits package as evidenced by these costs representing approximately 48 percent of salaries. Often, employees are unaware of how much health and pension benefits cost and thus dismiss them when considering their overall compensation. The city may want to emphasize to employees the total value of their compensation package, such as during open enrollment.

## Promotions

The perceived fairness of the SFD's promotion process is another serious personnel challenge. The survey results were very negative and reinforced by comments in the focus groups and open-ended portion of the survey. Complaints focused on the discretion afforded to the fire chief in making promotion appointments and a perceived abuse of power, such as punishing firefighters eligible for promotion by not doing so. Additionally, the fire chief at the time of data collection had instituted educational requirements for promotion that were perceived by many to be unnecessary and unfairly applied.

## BACKGROUND

The SFD has a fairly flat organizational structure with only six ranks, excluding recruits, listed below from highest to lowest rank:

- Fire chief
- Assistant chief
- Battalion chief – oversees companies
- Captain – supervises assigned company
- Master firefighter – engineer
- Advanced firefighter

In 2010, the department's current promotional guidelines were established. The SFD's educational matrix was revised in 2014. Under the promotional guideline framework, professional development is a "life-long process of education, training, self-development, and experience."<sup>6</sup> The guidelines specify the minimum training courses, experience, and self-development required as well as "suggested" formal higher education courses for promotion to the ranks of master firefighter, captain, battalion chief, and assistant chief. While specific courses are suggested, there are also minimum numbers of higher education credits a firefighter must achieve for promotion. These are outlined on pages 28 and 29 of the guidebook. By 2019, all master firefighter candidates must have an associate's degree or 60 semester hours of college credit in "a major in an approved bachelor's degree program in a qualifying field of study."<sup>7</sup> For captains, battalion chiefs, and assistant chiefs, by 2019, 100 semester hours of college credit is required for promotion.

The SFD's promotional process is not unusual, but it does grant the fire chief significant latitude in making promotional appointments. The department follows a standard process of formal testing and assessment.<sup>8</sup> Eligible employees are notified of an upcoming promotional exam and given study materials. However, fire departments vary on eligibility for promotion (i.e.,

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<sup>6</sup> *Savannah Fire and Emergency Services Career Development Plan*, 2014, p. 2

<sup>7</sup> *Ibid*, p. 28.

<sup>8</sup> The Carl Vinson Institute of Government performs the testing and assessment for captains. The SFD performs its own assessment of aerial apparatus for the rank of master firefighter.

training, years of service) and the selection process based on the test results. At the SFD, the promotion’s test is pass-fail, i.e., two-banded. Therefore, all firefighters with a passing score are equally eligible for promotion. In other words, a person who scores 71 on a test has the same eligibility for promotion as someone who scores 98. The benefit of this flexibility is that employees who are not very good test takers are not unduly punished. However, one could also argue that a person who barely passes an exam may simply not have prepared well enough. Practical assessments are included for the ranks of master firefighter and captain. Battalion chiefs used to also have an assessment as part of the promotion process but this was discontinued relatively recently. The fire chief has the sole discretion for selecting employees from the promotions list. Furthermore, the department does not have scheduled promotional testing, e.g., biennially, or a requirement that all candidates on the promotions list be promoted before a new round of testing occurs.

The City of Savannah has a tuition reimbursement program that many SFD employees have utilized to pay for their higher education and thus be eligible for promotion. Online programs that allow firefighters to complete coursework when not performing their regular work duties is a popular option for those who joined the department without a bachelor’s degree.

## **SURVEY RESULTS AND EMPLOYEE COMMENTS**

The survey results and comments from employees demonstrate widespread perceptions of favoritism in promotions as well as a dislike for the educational requirements for promotion to master firefighter and even somewhat for captain. Over half of the survey respondents strongly disagreed that the promotions process is fair to everyone, and less than 7 percent strongly agreed that the process is fair.

**Table 15. Survey Question: The promotions process within the SFD is fair to everyone.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	6.9	18
Slightly agree	11.2	29
Neither agree nor disagree / neutral	13.5	35
Slightly disagree	16.5	43
Strongly disagree	51.9	135
Total	100%	260

In the focus groups and interviews, many employees spoke about their dissatisfaction with the promotions process, if not for themselves than for their coworkers. Likewise, 45 respondents specifically mentioned promotions as an issue that needed improvement in the department within the open-ended portion of the survey. The perceived problems with promotions fall into two areas: the level of discretion inherent in the promotions process that can lead to favoritism or punishment of employees, and the higher education requirement for promotion. Concerns about the educational requirement basically stem from the belief that an associate’s degree is



not truly needed to drive an apparatus. Rather, experience and skills are what is vital to performance. Similar comments were made about promotion to captain; however, there were also those in the focus groups who said that the position does require management, writing, and analytical skills that make higher education valuable.

One additional issue arose during the focus groups and in a handful of survey responses: the educational attainment and promotion of the assistant chief of operations. The current assistant chief was promoted relatively recently and definitely since the higher education course credits were required for the position. However, there is a widespread belief in the department that the person holding this position lacks an associate's degree. This perception is causing significant resentment among line employees because they feel he is not being held to the same standard as an employee who wants to be promoted to a master firefighter. The fire chief should communicate to all employees that his assistant chief has met all educational requirements for promotion to dispel any misunderstandings. Additionally, to show support and leadership for the department's higher education agenda, the assistant chief may want to make additional progress toward a bachelor's degree (if he is not currently enrolled in college). Please note that these comments in no way assess the assistant chief's performance by Institute of Government faculty but simply reflect perceptions of SFD employees.

Finally, several battalion chiefs recommended more rigorous testing procedures. Some of the department leaders wanted tougher assessments for captains and to reinstate promotional assessments for battalion chiefs. However, this was the subject of only one or two comments in the survey and was not brought up in the focus groups.

Examples of comments on improving fairness in the promotions process are listed below:

*A clear, fair, and attainable procedure for advancement.*

*Make the promotional process make sense.*

*Create a clear/predicable career path for workers.*

*Morale is poor because of a lack of ...promotional roadmap.*

*Equal promotional opportunities for all (not based on favoritism).*

*Unbiased hiring and promotion process.*

*Fairness in promotional/rank system and corresponding compensation.*

*Promotion process shouldn't be favoritism.*

*There needs to be a rule and stuck to and not that it can be bent to get what they [leadership] want.*

*The promotional process, go from single band test to a ranked testing system.*

*The promotion process needs to be evaluated. There's no ranking system, so it's a guessing game.*

*Maintain a standard of promotion. The assistant chief has less schooling and was promoted to assistant chief than a master trying to promote to a captain, and has been riding in charge for 10+ years. No consistency in leadership and promotions.*

*They [department leadership] have no interest in working toward giving all employees...a clear path to promotion.*

*I would like to see the promotional standards and process changed. There are rules that are bent for certain individuals. It should be clear and consistent across the board for everyone from firefighters to admin chiefs.*

*Improve the promotion process.*

*More clear promotion process.*

*The fire chief does not promote to qualifications and expertise ... It seems to be on a random whim. There is not a fair promotional process for battalion chiefs and above.*

*Promotions are all handpicked .... If they do not like who is on the list, they will just start the process over to get a new list.*

*There needs to be a rule and it is stuck to [for promotions], and not that it can be bent to get what they want.*

*[Promotion] not merit based. Favorites were picked for pay increases and promotions.*

*Don't be a squeaky wheel... so you don't mess up your promotion chances.*

The comments below from the focus groups and survey responses to the question, *The thing I would most like improved about the Savannah Fire Department is...*, center on the higher education requirement for promotion:

*Different paths for promotional opportunities.*

*A defined path to promotion with or without education.*

*Promotions (no need for a college education to be a mid-level supervisor).*

*I feel our promotional process is excluding some of our best-qualified leaders based on lack of college degrees. We have members who have vast experience leading others in the most austere environments.*

*Being able to get promotion with time of service instead of COLLEGE to drive a fire truck.*

*I would like less college credits required for promotion.*

*No college requirement for promotion.*

*I do not like the fact that I have to have a college education to do a blue color job, but THE CHEIF says I have to spend the money I am using to send my daughter to college with and get a degree that the little raise isn't worth the time.*

*I feel that Savannah Fire needs....to promote advanced firefighter to master firefighter without college.*

*The ability to be promoted without a college degree. (Shouldn't be needed for certain positions.)*

*What about the person without an educational aptitude but is an excellent firefighter? This is not a college job.*

*We need more than one route.*

*In higher levels it [college] is a benefit but at other levels, college doesn't apply to firefighting. It is about experience and training.*

*A dual track should exist.*

According to the SFD’s own development plan, no nationally recognized standard for career development currently exists. Therefore, the Institute of Government research team reviewed the promotional requirements of two comparable departments: the Charleston Fire Department (CFD) and the Columbus Fire and Emergency Medical Services Department (CFEMSD).<sup>9</sup> Neither department mandates higher education for the comparable ranks of master firefighter and captain. The CFEMSD equates years of higher education to years of service. Therefore, a firefighter without any higher education can be promoted to the equivalent of a master firefighter or captain, but it will simply take more time. For CFD, promotion requirements include a minimum number of training hours at all ranks. Higher education course credits can be used toward these training hours, but this is an option, not a mandate.

## OPTIONS

**Amend Promotions Process.** The department should, at a minimum, review its promotions process to ensure comparability to other ISO 1 departments. Based on common practice, the department could implement the following general reforms as well. First, the SFD could include an additional “banding” with its promotion test. Under this model, employees who passed the exam would be further ranked into two groups based on their scores. Those with the top scores (the first band) would be the first selected for promotion. Only after all those in the first group were promoted would the second band be considered. Some departments only promote from the first band. The department may want to also review how challenging its assessments are for the various ranks by comparing them to other ISO 1 departments, including reinstating assessments for the rank of battalion chief.

The current educational requirements should be reconsidered based on what is required by comparable departments and the strong disapproval of education requirements among SFD employees. A dual career track with service credit for higher education may be a good option, particularly for the rank of master firefighter. Furthermore, the department should review whether an associate’s degree would ensure sufficient writing and analytical skills for the rank of captain rather than requiring a bachelor’s degree.

## Discipline

Appropriate and consistent discipline policies and mechanisms are important for all work organizations. For decentralized organizations like fire departments, ensuring equitable treatment in discipline is a challenge because supervisors often work independently and thus can approach this task slightly differently. At the SFD, each company captain serves as a first-line supervisor whose duties include executing disciplinary actions. According to the department’s policy, for any disciplinary action beyond oral counseling (i.e., written reprimand, suspension, demotion, or termination), the supervising battalion chief and assistant chief must be notified. These higher levels of authority will ultimately approve (or not) the disciplinary

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<sup>9</sup> These same comparable departments were used for *Savannah Fire Department ISO and Efficiency Analysis Report* and the *Savannah Fire Department Operational Review*.

action taken by the company commander. Note that even with oral counseling, a written record of the session is created. These discipline memos are not sent to the Savannah Human Resources Department but are kept internally in the department. When necessary, the chief fire inspector, who is also a licensed police officer, can conduct an internal investigation of an incident. In any decentralized discipline process, there is no way to track offenses that are simply ignored or oral reprimands from supervisors that are not written down and described in any corresponding memos (i.e., the matter is kept within the company).

To promote consistency in disciplinary actions across the department, the SFD has created a “discipline matrix” to help guide supervisors. This matrix provides a range of disciplinary actions based on the severity and frequency of an offense. For some of the major infractions, the first offense is “up to dismissal,” which allows a tremendous amount of discretion to management on how to proceed with an employee’s disciplinary actions.

The survey results and comments from the focus groups were similar to other responses, indicating widespread perceptions of inequity in the discharge of discipline. Seventy-two percent of respondents strongly or slightly disagreed with the survey statement, *Disciplinary matters within the SFD are applied uniformly and consistently*. In contrast, only 12.3 percent strongly or somewhat agreed with that statement. Many firefighters appear to perceive that “favorites” of senior management are likely to receive far less severe discipline for an infraction than those who are not favorites or considered trouble makers, who are likely to receive unduly harsh discipline for minor violations, such as using profane language. Beyond concerns with fairness in executing discipline, participants felt some of the rules are too extreme, such as the specific dress requirements while riding in a truck. Human resources overturned a recent disciplinary action, lending legitimacy to the perceptions of unfairness. Although the quantitative survey responses reflect serious challenges with discipline, only a handful of respondents chose to write about it in the open-ended portion of the survey as a thing they would most like to see improved. Other issues, such as compensation, promotions, and overall management, were deemed more pressing.

**Table 16. Survey Question: Disciplinary matters within the SFD are applied uniformly and consistently.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	4.2	11
Slightly agree	8.1	21
Neither agree nor disagree / neutral	15.8	41
Slightly disagree	23.1	60
Strongly disagree	48.8	127
Total	100%	260

Examples of comments from focus groups about discipline include the following:

*Discipline is inconsistent in application ... depends on who you are ... if you are one of the chosen ones, then a slap on the wrist. If not, [then you] might be sent home [for the same infraction].*

*The matrix is vague. What isn't covered in the matrix is in the chief's discretion, code of conduct, ethics, etc.*

*Historically, if there is a disciplinary issue, there is very little investigation...bank on young firefighters being too intimidated to appeal.*

*Disciplinary system is off.*

*We've heard different things about discipline as well. There is a matrix, but it isn't followed.*

*In the military, if you make a mistake, you get retrained, but the stuff we deal with tends to not be discipline issues. They are training issues [that are treated with disciplinary action].*

*There is paper on how things are supposed to be and then there are how things are.*

*Two firefighters get in trouble for the same thing, but it gets handled differently.*

*[There are] different sets of personnel records, HR, fire department ... chief keeps personnel files separate from HR.*

Interviews with battalion chiefs and assistant chiefs revealed a different perspective. Many of the interviewees said that the fairness in assessing discipline was much better than in the past and that the discipline matrix was used consistently. Furthermore, only rarely do disciplinary actions reach the level of the fire chief for review. However, some did say there are issues with consistency across the department, mostly because of differing interpretations on how to use the discipline matrix and the discipline policy. A couple of battalion chiefs commented that captains could benefit from additional training in soft skills, like disciplining employees.

## **OPTIONS**

**Training for Supervisors.** When discipline is inconsistent, employee morale and the department's culture will suffer. The SFD may want to create a committee to review discipline protocols that includes representation of captains and nonsupervisory personnel to reduce ambiguities in the policy and ensure that disciplinary actions are appropriate. The department could also invest in additional supervisory training focused on managing employee discipline. As first-line supervisors, captains would be the most likely candidates for such training, but battalion chiefs may benefit as well. Training should include simulations of common discipline violations and group discussions of how such incidents should be handled so that supervisors can be on the proverbial same page. The Georgia Public Safety Training Center offers this type of officer training course; however, the SFD may benefit more from an instructor coming to Savannah and working with SFD supervisors as a group.

## Personnel Transfers

Personnel transfers between stations are a necessary aspect of fire department operations. Firefighters are transferred for a variety of reasons such to meet staffing demands caused by vacancies, to give new employees more experience at busier stations, and to fulfill employee requests. Transfers can be either management- or employee-initiated. An employee request to transfer to a new station comes up through the chain of command, with final approval required from the assistant chief of operations. The request is valid for one year. If it cannot be filled within a year, the transfer request expires.

Employees request transfers for a variety of reasons such as wanting to work closer to their home, have a different level of work activity (the vast majority want to work at a busy station), or work in a company with a specialty like hazmat or technical rescue. Additionally, some employees simply have incompatible personalities, which can push a person to transfer stations. Compatibility among firefighters is much more important than in other work environments because the harmony of the company unit is critical to effective firefighting and because these employees spend one-third of their year living with colleagues.

If a company does work well together, the transfer of a member can be initially disruptive to its overall effectiveness, such as the speed at which members work. Master firefighters also need to learn all of the street names and traffic patterns within their service district. Though the apparatuses all have digital map capabilities on their mobile data terminals, best practice is for engineers to be able to drive the fastest route without assistance. For these reasons, department-initiated transfers should occur only when necessary.

When an employee requests a transfer to a particular station, the first considerations are whether there is a vacancy at the station and whether there is a need to even out manpower among shifts. Other considerations include the qualifications and skills of the employee, the effectiveness of the current companies (should members be separated), whether the transfer will give additional experience to a new employee, and so forth. The current system does not mandate that the assistant chief of operations explain to an employee why a request for transfer is denied. This lack of communication may cause some employees to perceive transfers as being unfairly executed or denied.

Most firefighters in the SFD are not satisfied with the current process for transfers. Over 61 percent slightly or strongly disagreed with the statement, *I believe the SFD offers employees reasonable opportunities to transfer between stations* (see Table 17). In contrast, only 15 percent slightly or strongly agreed with it.

**Table 17. Survey Question: I believe the SFD offers employees reasonable opportunities to transfer between stations.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	3.5	9
Slightly agree	11.2	29
Neither agree nor disagree / neutral	18.8	49
Slightly disagree	18.8	49
Strongly disagree	42.3	110
Don't know	5.4	14
<b>Total</b>	<b>100%</b>	<b>260</b>

While transfer policies and practices were not brought up in the open-ended portion of the survey, several participants discussed them during the focus groups. These comments raised serious issues concerning senior management initiating transfers as a form of employee punishment or only approving transfers for favored employees. Other complaints were about the short time frame employees may be given when assigned to a new shift, which can be very disruptive to their personal lives such as by affecting child care and outside employment.

The various fire districts experience vastly different call volumes, with those in Battalion 1 responding to 60 percent of all incident calls and Battalion 3 receiving just 5 percent.<sup>10</sup> New employees stationed in Battalion 3 will not gain the needed experience with calls to improve as firefighters, and experienced firefighters could lose critical skills over time while being assigned to a Battalion 3 station. Currently, the department does not have a policy for rotating companies among the stations to ensure that all employees retain their skills by regularly responding to major incidents, such as structure fires.

## **OPTIONS**

**Explanation for Transfers.** The assistant chief of operations must have the authority to oversee personnel transfers among stations because of the myriad of factors to consider in managing personnel coverage. That said, the department could provide a clear explanation when an employee's transfer cannot be granted, particularly if the employee has waited a year for the transfer to occur, and when the department decides to unilaterally move an employee. The explanation could be as simple as a check list, but it should be clear, transparent, and verifiable (i.e., employees can know where manpower is short). Offering better explanations for transfers could help reduce perceptions of unfairness in the process and ensure that transfers are not used as a form of unofficial employee punishment or retaliation.

**Company Rotations.** To ensure new firefighters gain sufficient incident experience and veteran firefighters do not lose their skills, the department may want to begin rotating companies

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<sup>10</sup> 2015 call volume from the Savannah Fire Department's 2015 Standard of Cover.

between the busiest and slower fire districts. Because companies train together, the rotations would be for the entire company, not individual employees. Under such a rotation scheme, the companies would continue using the same type of apparatus; for example, an engine company from Station 5 could move to an engine company in Station 11, and hazmat companies could exchange stations. The rotations should not be indefinite but sufficiently long for firefighters to gain experience, such a one year. Because the rotations would be planned, master firefighters could be given sufficient time to study and learn the roads and traffic patterns of their new station as well.

## Recruitment

During the focus groups, participants discussed SFD recruitment practices. The most time was spent discussing the 18-year age limit for joining the department. Opinions were mixed about the success of this policy. Some felt that if an 18-year-old has the drive, he or she can be a good firefighter, but others felt that captains and the company have to spend a considerable amount of effort teaching some of these new recruits soft skills, like showing up for work on time. Examples of comments about the age of recruits include the following:

*If the passion is there, age is just a number...If an 18-year-old is mature enough, have to take initiative, speak and act like an adult ... little bit of life experience was helpful.*

*18-year-olds are not mature enough; sounds good, but it is politics [having the chief allow recruitment at this age].*

*He [the trainer for the recruitment academy] teaches them to be firefighters, and on the floor they are teaching them to be men. They are being their parents [at the station].*

During his interview, Chief Middleton acknowledged that the department has faced challenges hiring women. Hiring female firefighters is a longstanding challenge not just in Savannah but nationally. One interviewee shared an innovative idea of trying to recruit female athletes. More specifically, he suggested that the department's recruitment team build relationships with the coaches of women's athletic teams at nearby colleges. Female athletes might make particularly good firefighter candidates because they already have the physical ability and are comfortable working as part of a team. Another idea suggested during a focus group was for the recruiters to visit CrossFit gyms. The key takeaway from these suggestions is that the SFD must move beyond traditional recruitment channels and think creatively of ways to hire additional women.

## OPTIONS

**Review Current Recruitment Program.** The SFD may want to consult with other fire departments that have been successful in recruiting women and minorities to learn their strategies. Because recruitment is more than about an ISO rating, the department should expand its pool of potential comparative departments beyond those with an ISO 1 rating. Additionally,



the department may want to further investigate the benefits and limitations to working with coaches of women’s sports teams to learn whether female athletes would be a potential applicant pool.

## Retention

With morale being so poor and the other personnel challenges facing the department, the Institute research team reviewed the SFD’s employee turnover rate for context. Turnover is very costly to a fire department because of the length of time new firefighters must train to become certified. Between 2013 and 2017, the SFD’s average turnover rate was 6.3 percent. Excluding retirements and deaths drops the average rate to 5.0 percent (see Table 18). The total turnover rate in 2017 was 8.1 percent, the department’s highest across the five years examined; however, when retirements and deaths are considered, the rate drops to 5.5 percent, which is lower than in some other years and 0.5 percent above the average. Of course, the table does not show whether SFD employees chose to retire earlier because of the work environment in 2017. Overall, turnover does not appear to be a serious concern for the department. This may be because of the city’s strong pension plan and limited opportunities to transfer to another nearby ISO 1 department that does not also offer EMS. The city manager should continue to monitor the department’s turnover rate for any significant changes after the new chief is hired.

**Table 18. Turnover Rate Savannah Fire Department Firefighters, 2013–2017\***

	<b>2017</b>	<b>2016</b>	<b>2015</b>	<b>2014</b>	<b>2013</b>	<b>Average</b>
Turnover rate, all	8.1%	7.0%	4.3%	6.7%	5.5%	6.3%
Turnover rate, excluding retirements and deaths	5.50%	6.1%	3.5%	5.8%	4.1%	5.0%

Source: Savannah Fire Department.

\*Excludes six administrative positions but includes the public information officer and unfilled positions.

## SFD Management

Several questions in the employee climate survey asked about the SFD management team. Additionally, the employee focus group participants offered strong opinions about this topic. Overall, SFD employees appear to be highly dissatisfied with senior management. For example, in response to the survey statement, *Overall, the SFD is well managed*, only 15.5 percent of respondents either strongly or slightly agreed, whereas 75.6 percent of respondents either

strongly or slightly disagreed (Table 19). In contrast, SFD employees appear to be very satisfied with their immediate supervisors, who would be either captains or battalion chiefs.<sup>11</sup>

The survey responses regarding upper management—the fire chief and two assistant chiefs—are consistent and reveal a serious lack of support for the current fire chief.<sup>12</sup> Three-fourths of the respondents indicated that they slightly or strongly disagreed that the SFD was well managed overall. Only 15 percent of respondents either strongly or slightly agreed that *SFD senior managers demonstrate effective leadership skills* (Table 20). Likewise, just 10 percent of respondents either strongly or slightly agreed with the statement, *SFD senior managers are open to new ideas and suggestions* (Table 21) or with the statement, *SFD senior managers promote good relations among staff* (Table 22). Finally, 13 percent of respondents strongly or slightly agreed that *SFD senior managers are concerned about the needs of the department’s employees* (Table 23). With these results, it is not surprising that just 17 percent of the survey respondents highly respect the fire chief (Table 24).

**Table 19. Survey Question: Overall, the SFD is well managed.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	5.8	15
Slightly agree	9.7	25
Neither agree nor disagree / neutral	8.9	23
Slightly disagree	34.9	90
Strongly disagree	40.7	105
Total	100%	258

**Table 20. Survey Question: SFD senior managers (i.e., fire chief and assistant chiefs) demonstrate effective leadership skills.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	5.4	14
Slightly agree	9.7	25
Neither agree nor disagree / neutral	10.1	26
Slightly disagree	28.7	74
Strongly disagree	46.1	119
Total	100%	258

<sup>11</sup> Every SFD employee was given the opportunity to complete this survey. Therefore, the supervisors for the battalion chiefs and few administrative staff would be a deputy chief. However, this amounts to relatively few employees compared to the entire department and thus would not skew the survey results.

<sup>12</sup> This fire chief has since announced his retirement since the survey was issued.

**Table 21. Survey Question: SFD senior managers (i.e., fire chief and assistant chiefs) are open to new ideas and suggestions.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	2.7	7
Slightly agree	7.0	18
Neither agree nor disagree / neutral	16.3	42
Slightly disagree	20.9	54
Strongly disagree	53.1	137
Total	100%	258

**Table 22. Survey Question: SFD senior managers (i.e., fire chief and assistant chiefs) promote good relations among staff.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	3.9	10
Slightly agree	6.6	17
Neither agree nor disagree / neutral	13.6	35
Slightly disagree	20.9	54
Strongly disagree	55.0	142
Total	100%	258

**Table 23. Survey Question: SFD senior managers (i.e., fire chief and assistant chiefs) are concerned about the needs of the department's employees.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	4.7	12
Slightly agree	8.5	22
Neither agree nor disagree / neutral	15.5	40
Slightly disagree	20.5	53
Strongly disagree	50.8	131
Total	100%	258

**Table 24. Survey Question: Overall, I have high respect for (check all that apply):**

<b>Answer</b>	<b>Percent*</b>	<b>Count</b>
The fire chief	16.5	43
The assistant fire chiefs	25.8	67
The battalion chiefs	65.8	171
The captains	88.8	231

\* Percentages are based on 260 responses.

The closed-ended survey responses were supported by comments in the open-ended section of the survey and from focus group participants. Of all the open-ended survey responses on what most needs improving in the department (257 total), 42 percent specifically discussed upper management. During the focus groups, the facilitator asked each participant to describe what he or she felt about the fire chief.<sup>13</sup> Below are some of the responses to that specific question as well as other comments made during the sessions and relevant qualitative survey responses:

*Authoritarian.*

*Dictatorship.*

*We are not assets. We are like tissue that can be replaced.*

*Inept.*

*We are micro-managed into the ground.*

*Autocratic, no consensus, no culpability.*

*Culture is contaminated...needs to be cleaned at the executive level.*

*Do as I say, not as I do.*

*Some are more concerned with what we say over the radio versus mitigating problems in certain areas [fire related].*

Below are examples of responses to the survey question, *The thing I would most like improved about the Savannah Fire Department is:* (specifically on leadership)

*Effective leadership and improving morale.*

*Morale stemming from the actions and habits of upper management.*

*Leadership at the fire chief level is poor. Employees do not feel valued and are consistently attempting to make a "moving" target.*

*Senior management resists change, does not support a positive and progressive work environment.*

*Upper-level management does not communicate effectively and does not take accountability for shortfalls. Blame is transferred down the chain of command, and morale is not a consideration during decision-making.*

*I would like to have better leadership from the fire chief and assistant chiefs.*

*The leadership first and foremost.*

*Less politics and micro-management.*

*Top administrators are in need of complete overhaul.*

*MORALE!! The administration could show more respect to the rank and file.*

*Senior staff. New senior staff who are open to new ideas and who would listen to an employee's opinions without fear of being punished. They have created the low morale within the department, almost like trying to conquer by division.*

*The chief to care for the people. The firefighters that do the job every day are treated like we are disposable.*

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<sup>13</sup> While a couple of participants declined to answer this question, no compliments were excluded in this report.

*I would like to see improvement in leadership, communication, teamwork, and discrimination. Leadership — there is no concern about the firefighters from the fire chief down to most battalion chiefs.*

In each of the focus groups, at least one participant discussed the fire chief installing *Art of War* quotations in every fire station.<sup>14</sup> While these quotations may have been intended to be inspirational, the effect appears to be quite different. Instead, some participants interpreted the quotations as threats against the local firefighters union. As one firefighter put it, the “Art of War board seems to target other firefighters.” Another participant asked who the department was at war with. The new chief may want to take those quotes down and then work with a group of firefighters to decide what posters and décor they would like at the stations.

Together, these results demonstrate a critical challenge with senior leadership. When the new chief begins, he or she will have to invest significant time in building trust with employees so that they believe SFD’s leaders will insist on fairness in all personnel actions, create open communication channels, support innovation, and value employees.

## **SUPERVISORS**

In contrast to perceptions about senior management, SFD employees appear to be pleased with their direct supervisors, particularly captains. For example, Table 24 shows that 89 percent of survey respondents highly respect the captains in the department. The survey specifically asked three questions about direct supervisors, and overwhelmingly, the responses were very positive. Table 25 shows that over two-thirds of the respondents strongly agreed that supervisors treat all of their employees with respect (an additional 17 percent slightly agreed). Nearly three-fourths of the respondents strongly or slightly agreed that their supervisors value their talents and the contributions they make (Table 26), and 87 percent strongly or slightly agreed that their supervisor is always willing to help with problem-solving (Table 27). All of these traits are critically important to maintaining a qualified workforce and in developing future leaders. The new fire chief has an excellent opportunity to build on these positive findings to improve departmental morale.

**Table 25. Survey Question: My supervisor treats all of his/her employees with respect.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	67.4	174
Slightly agree	16.7	43
Neither agree nor disagree / neutral	8.1	21
Slightly disagree	4.3	11
Strongly disagree	3.5	9
<b>Total</b>	<b>100%</b>	<b>258</b>

<sup>14</sup> *The Art of War* is a Chinese military treatise attributed to Sun Tzu from the late sixth century BC.

**Table 26. Survey Question: My supervisor values my talents and the contributions I make.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	59.7	154
Slightly agree	24.4	63
Neither agree nor disagree / neutral	7.7	20
Slightly disagree	3.5	9
Strongly disagree	4.7	12
Total	100%	258

**Table 27. Survey Question: My supervisor is always willing to help me with problem solving.**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Strongly agree	62.6	161
Slightly agree	24.5	63
Neither agree nor disagree / neutral	4.7	12
Slightly disagree	3.9	10
Strongly disagree	4.3	11
Total	100%	258

The following comments from the survey<sup>15</sup> and the focus groups reinforce the above SFD employee opinions of their supervisors.

*My supervisor treats me with respect and values what I think.*

*Masters and captains drive our success. In the house, the morale is good.*

*Great department, great captains / masters. [They] know how to do their job well.*

*The first-line supervisors are the backbone of the fire department and are highly dependable, i.e., the captains and the master firefighters. Inner company morale is good, but the morale of the department is poor.*

*My supervisor and my battalion chief treat me with respect and value my opinion.*

*At the company level, the department is a pleasure to work for. My supervisor is a captain, and the captains as a whole treat the firefighters with respect and consider their opinion and input.*

*Having a supervisor that looks to assist all members in the company with career advancement.*

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<sup>15</sup> The survey responses listed are from the survey question, “What I like best about the Savannah Fire Department is...” No negative comments about captains and master firefighters have been excluded from this report.

## Other Personnel Issues<sup>16</sup>

### COMPLAINTS AND GRIEVANCES

The City of Savannah uses a civil service system for its employees. Under this system, employees have the right to file grievances against their supervisors and managers for practices that violate city and departmental policies. Unfortunately, as Table 28 shows, the majority of respondents to the climate survey (54.6 percent) perceived that the SFD unfairly resolves complaints and grievances, continuing a pattern of personnel challenges facing the department.

**Table 28. Survey Question: Complaints and grievances are resolved fairly in the SFD.**

Answer	Percent	Count
Strongly agree	3.5	9
Slightly agree	8.8	23
Neither agree nor disagree / neutral	23.1	60
Slightly disagree	27.7	72
Strongly disagree	36.9	96
Total	100%	260

### EMPLOYEE RECOGNITION

To recognize employees, the department supplies anniversary pins for milestones in years of service but relies on outside organizations to give awards for outstanding employee service like “firefighter of the year.” The department itself does not provide similar awards to its own employees. One focus group participant recalled the department giving recognition to the most physically fit company relatively recently (within the previous two years).

During the focus groups, participants were asked their thoughts about employee recognition. Overall, the view was that senior management did not put much effort into it. Even the anniversary pins were, at times, given to firefighters in an offhand, indifferent manner rather than with the appreciation the pins are supposed to convey. Supervisors are not encouraged to write letters or emails to employees that recognize outstanding performance either. These types of recognition are important not just to uphold employee morale, but also to demonstrate a sustained level of superior work for promotions. One employee voiced his perception of leadership’s attitude toward employees as, “Employee recognition is a problem ... you did your job, now take your ass home.” Another stated, “We don’t get recognized. We have a can-do attitude, but what if we were encouraged? We got accreditation and ISO 1 by getting kicked in the teeth. Imagine what we could do if [we were] recognized.”

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<sup>16</sup> Issues related to firefighter safety will be addressed in the fourth report on general fire operations entitled, *Savannah Fire Department Operational Review* (forthcoming winter 2019).

## **EMPLOYEE WELLNESS**

The focus group participants and the interviewees concurred that the SFD does a good job of supporting employees' physical wellness and emotional stress through its critical incident stress management (CISM) teams. The department was seen as being particularly progressive by requiring all employees to exercise at least one hour while on shift.

One concern raised was that many firefighters may be reluctant to seek mental health support from the city's employee assistance program because the profession has a "work through it" mentality. The work schedules associated with the firefighting profession can put a tremendous amount of stress on families. Leadership, including all supervisors, may want to emphasize the value of therapy to address stress in an effort to reduce employee hesitation to utilize this resource. During their interviews, some battalion chiefs were asked whether supervisors receive training to identify employees who may have substance abuse problems. The responses were no. However, they felt that because captains work so closely with their employees, they can generally gauge any personality and work habit changes, including those that may be attributable to substance abuse.

## **SUPPORT FROM CITY LEADERSHIP**

The funding challenges facing the department, including the termination of the proposed fire fee, have created a sense of employment insecurity among many SFD employees. This issue is important if it results in the loss of experienced firefighters, which would force the department to invest additional resources in hiring and training new employees. The survey asked, *Based on the City of Savannah's budget, do you think your future is secure with the Savannah Fire Department?* In response, 42.3 percent indicated "not secure," and 37.7 percent indicated either "very secure" or "secure" (see Table 29). Because local governments facing fiscal stress often must reduce their budgets, SFD employees would benefit from knowing that city leadership recognizes the importance of the services they provide. All employees who are willing to risk their lives to serve citizens should feel valued by elected officials, but some within the SFD do not. As one survey respondent stated, "The city as a whole does not recognize public safety (fire/police) in an appropriate manner." Because the city has limited resources, leadership must make difficult choices regarding levels of service. Explicit verbal support from city leadership regarding the value of the SFD and its employees would help to sustain morale during the uncertainty surrounding hiring a new chief.



**Table 29. Survey Question: Based on the City of Savannah’s budget, do you think your future is secure with the Savannah Fire Department?**

<b>Answer</b>	<b>Percent</b>	<b>Count</b>
Very secure	6.5	17
Secure	31.2	81
Not secure	42.7	111
No opinion / don't know	19.6	51
Total	100%	260

### **OPTIONS**

**Review Grievance Process.** The SFD should work with the Savannah Human Resources Department to review its grievance processes. Employees should be able to file grievances without fear of retribution for what they perceive to be unfair employment actions. The new chief may want to work with the employee union to review internal grievance protocols to garner employee support for any new policies or actions.

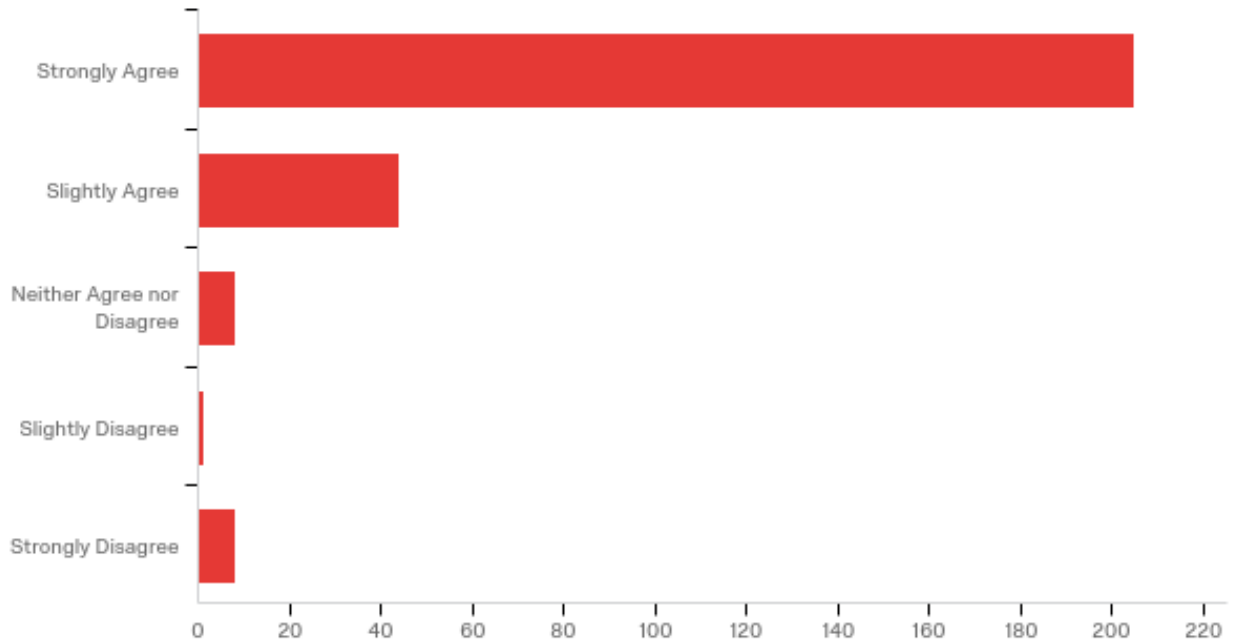
**Improve Employee Recognition.** SFD leadership should consider investing more energy and resources into meaningful employee recognition. Current employee recognition actions, like anniversary pins, should always be awarded with sincerity, such as the battalion chief creating a small celebration with the employee’s company. Likewise, the department may want to offer an annual employee cookout to bring as many of the employees together as possible and give awards for excellence. Finally, leadership may want to encourage battalion chiefs to write brief notes to employees that acknowledge excellent work. Recognizing employees for dedication and superior work is as important as being corrected for transgressions. However, notes of recognitions work best when they are consistently awarded across the department. Therefore, battalion chiefs would need to agree on general guidelines for when a commendation is deserved and then commit to writing them.

### **Conclusion**

The Savannah Fire Department has some substantial morale and organizational culture problems to overcome, particularly in regard to employee perceptions of senior management, levels of pay, fairness of promotions, discipline, transfers, and the quality of communication. Fortunately, the department also has a very strong foundational base of employees who are dedicated to serving the public and loyal to their fellow firefighters. These employees also highly respect their immediate supervisors. These positives will assist the new fire chief as he or she sets out to establish a new administration. The results of the citywide classification and compensation study should also be clearly articulated to all SFD employees to avoid any possible confusion about the results and potentially further dampening morale.

## Appendix A

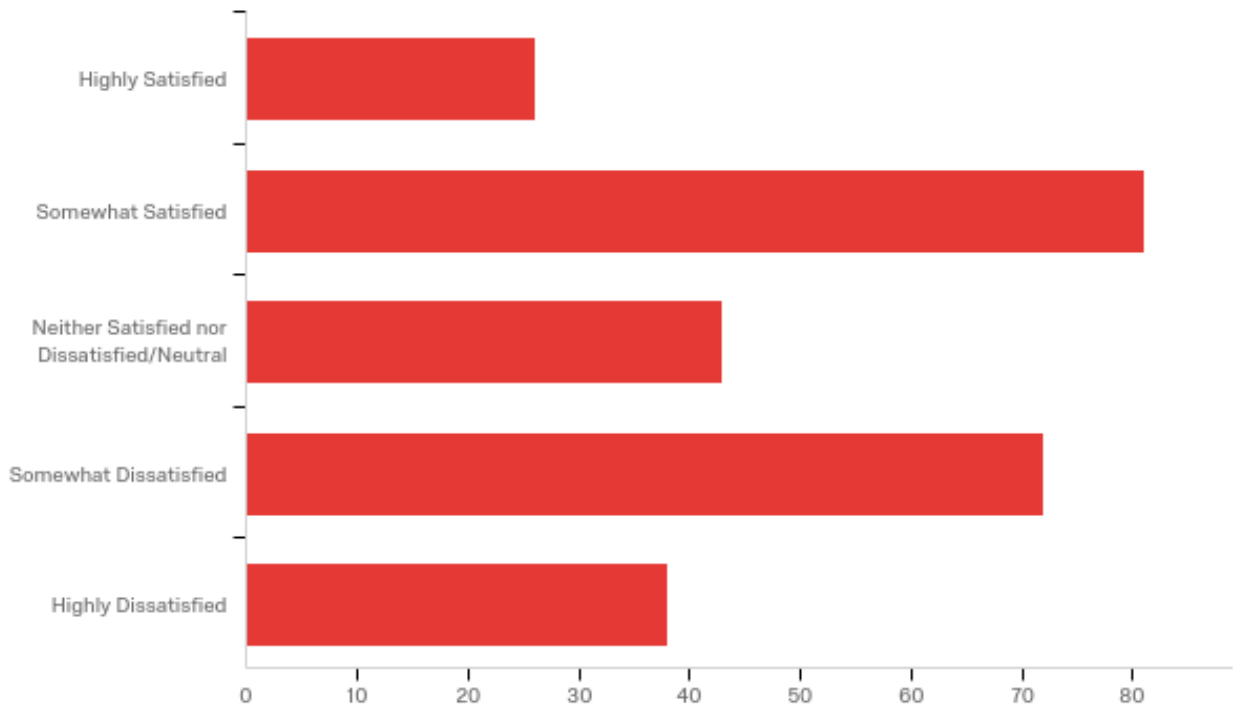
**Q1 - Doing my job well gives me a strong sense of personal satisfaction.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Doing my job well gives me a strong sense of personal satisfaction.	1.00	5.00	1.36	0.82	0.67	266

#	Answer	%	Count
1	Strongly Agree	77.07%	205
2	Slightly Agree	16.54%	44
3	Neither Agree nor Disagree	3.01%	8
4	Slightly Disagree	0.38%	1
5	Strongly Disagree	3.01%	8
	Total	100%	266

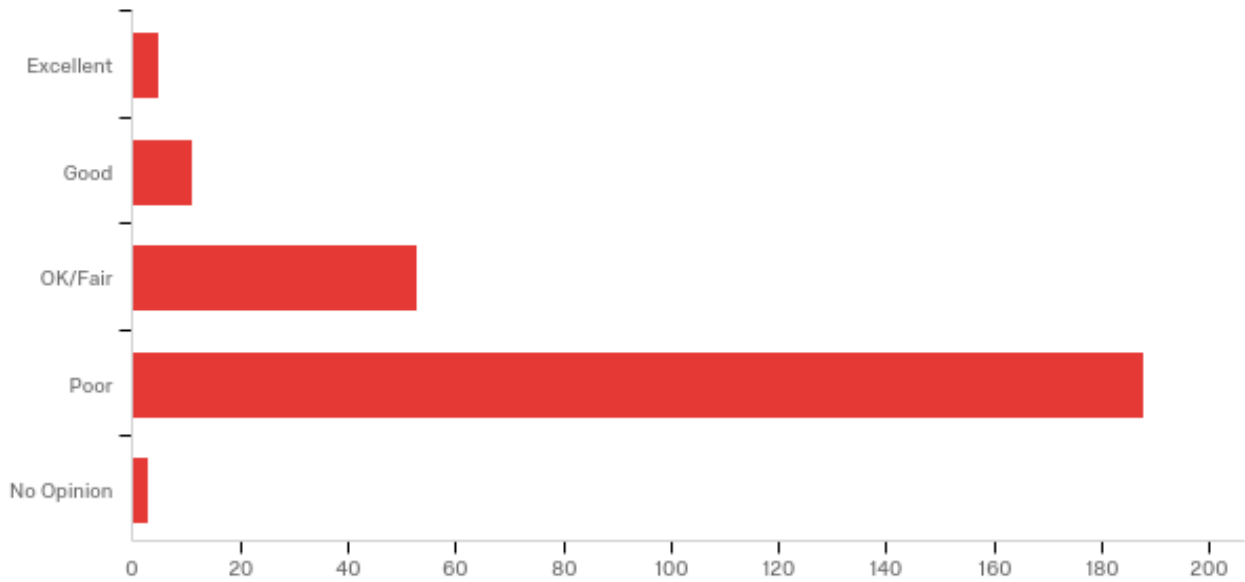
**Q2 - Please rate your overall satisfaction with Savannah Fire Department (SFD) as a place to work.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Please rate your overall satisfaction with Savannah Fire Department (SFD) as a place to work.	1.00	5.00	3.06	1.25	1.57	260

#	Answer	%	Count
1	Highly Satisfied	10.00%	26
2	Somewhat Satisfied	31.15%	81
3	Neither Satisfied nor Dissatisfied/Neutral	16.54%	43
4	Somewhat Dissatisfied	27.69%	72
5	Highly Dissatisfied	14.62%	38
	Total	100%	260

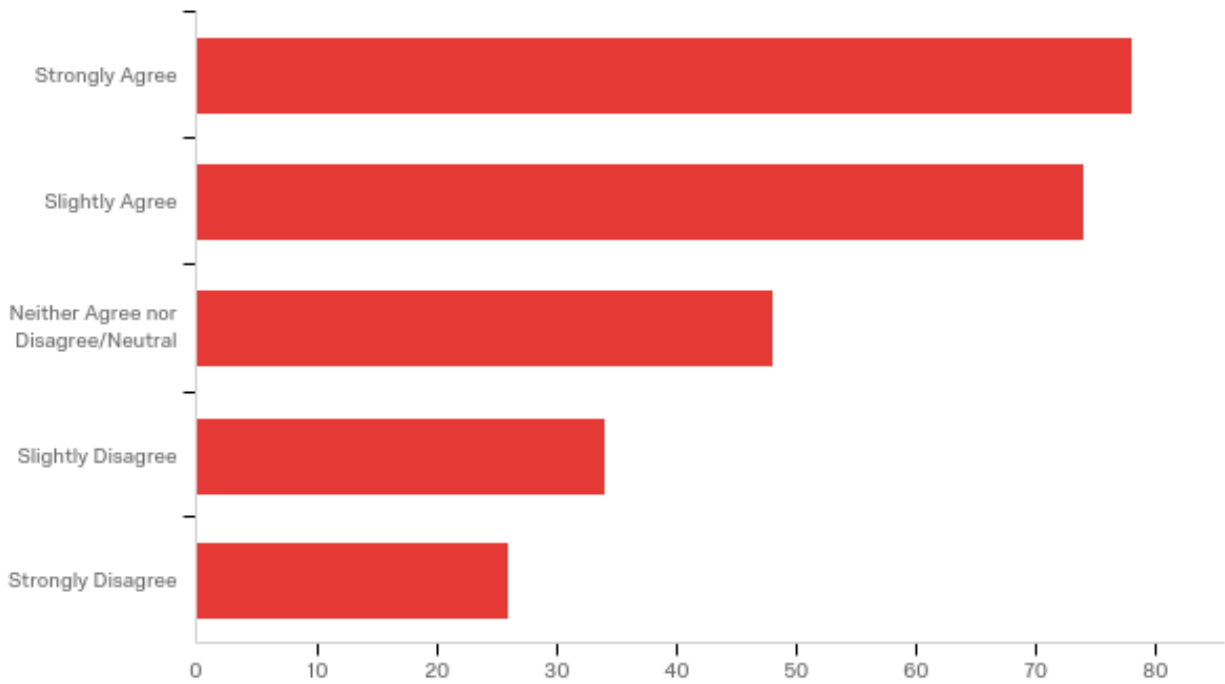
### Q3 - How would you rate the overall morale level within the SFD?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How would you rate the overall morale level within the SFD?	1.00	5.00	3.67	0.67	0.45	260

#	Answer	%	Count
1	Excellent	1.92%	5
2	Good	4.23%	11
3	OK/Fair	20.38%	53
4	Poor	72.31%	188
5	No Opinion	1.15%	3
	Total	100%	260

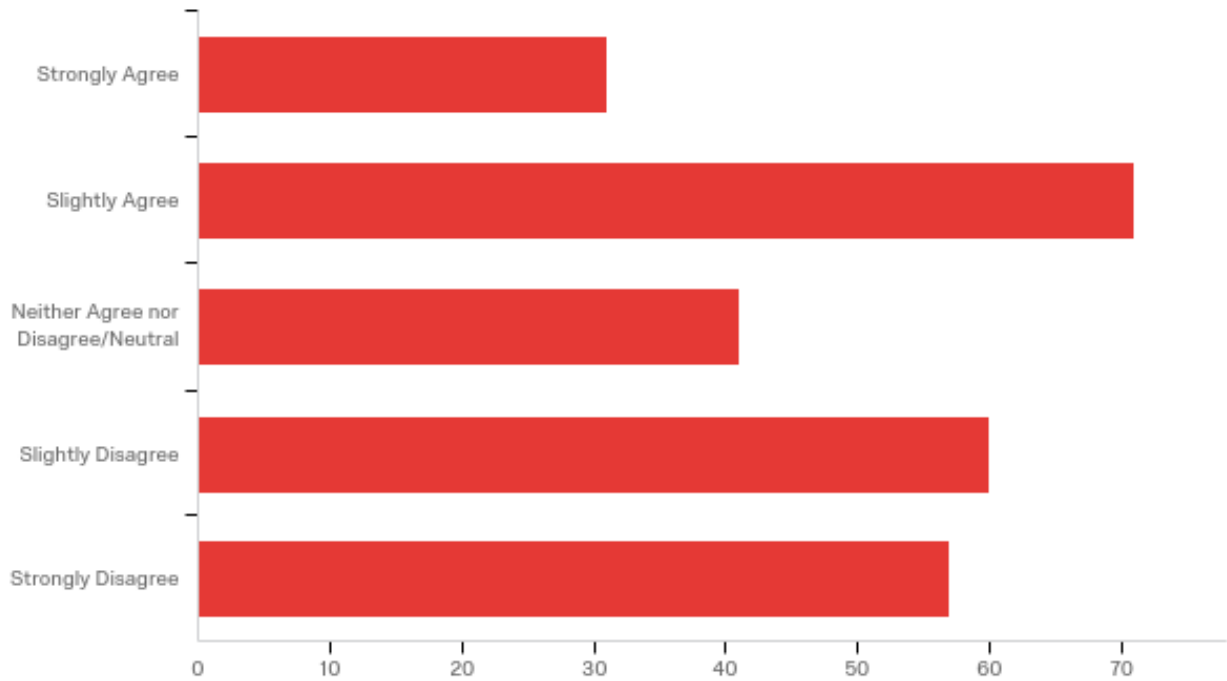
**Q4 - The SFD has a culture of expecting high standards of performance from all employees.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	The SFD has a culture of expecting high standards of performance from all employees.	1.00	5.00	2.45	1.31	1.71	260

#	Answer	%	Count
1	Strongly Agree	30.00%	78
2	Slightly Agree	28.46%	74
3	Neither Agree nor Disagree/Neutral	18.46%	48
4	Slightly Disagree	13.08%	34
5	Strongly Disagree	10.00%	26
	Total	100%	260

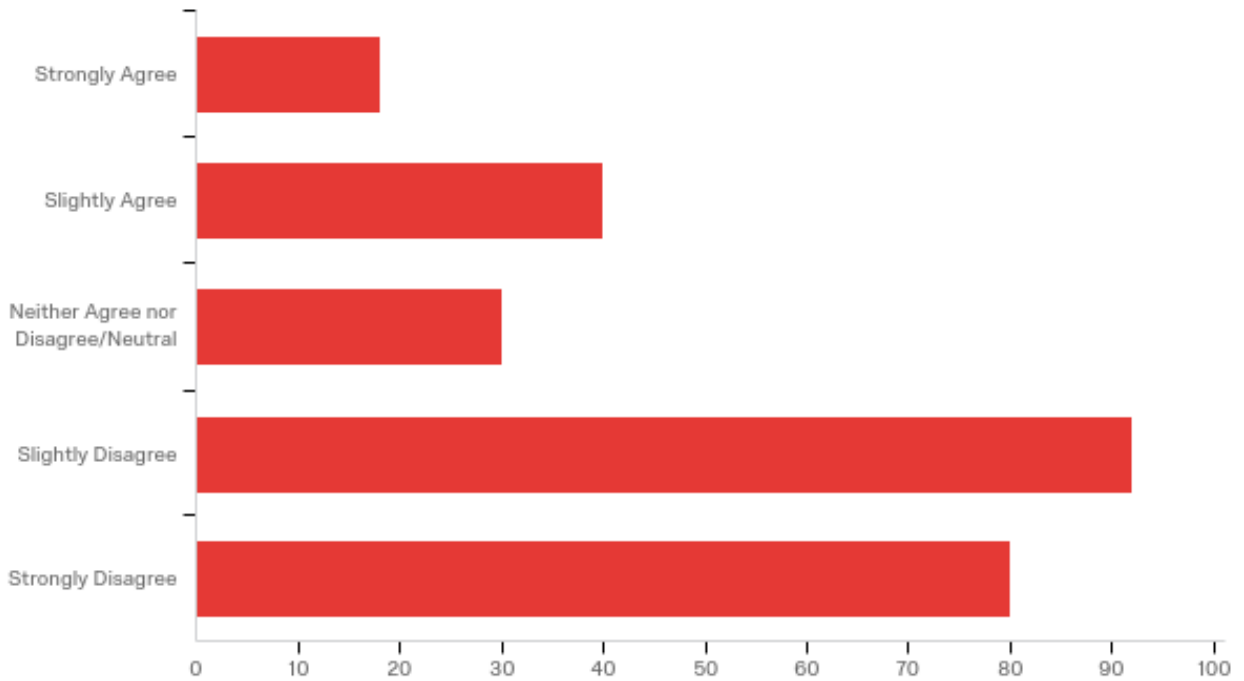
**Q5 - There is a strong feeling of teamwork and cooperation within the SFD.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	There is a strong feeling of teamwork and cooperation within the SFD.	1.00	5.00	3.16	1.35	1.83	260

#	Answer	%	Count
1	Strongly Agree	11.92%	31
2	Slightly Agree	27.31%	71
3	Neither Agree nor Disagree/Neutral	15.77%	41
4	Slightly Disagree	23.08%	60
5	Strongly Disagree	21.92%	57
	Total	100%	260

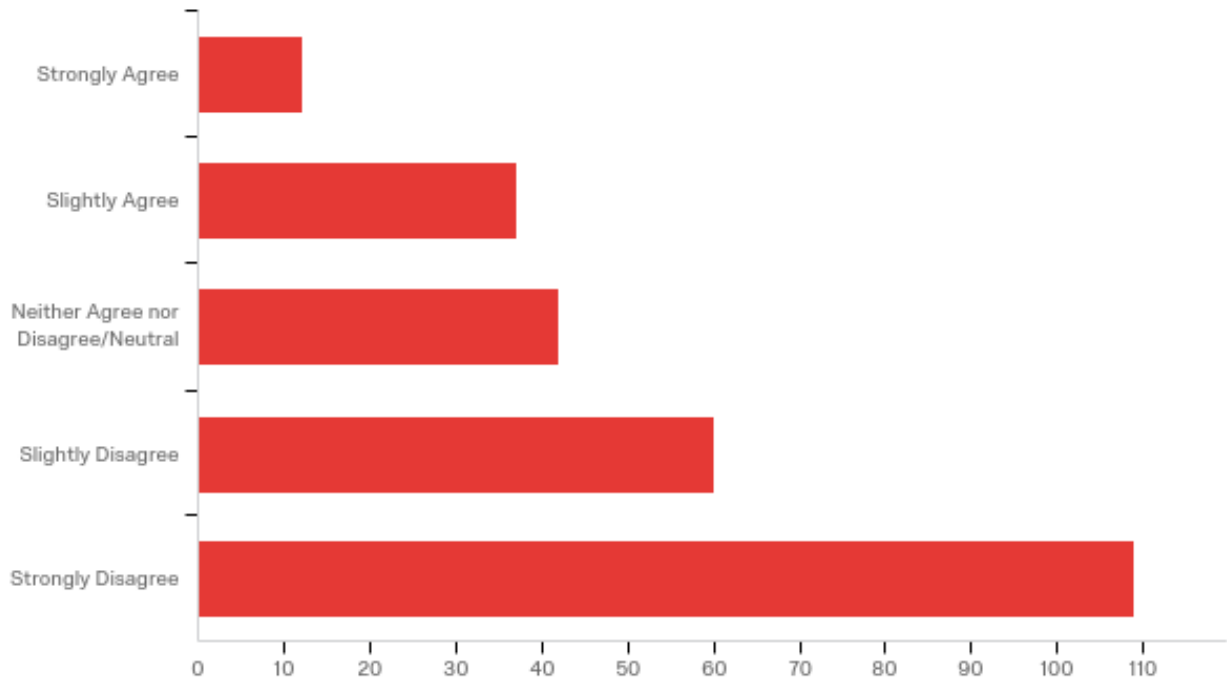
**Q6 - Information and knowledge are shared openly within the SFD.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Information and knowledge are shared openly within the SFD.	1.00	5.00	3.68	1.25	1.56	260

#	Answer	%	Count
1	Strongly Agree	6.92%	18
2	Slightly Agree	15.38%	40
3	Neither Agree nor Disagree/Neutral	11.54%	30
4	Slightly Disagree	35.38%	92
5	Strongly Disagree	30.77%	80
	Total	100%	260

**Q7 - Varying opinions are respected within the SFD.**

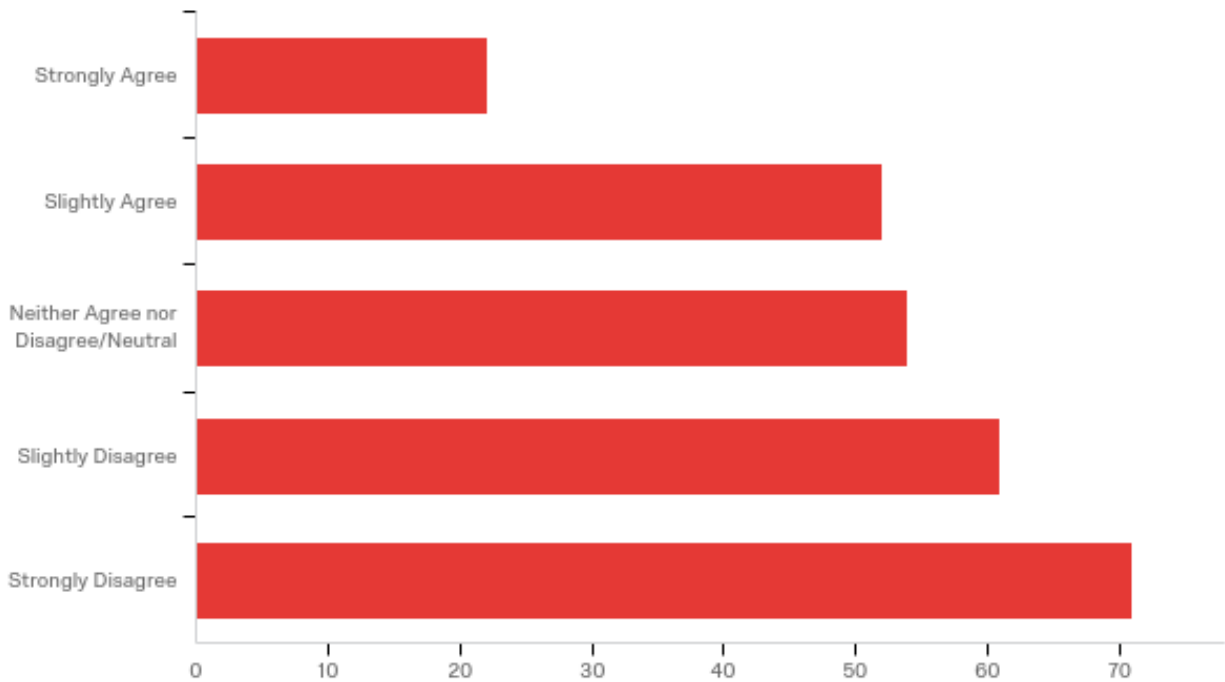


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Varying opinions are respected within the SFD.	1.00	5.00	3.83	1.24	1.54	260

#	Answer	%	Count
1	Strongly Agree	4.62%	12
2	Slightly Agree	14.23%	37
3	Neither Agree nor Disagree/Neutral	16.15%	42
4	Slightly Disagree	23.08%	60
5	Strongly Disagree	41.92%	109
	Total	100%	260



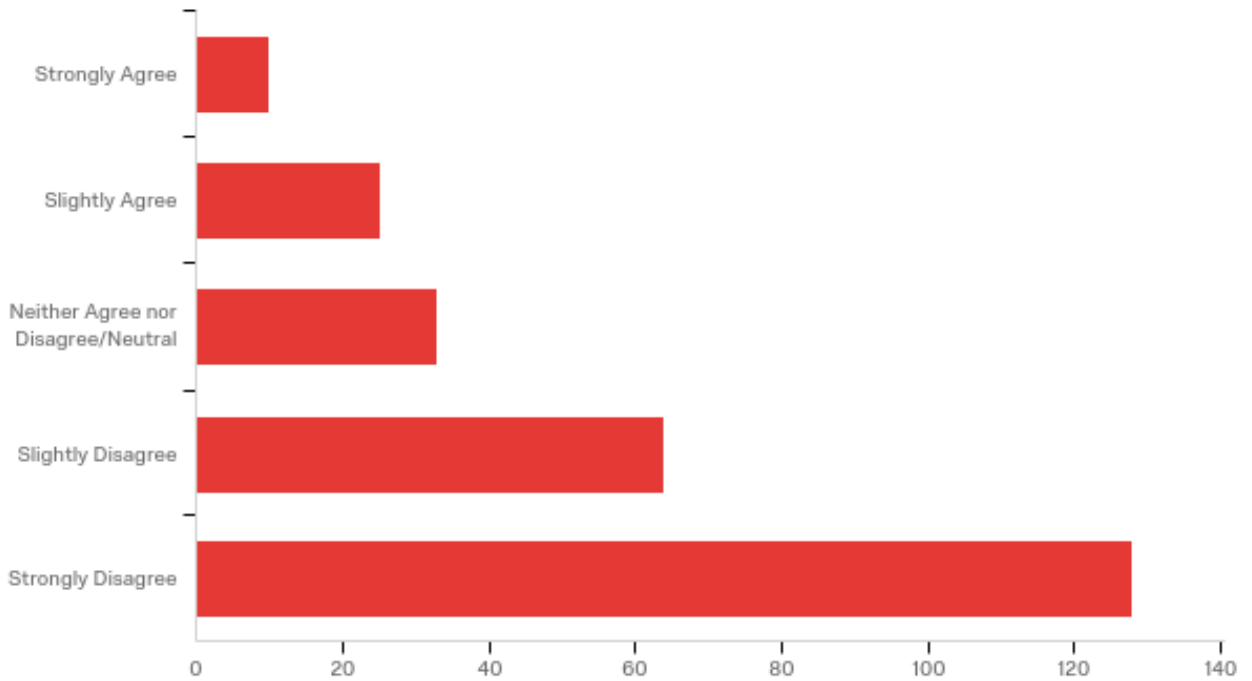
**Q8 - For minor mistakes, the SFD helps firefighters with coaching and counseling rather than punishment.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	For minor mistakes, the SFD helps firefighters with coaching and counseling rather than punishment.	1.00	5.00	3.41	1.30	1.70	260

#	Answer	%	Count
1	Strongly Agree	8.46%	22
2	Slightly Agree	20.00%	52
3	Neither Agree nor Disagree/Neutral	20.77%	54
4	Slightly Disagree	23.46%	61
5	Strongly Disagree	27.31%	71
	Total	100%	260

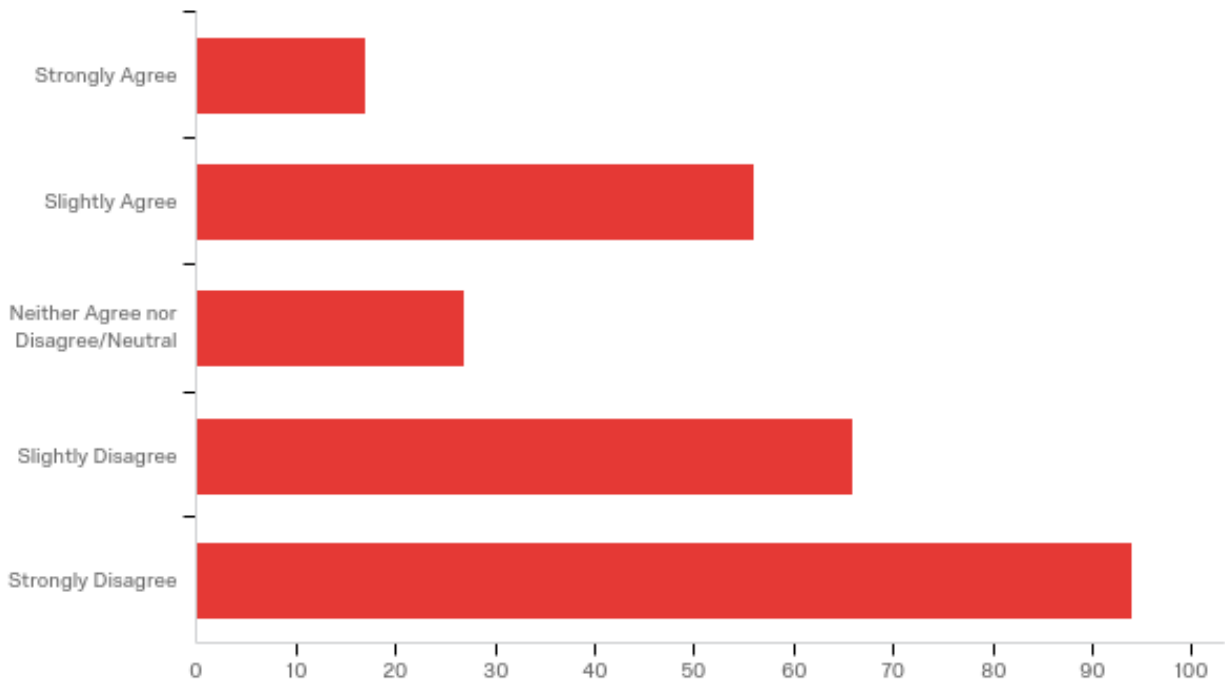
**Q9 - Everybody is treated fairly in the SFD.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Everybody is treated fairly in the SFD.	1.00	5.00	4.06	1.16	1.35	260

#	Answer	%	Count
1	Strongly Agree	3.85%	10
2	Slightly Agree	9.62%	25
3	Neither Agree nor Disagree/Neutral	12.69%	33
4	Slightly Disagree	24.62%	64
5	Strongly Disagree	49.23%	128
	Total	100%	260

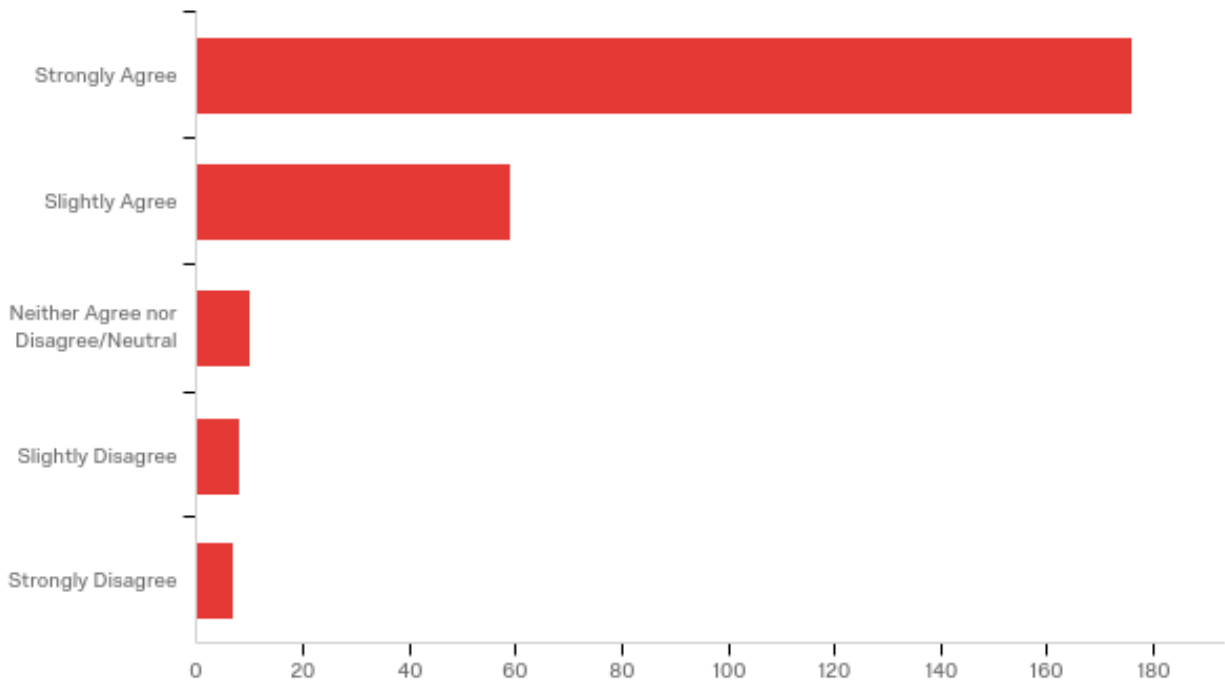
**Q10 - SFD's standard operating policies and procedures are consistently followed.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	SFD's standard operating policies and procedures are consistently followed.	1.00	5.00	3.63	1.33	1.78	260

#	Answer	%	Count
1	Strongly Agree	6.54%	17
2	Slightly Agree	21.54%	56
3	Neither Agree nor Disagree/Neutral	10.38%	27
4	Slightly Disagree	25.38%	66
5	Strongly Disagree	36.15%	94
	Total	100%	260

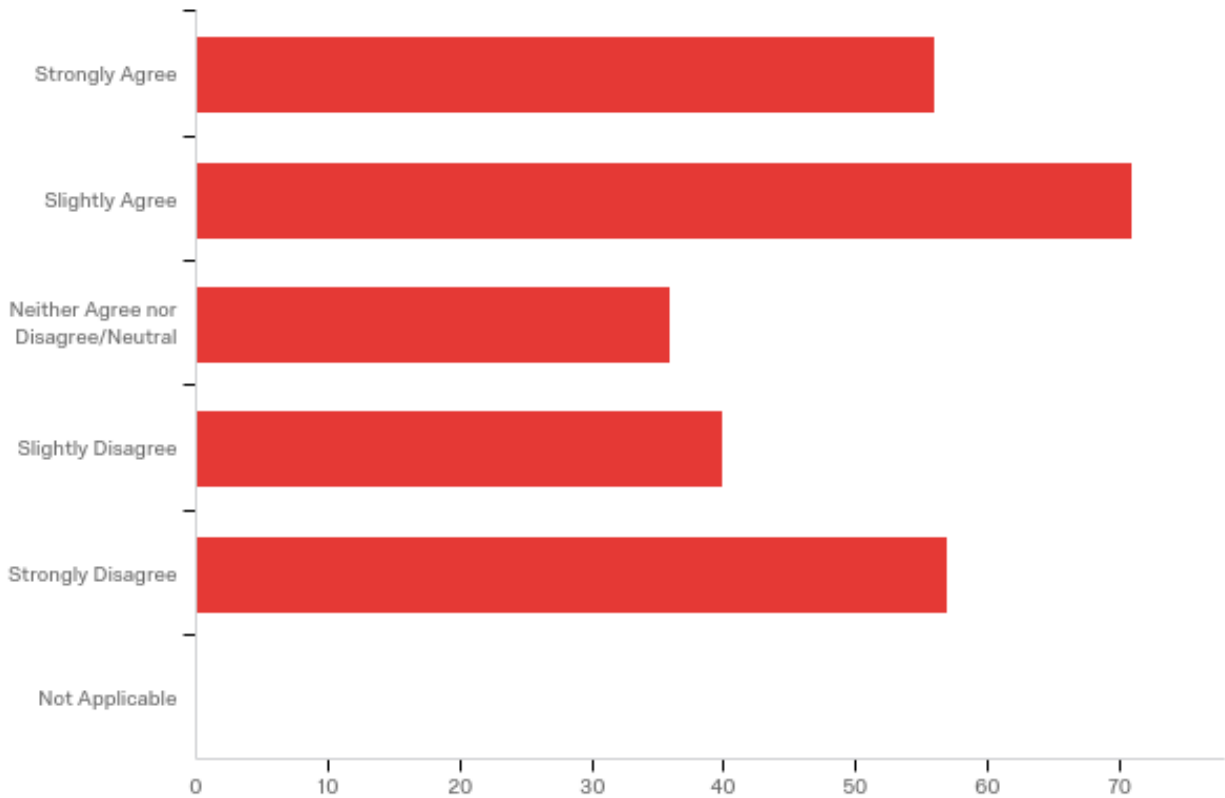
**Q11 - The SFD provides me with the personal safety equipment (turnout gear, SBCA, etc.) that I need to safely perform my job.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	The SFD provides me with the personal safety equipment (turnout gear, SBCA, etc.) that I need to safely perform my job.	1.00	5.00	1.50	0.91	0.83	260

#	Answer	%	Count
1	Strongly Agree	67.69%	176
2	Slightly Agree	22.69%	59
3	Neither Agree nor Disagree/Neutral	3.85%	10
4	Slightly Disagree	3.08%	8
5	Strongly Disagree	2.69%	7
	Total	100%	260

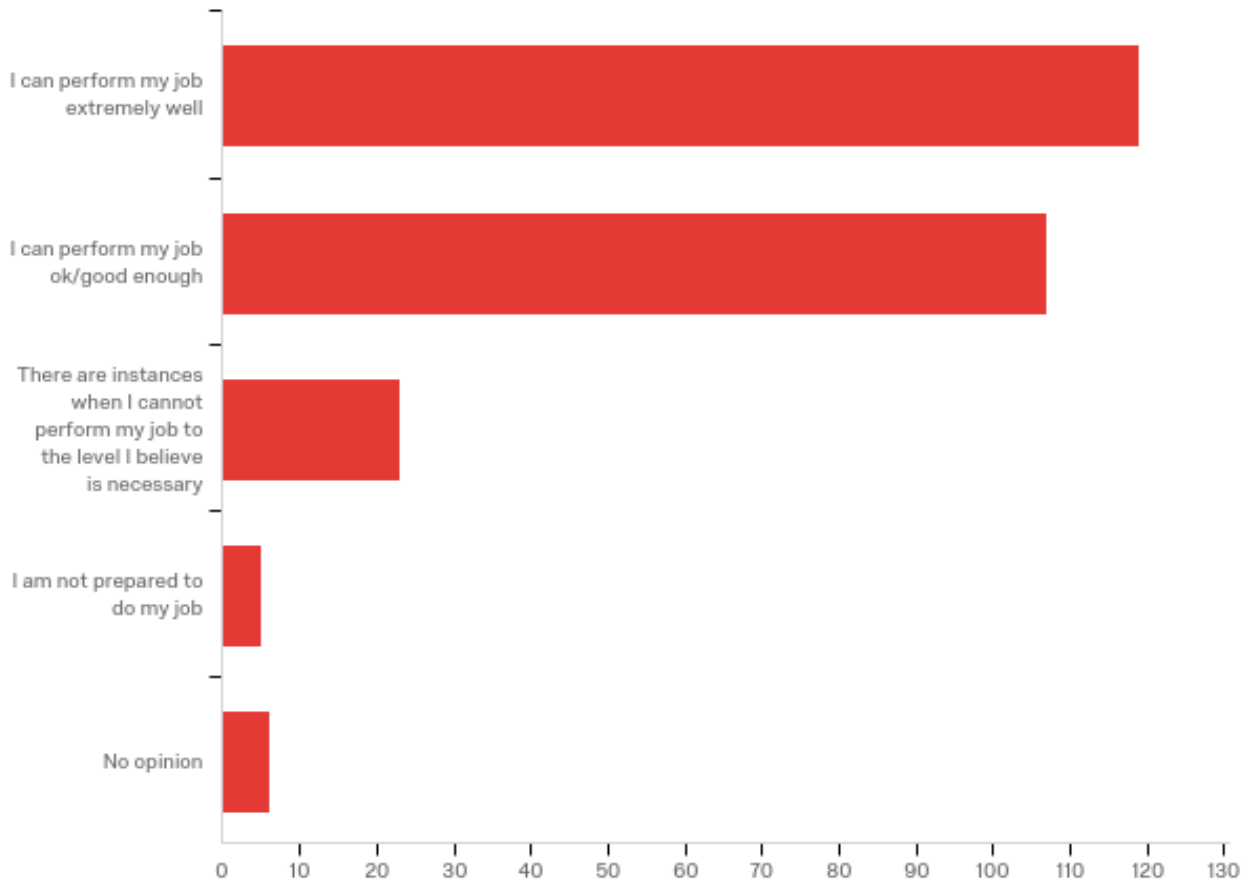
**Q12 - My assigned station is well maintained and comfortable.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My assigned station is well maintained and comfortable.	1.00	5.00	2.89	1.47	2.15	260

#	Answer	%	Count
1	Strongly Agree	21.54%	56
2	Slightly Agree	27.31%	71
3	Neither Agree nor Disagree/Neutral	13.85%	36
4	Slightly Disagree	15.38%	40
5	Strongly Disagree	21.92%	57
6	Not Applicable	0.00%	0
	Total	100%	260

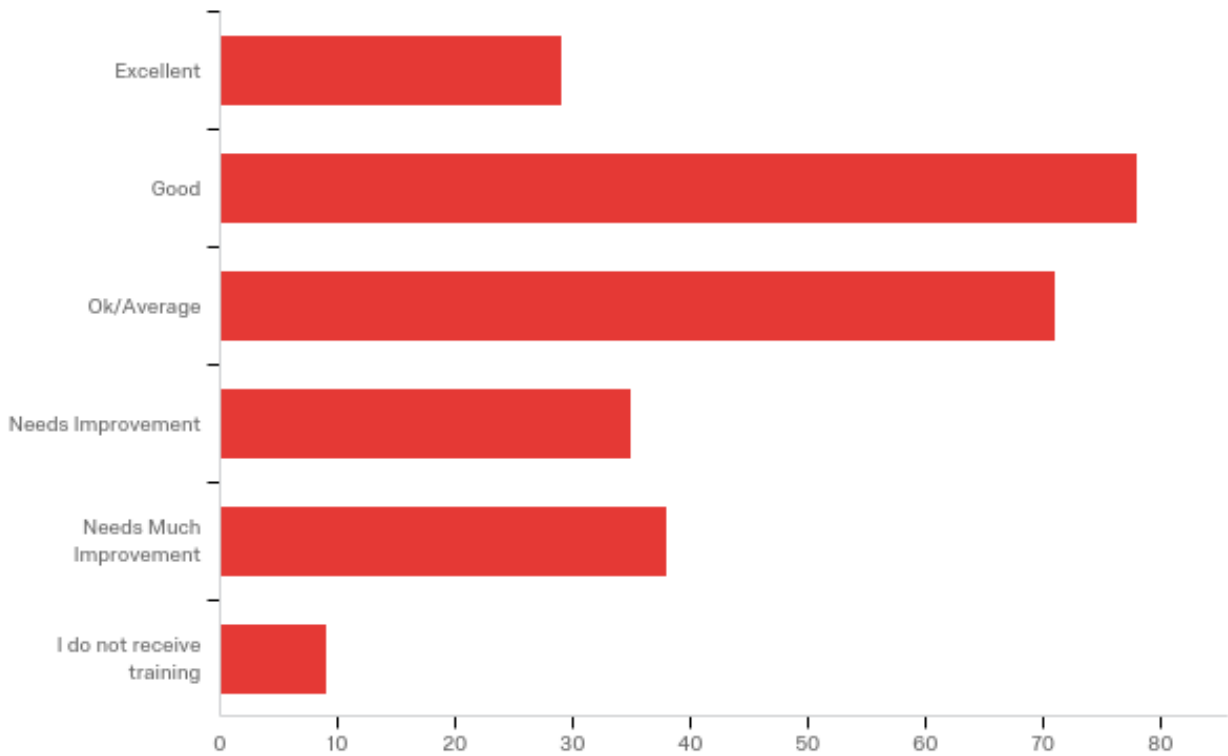
**Q13 - From the amount of job training I receive:**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	From the amount of job training I receive:	1.00	5.00	1.74	0.87	0.76	260

#	Answer	%	Count
1	I can perform my job extremely well	45.77%	119
2	I can perform my job ok/good enough	41.15%	107
3	There are instances when I cannot perform my job to the level I believe is necessary	8.85%	23
4	I am not prepared to do my job	1.92%	5
5	No opinion	2.31%	6
	Total	100%	260

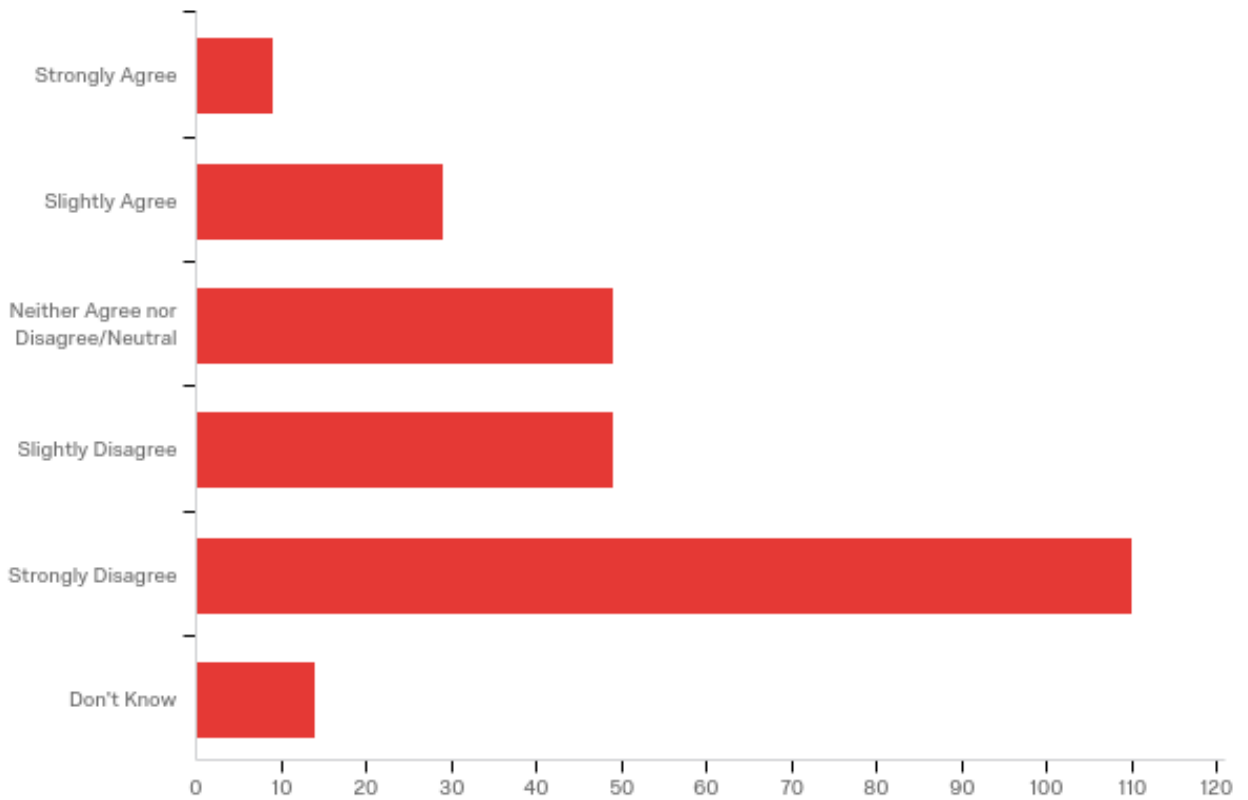
**Q14 - How would you rank the training provided by the Savannah Fire Training Unit?**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How would you rank the training provided by the Savannah Fire Training Unit?	1.00	6.00	3.01	1.33	1.78	260

#	Answer	%	Count
1	Excellent	11.15%	29
2	Good	30.00%	78
3	Ok/Average	27.31%	71
4	Needs Improvement	13.46%	35
5	Needs Much Improvement	14.62%	38
6	I do not receive training	3.46%	9
	Total	100%	260

**Q15 - I believe the SFD offers employees reasonable opportunities to transfer between stations.**

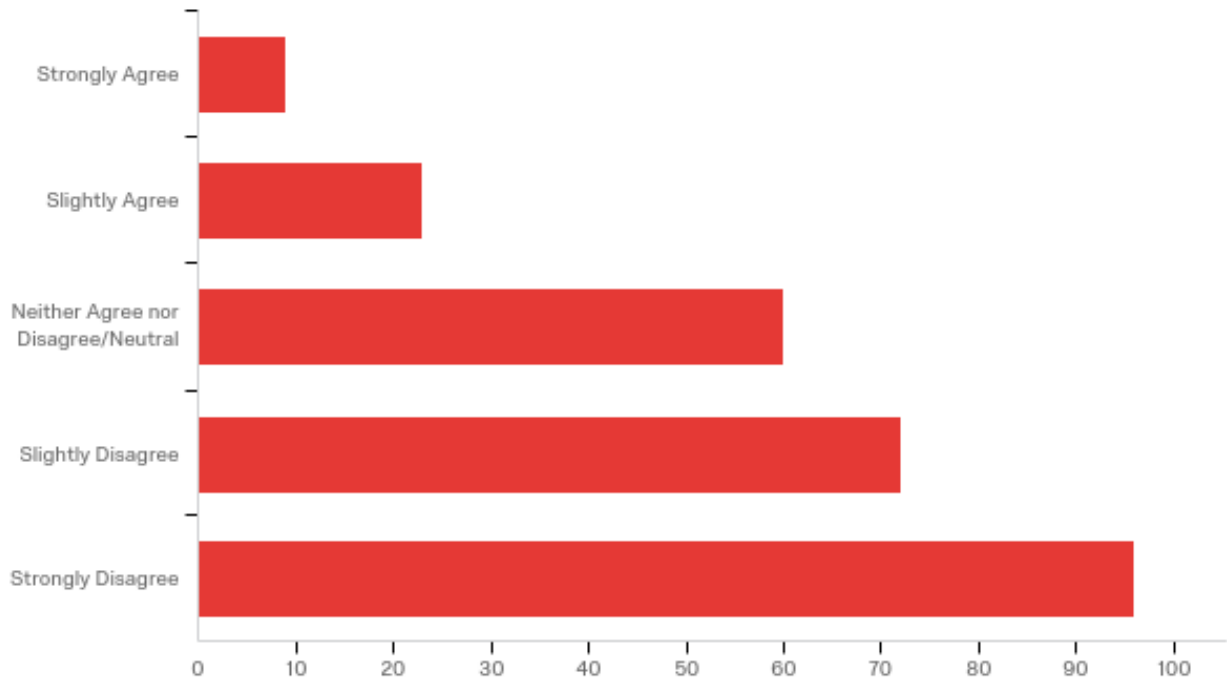


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	I believe the SFD offers employees reasonable opportunities to transfer between stations.	1.00	6.00	4.02	1.26	1.58	260



#	Answer	%	Count
1	Strongly Agree	3.46%	9
2	Slightly Agree	11.15%	29
3	Neither Agree nor Disagree/Neutral	18.85%	49
4	Slightly Disagree	18.85%	49
5	Strongly Disagree	42.31%	110
6	Don't Know	5.38%	14
	Total	100%	260

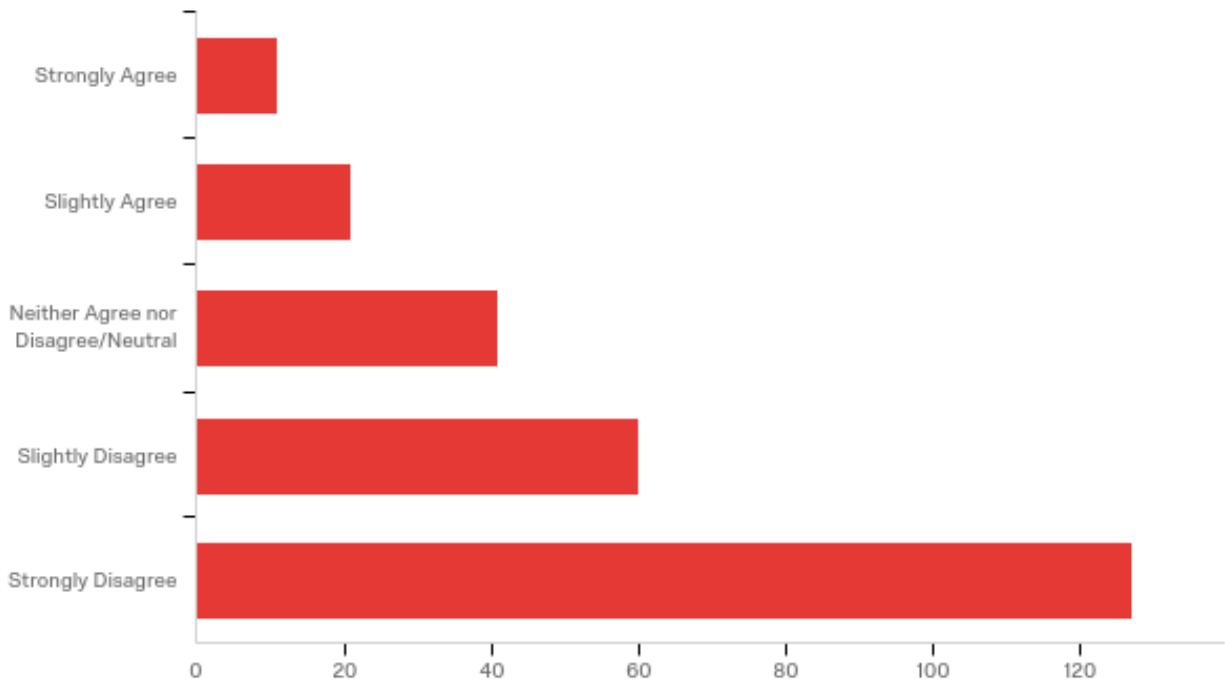
**Q16 - Complaints and grievances are resolved fairly in the SFD.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Complaints and grievances are resolved fairly in the SFD.	1.00	5.00	3.86	1.12	1.25	260

#	Answer	%	Count
1	Strongly Agree	3.46%	9
2	Slightly Agree	8.85%	23
3	Neither Agree nor Disagree/Neutral	23.08%	60
4	Slightly Disagree	27.69%	72
5	Strongly Disagree	36.92%	96
	Total	100%	260

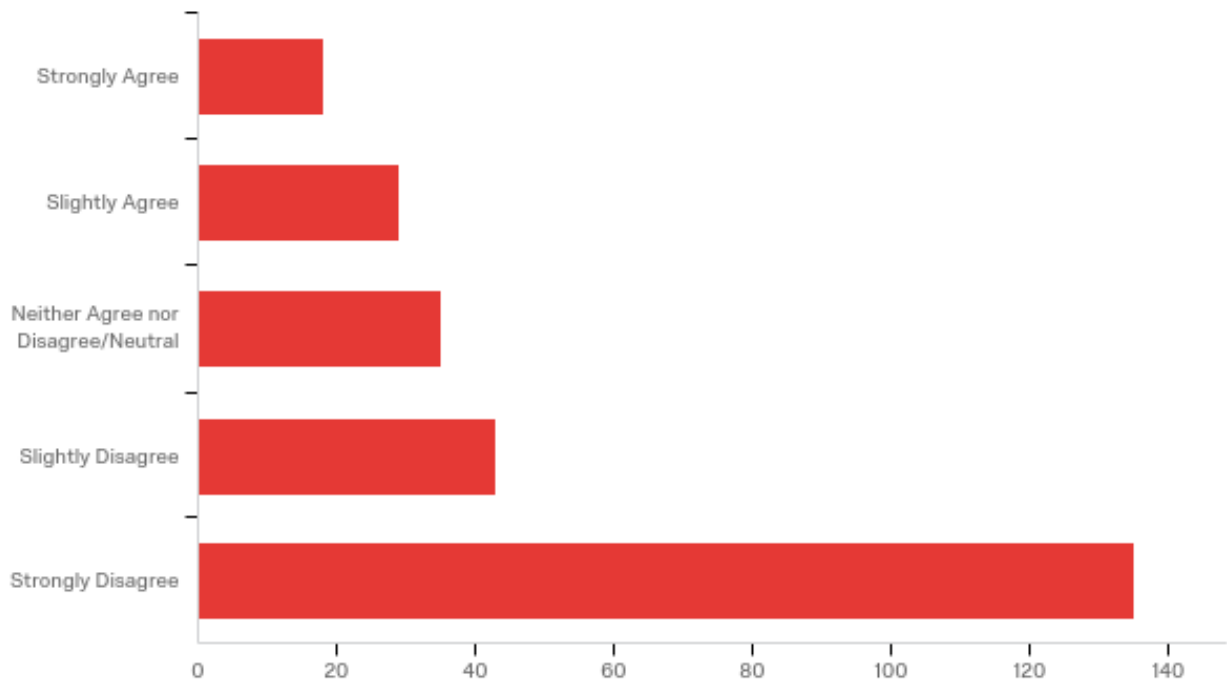
**Q17 - Disciplinary matters within the SFD are applied uniformly and consistently.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Disciplinary matters within the SFD are applied uniformly and consistently.	1.00	5.00	4.04	1.16	1.35	260

#	Answer	%	Count
1	Strongly Agree	4.23%	11
2	Slightly Agree	8.08%	21
3	Neither Agree nor Disagree/Neutral	15.77%	41
4	Slightly Disagree	23.08%	60
5	Strongly Disagree	48.85%	127
	Total	100%	260

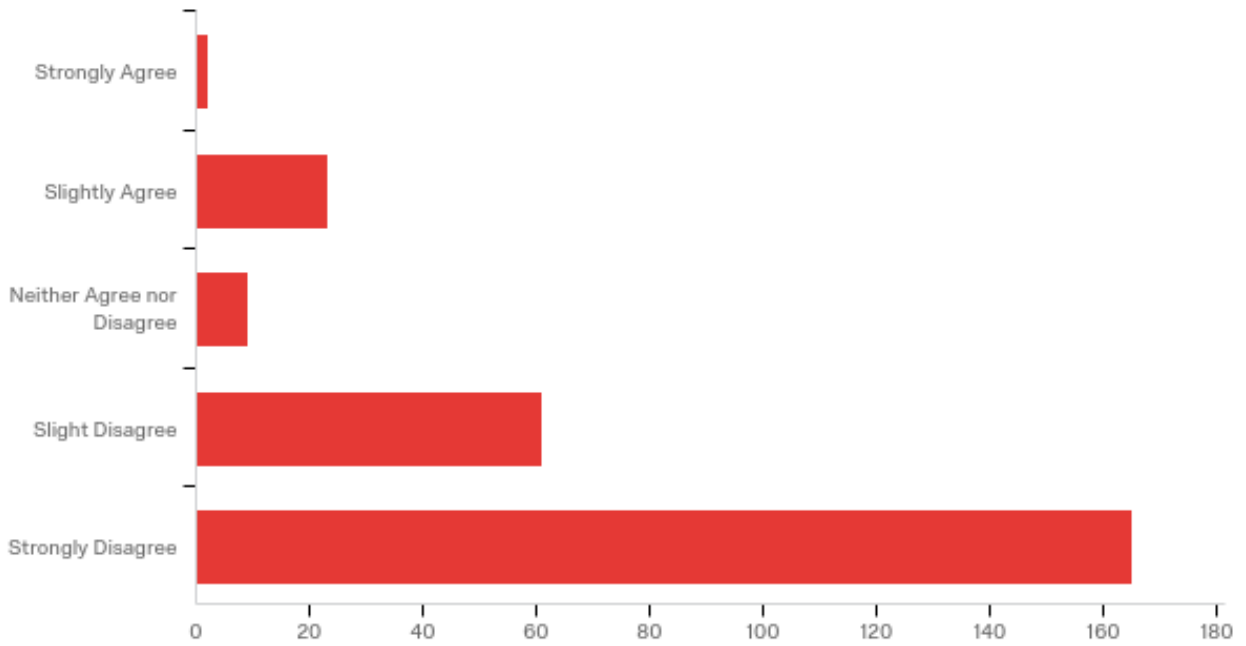
**Q18 - The promotions process within the SFD is fair to everyone.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	The promotions process within the SFD is fair to everyone.	1.00	5.00	3.95	1.31	1.72	260

#	Answer	%	Count
1	Strongly Agree	6.92%	18
2	Slightly Agree	11.15%	29
3	Neither Agree nor Disagree/Neutral	13.46%	35
4	Slightly Disagree	16.54%	43
5	Strongly Disagree	51.92%	135
	Total	100%	260

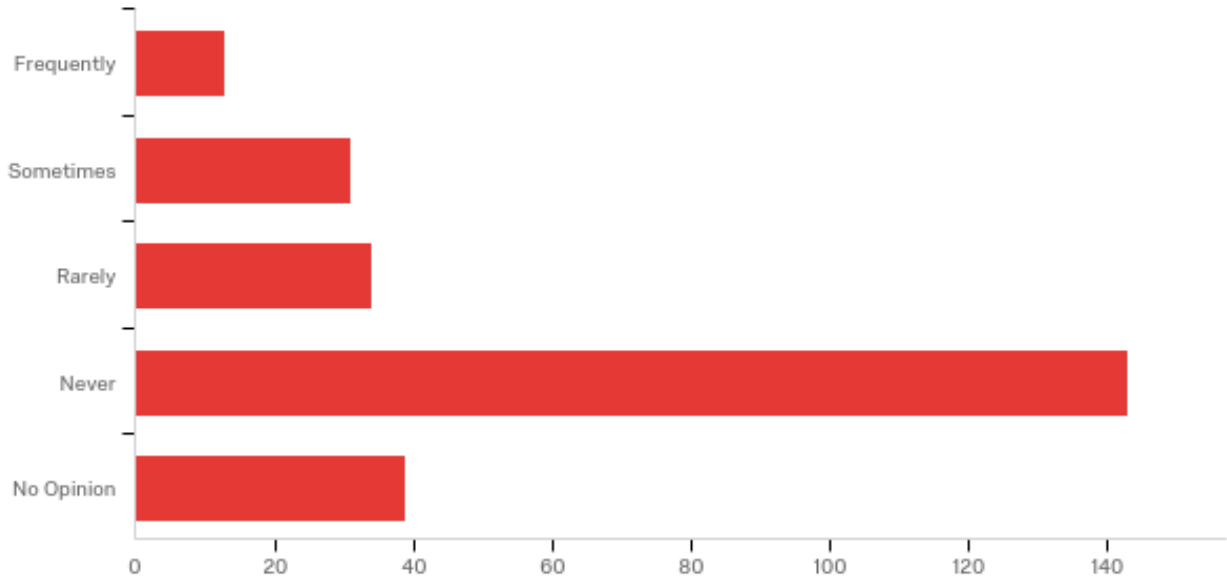
**Q19 - Employees in the SFD are paid fairly for the work they perform.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Employees in the SFD are paid fairly for the work they perform.	1.00	5.00	4.40	0.97	0.93	260

#	Answer	%	Count
1	Strongly Agree	0.77%	2
2	Slightly Agree	8.85%	23
3	Neither Agree nor Disagree	3.46%	9
4	Slight Disagree	23.46%	61
5	Strongly Disagree	63.46%	165
	Total	100%	260

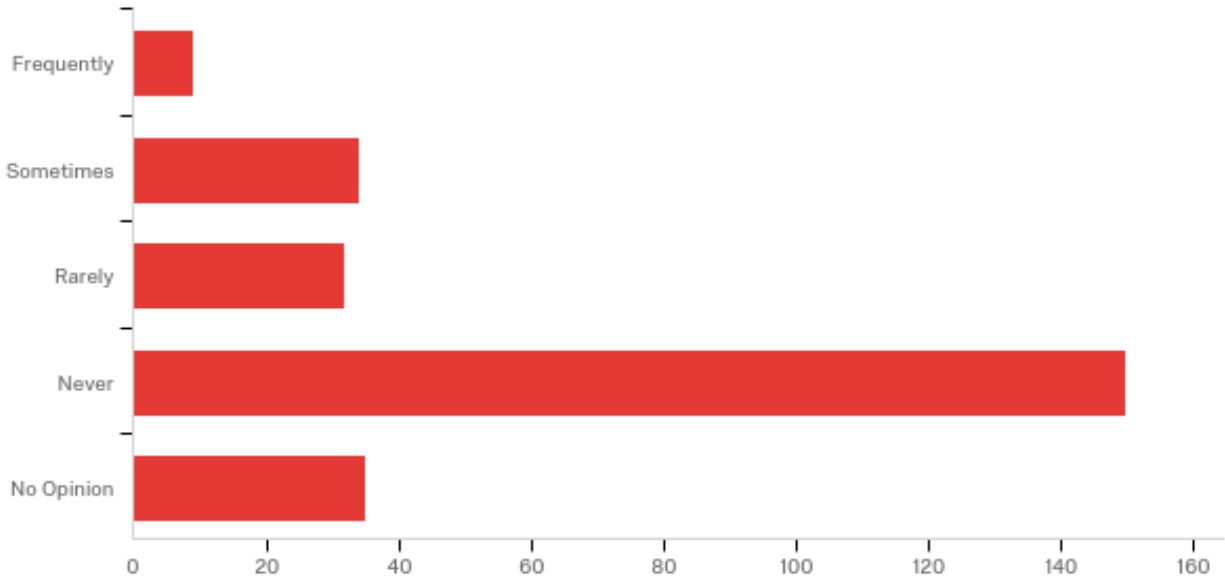
**Q20 - While working at the SFD, I have been treated negatively because of my race and/or have witnessed other SFD employees being treated negatively because of their race.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	While working at the SFD, I have been treated negatively because of my race and/or have witnessed other SFD employees being treated negatively because of their race.	1.00	5.00	3.63	1.04	1.07	260

#	Answer	%	Count
1	Frequently	5.00%	13
2	Sometimes	11.92%	31
3	Rarely	13.08%	34
4	Never	55.00%	143
5	No Opinion	15.00%	39
	Total	100%	260

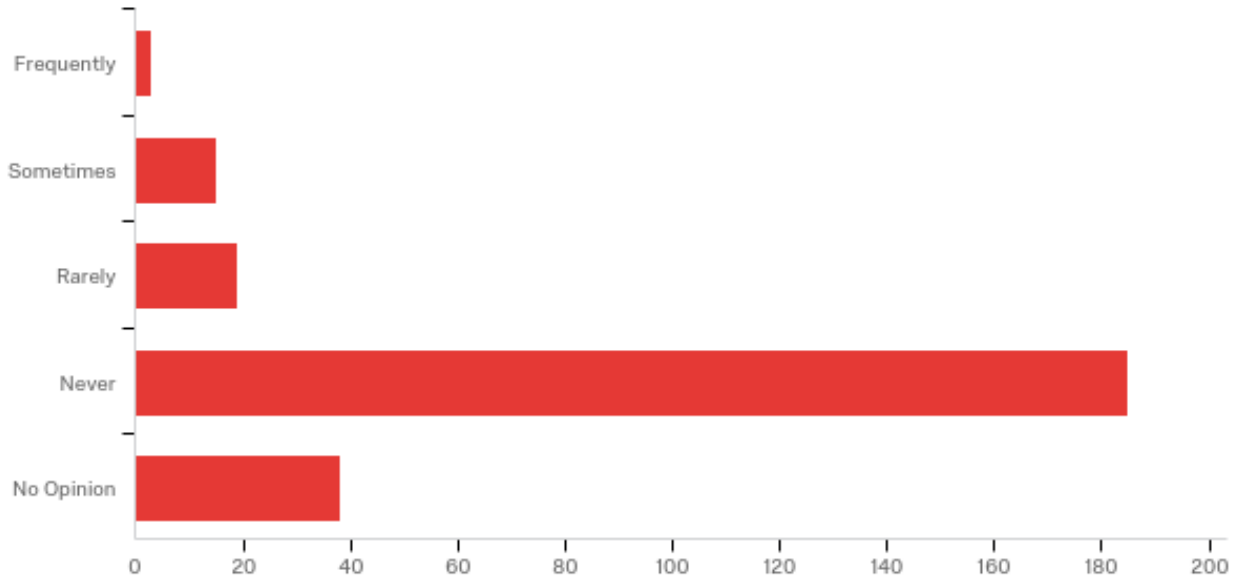
**Q21 - While working at the SFD, I have been treated negatively because of my gender and/or have witnessed other SFD employees being treated negatively because of their gender.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	While working at the SFD, I have been treated negatively because of my gender and/or have witnessed other SFD employees being treated negatively because of their gender.	1.00	5.00	3.65	0.98	0.97	260

#	Answer	%	Count
1	Frequently	3.46%	9
2	Sometimes	13.08%	34
3	Rarely	12.31%	32
4	Never	57.69%	150
5	No Opinion	13.46%	35
	Total	100%	260

**Q22 - While working at the SFD, I have been treated negatively because of my sexual orientation and/or have witnessed other SFD employees being treated negatively because of their sexual orientation.**

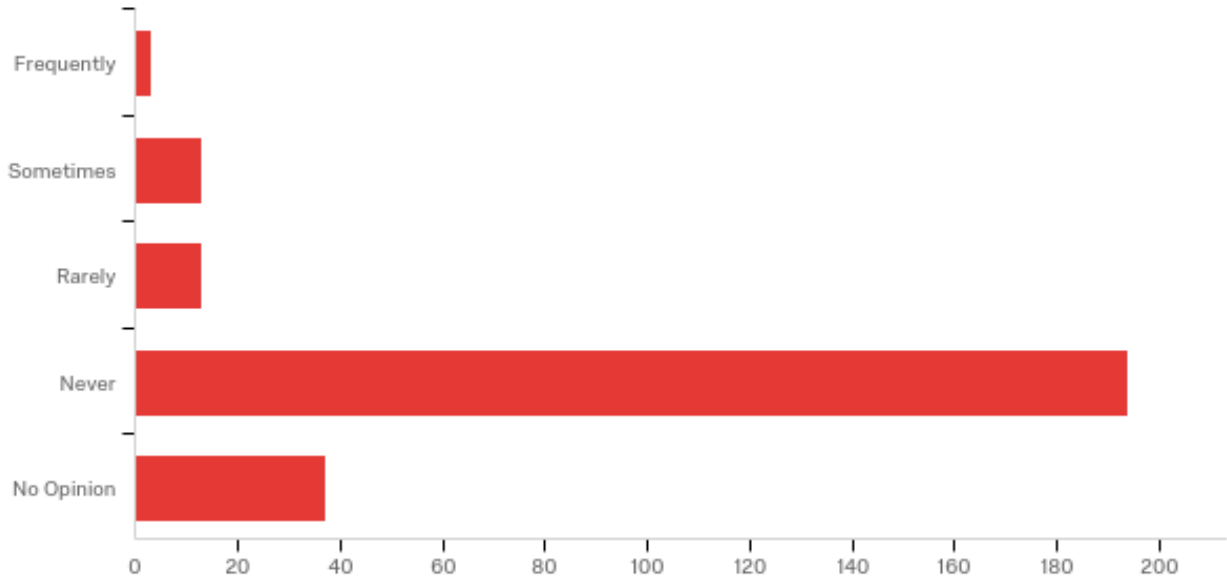


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	While working at the SFD, I have been treated negatively because of my sexual orientation and/or have witnessed other SFD employees being treated negatively because of their sexual orientation.	1.00	5.00	3.92	0.74	0.55	260

#	Answer	%	Count
1	Frequently	1.15%	3
2	Sometimes	5.77%	15
3	Rarely	7.31%	19
4	Never	71.15%	185
5	No Opinion	14.62%	38
	Total	100%	260



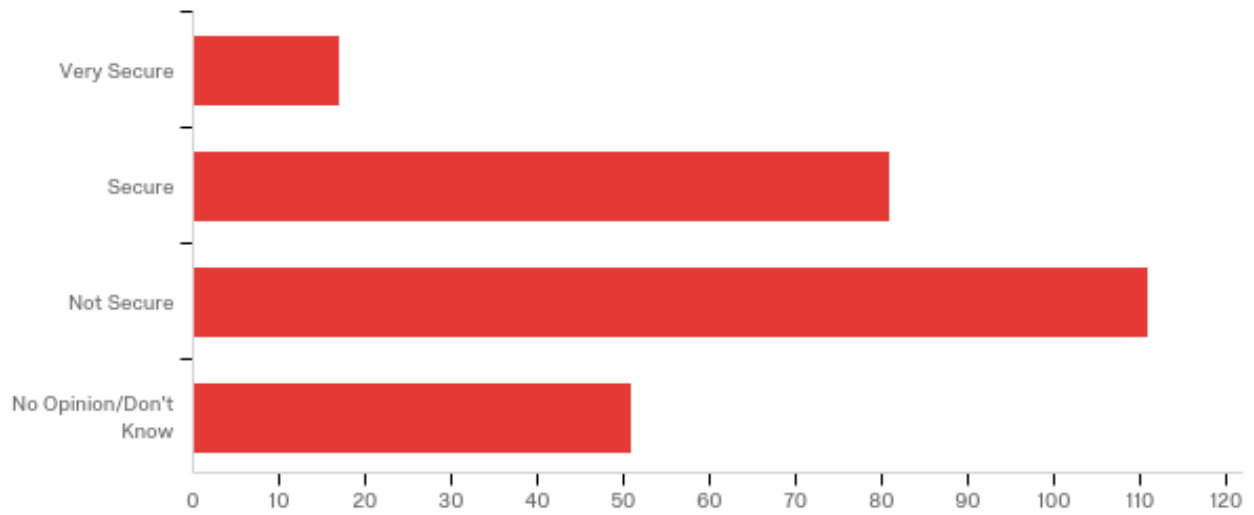
**Q23 - While working at the SFD, I have been treated negatively because of my religion and/or have witnessed other SFD employees being treated negatively because of their religion.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	While working at the SFD, I have been treated negatively because of my religion and/or have witnessed other SFD employees being treated negatively because of their religion.	1.00	5.00	3.96	0.70	0.49	260

#	Answer	%	Count
1	Frequently	1.15%	3
2	Sometimes	5.00%	13
3	Rarely	5.00%	13
4	Never	74.62%	194
5	No Opinion	14.23%	37
	Total	100%	260

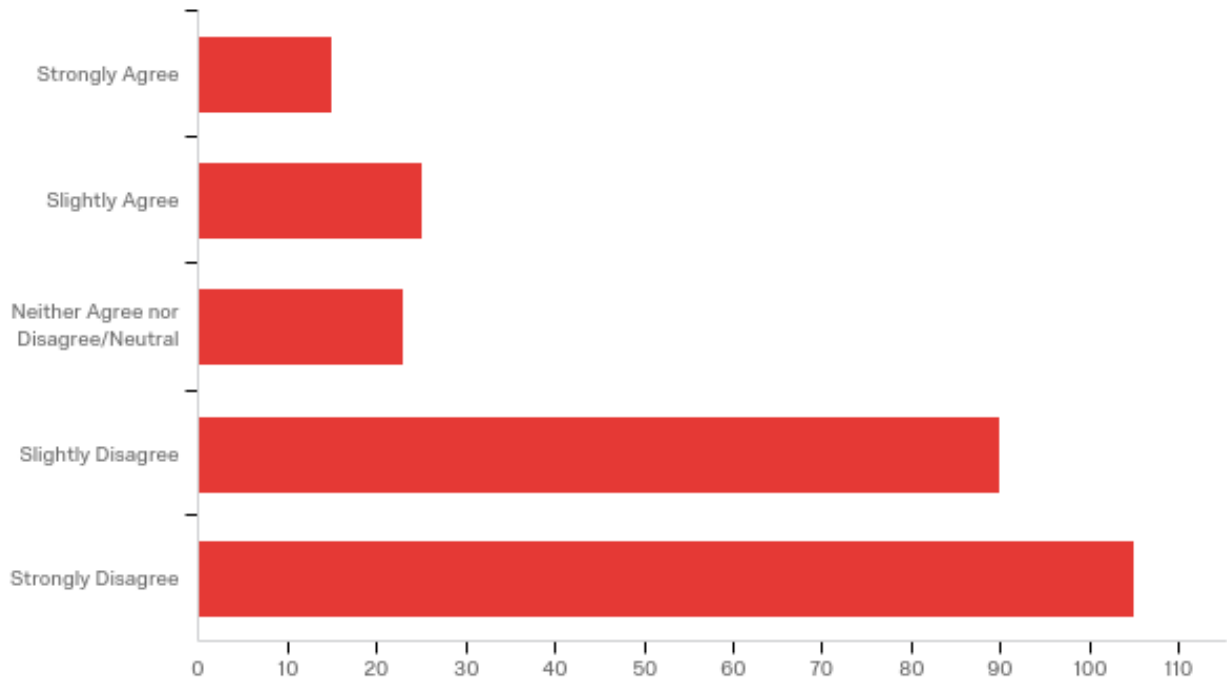
**Q24 - Based on the City of Savannah's budget, do you think your future is secure with the Savannah Fire Department?**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Based on the City of Savannah's budget, do you think your future is secure with the Savannah Fire Department?	1.00	4.00	2.75	0.84	0.71	260

#	Answer	%	Count
1	Very Secure	6.54%	17
2	Secure	31.15%	81
3	Not Secure	42.69%	111
4	No Opinion/Don't Know	19.62%	51
	Total	100%	260

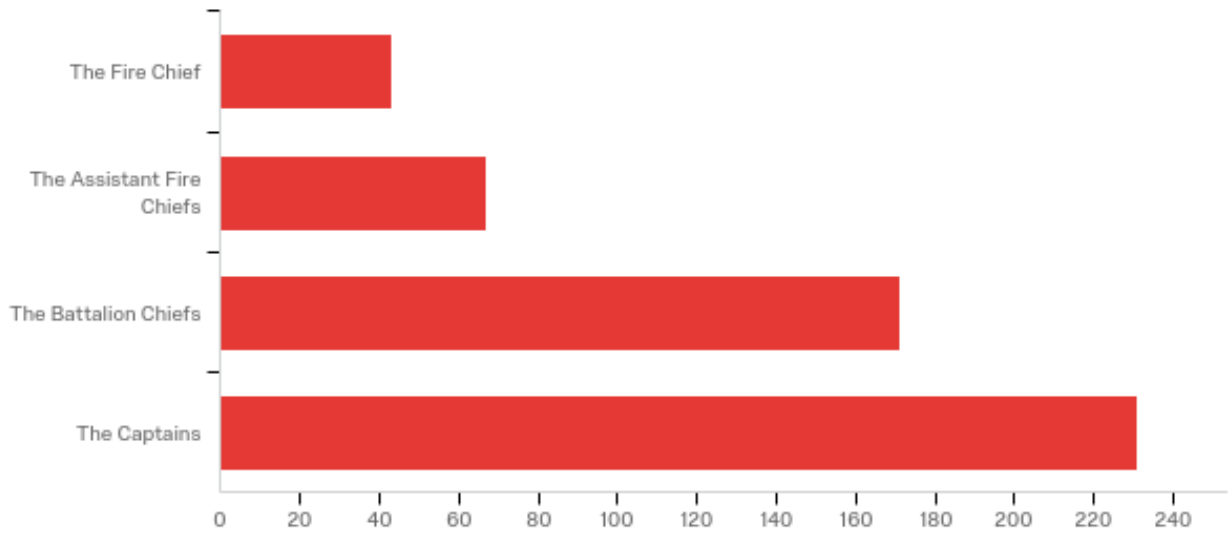
## Q25 - Overall, the SFD is well managed



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Overall, the SFD is well managed	1.00	5.00	3.95	1.19	1.40	258

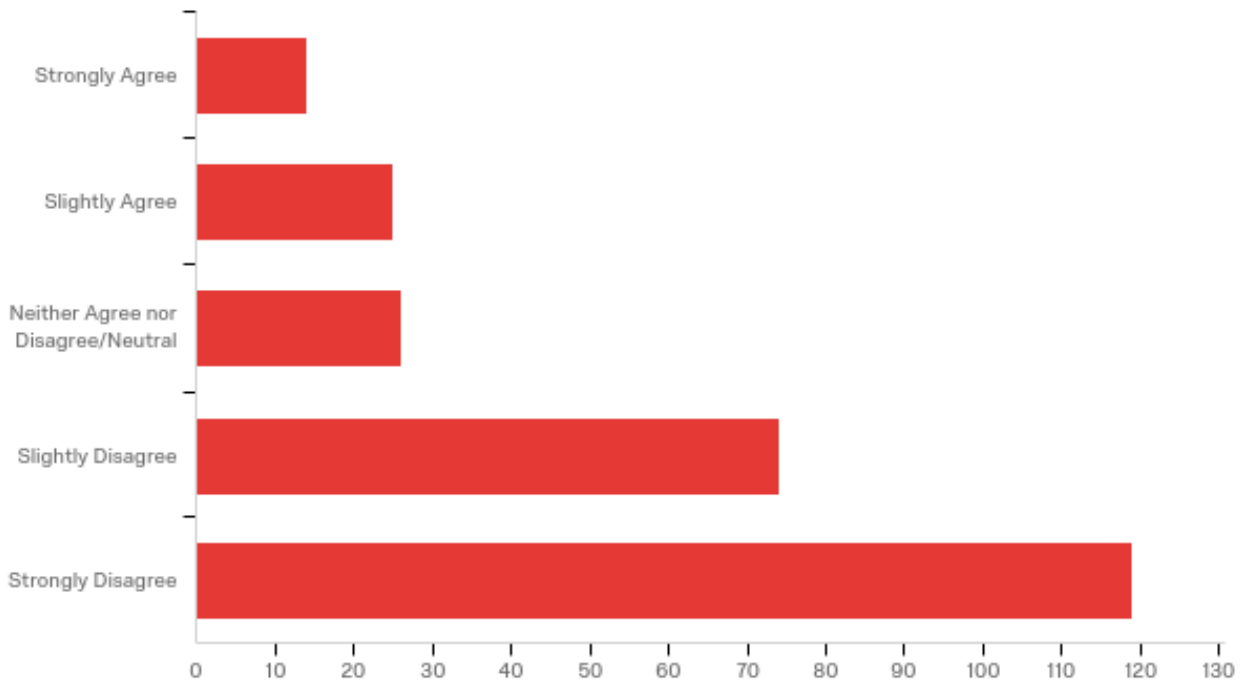
#	Answer	%	Count
1	Strongly Agree	5.81%	15
2	Slightly Agree	9.69%	25
3	Neither Agree nor Disagree/Neutral	8.91%	23
4	Slightly Disagree	34.88%	90
5	Strongly Disagree	40.70%	105
	Total	100%	258

**Q26 - Overall, I have a high level of respect for (check all that apply).**



#	Answer	%	Count
1	The Fire Chief	8.40%	43
2	The Assistant Fire Chiefs	13.09%	67
3	The Battalion Chiefs	33.40%	171
4	The Captains	45.12%	231
	Total	100%	512

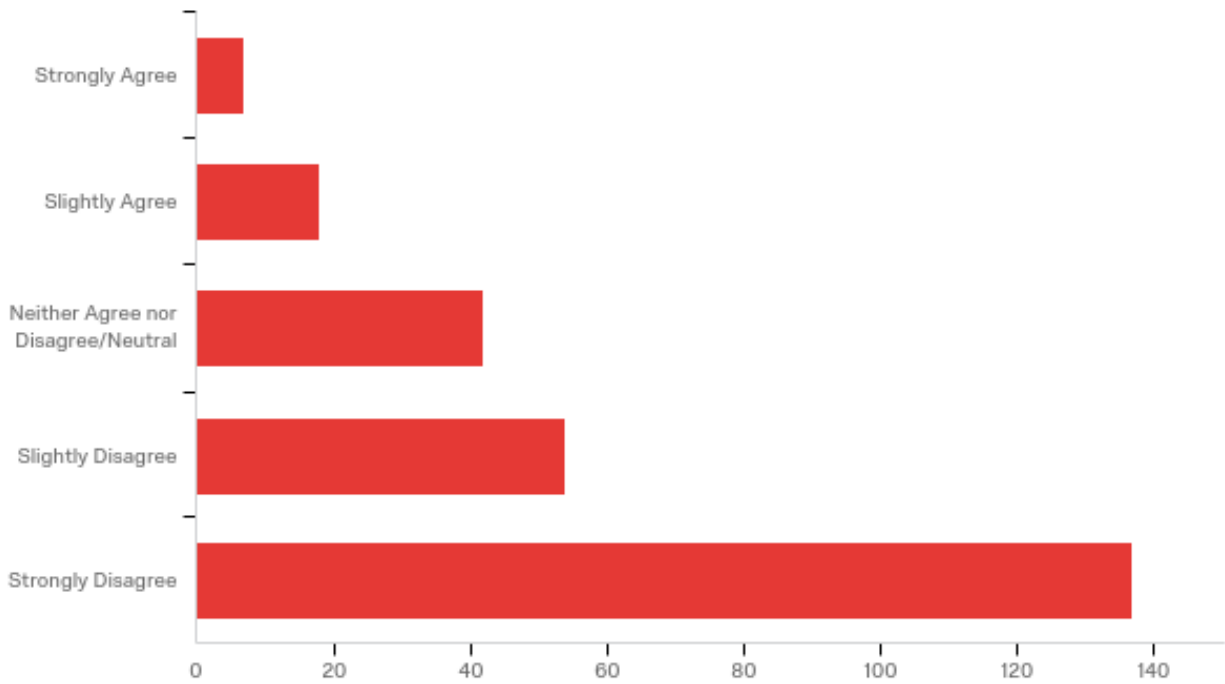
**Q27 - SFD senior managers (i.e., Fire Chief and Assistant Chiefs) demonstrate effective leadership skills.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	SFD senior managers (i.e., Fire Chief and Assistant Chiefs) demonstrate effective leadership skills.	1.00	5.00	4.00	1.20	1.44	258

#	Answer	%	Count
1	Strongly Agree	5.43%	14
2	Slightly Agree	9.69%	25
3	Neither Agree nor Disagree/Neutral	10.08%	26
4	Slightly Disagree	28.68%	74
5	Strongly Disagree	46.12%	119
	Total	100%	258

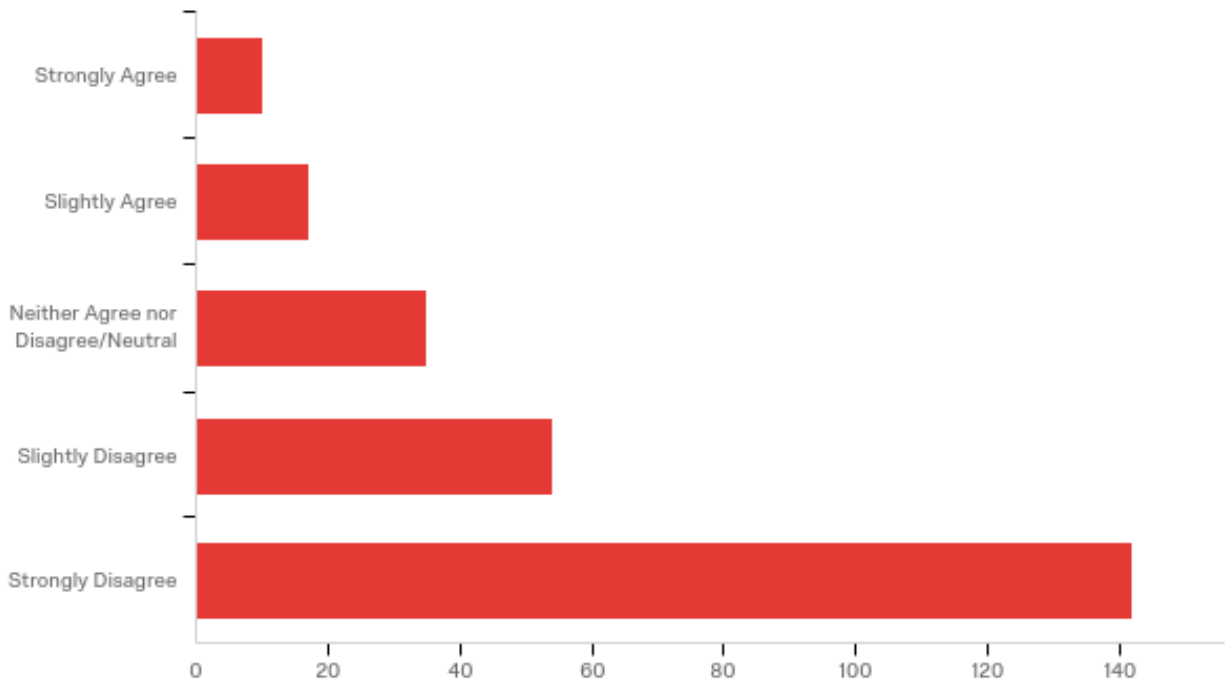
**Q28 - SFD senior managers (i.e., Fire Chief and Assistant Chiefs) are open to new ideas and suggestions.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	SFD senior managers (i.e., Fire Chief and Assistant Chiefs) are open to new ideas and suggestions.	1.00	5.00	4.15	1.09	1.20	258

#	Answer	%	Count
1	Strongly Agree	2.71%	7
2	Slightly Agree	6.98%	18
3	Neither Agree nor Disagree/Neutral	16.28%	42
4	Slightly Disagree	20.93%	54
5	Strongly Disagree	53.10%	137
	Total	100%	258

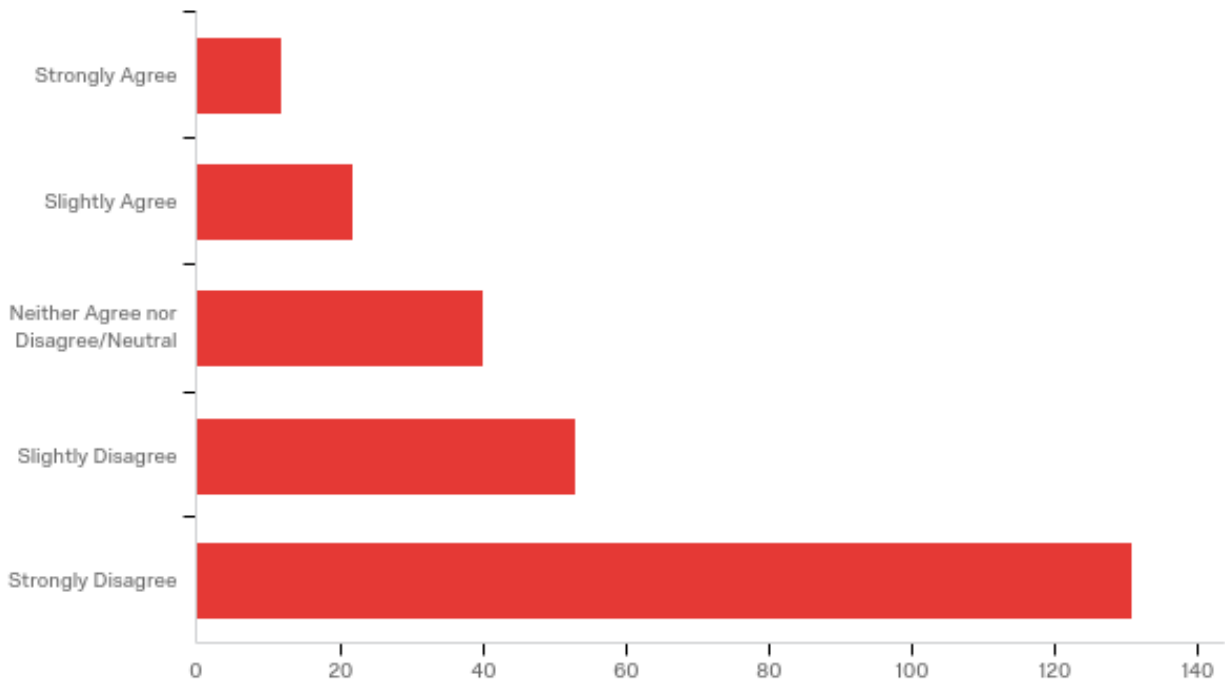
**Q29 - SFD senior managers (i.e., Fire Chief and Assistant Chiefs) promote good relations among staff.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	SFD senior managers (i.e., Fire Chief and Assistant Chiefs) promote good relations among staff.	1.00	5.00	4.17	1.13	1.27	258

#	Answer	%	Count
1	Strongly Agree	3.88%	10
2	Slightly Agree	6.59%	17
3	Neither Agree nor Disagree/Neutral	13.57%	35
4	Slightly Disagree	20.93%	54
5	Strongly Disagree	55.04%	142
	Total	100%	258

**Q30 - Overall, SFD senior management (i.e., Fire Chief and Assistant Chiefs) are concerned about the needs of the department's employees.**

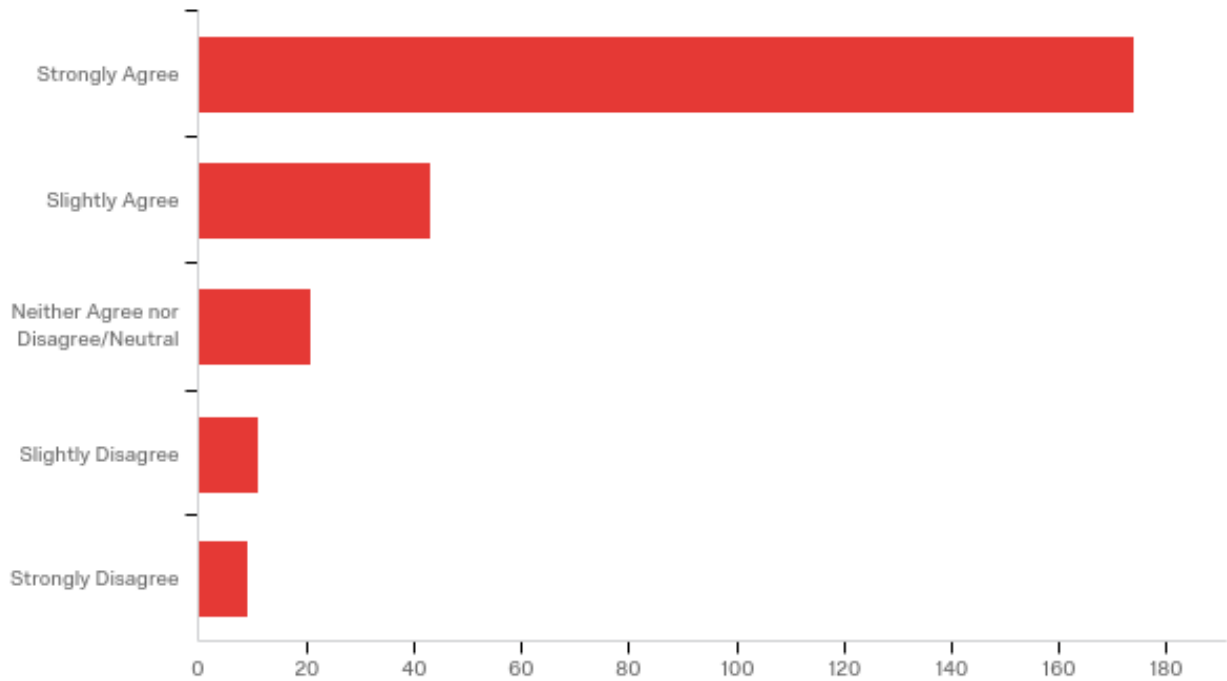


#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	Overall, SFD senior management (i.e., Fire Chief and Assistant Chiefs) are concerned about the needs of the department's employees.	1.00	5.00	4.04	1.19	1.42	258

#	Answer	%	Count
1	Strongly Agree	4.65%	12
2	Slightly Agree	8.53%	22
3	Neither Agree nor Disagree/Neutral	15.50%	40
4	Slightly Disagree	20.54%	53
5	Strongly Disagree	50.78%	131
	Total	100%	258



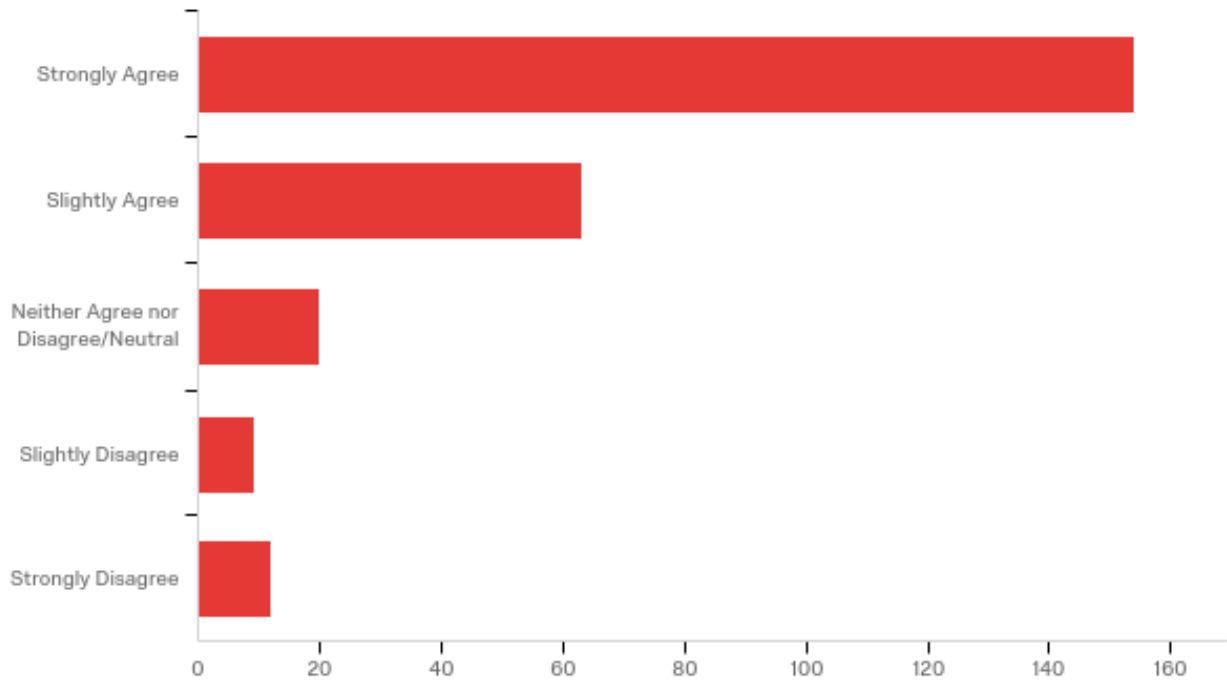
**Q31 - My supervisor treats all of his/her employees with respect.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My supervisor treats all of his/her employees with respect.	1.00	5.00	1.60	1.04	1.08	258

#	Answer	%	Count
1	Strongly Agree	67.44%	174
2	Slightly Agree	16.67%	43
3	Neither Agree nor Disagree/Neutral	8.14%	21
4	Slightly Disagree	4.26%	11
5	Strongly Disagree	3.49%	9
	Total	100%	258

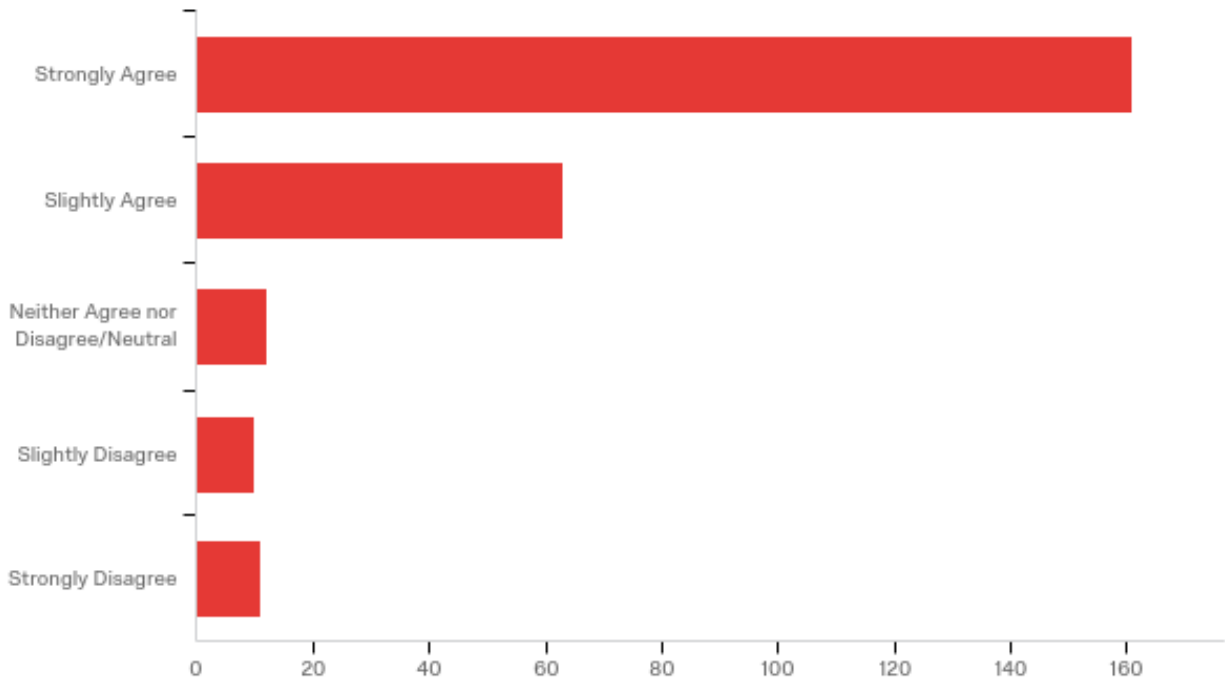
### Q32 - My supervisor values my talents and the contributions I make



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My supervisor values my talents and the contributions I make	1.00	5.00	1.69	1.07	1.14	258

#	Answer	%	Count
1	Strongly Agree	59.69%	154
2	Slightly Agree	24.42%	63
3	Neither Agree nor Disagree/Neutral	7.75%	20
4	Slightly Disagree	3.49%	9
5	Strongly Disagree	4.65%	12
	Total	100%	258

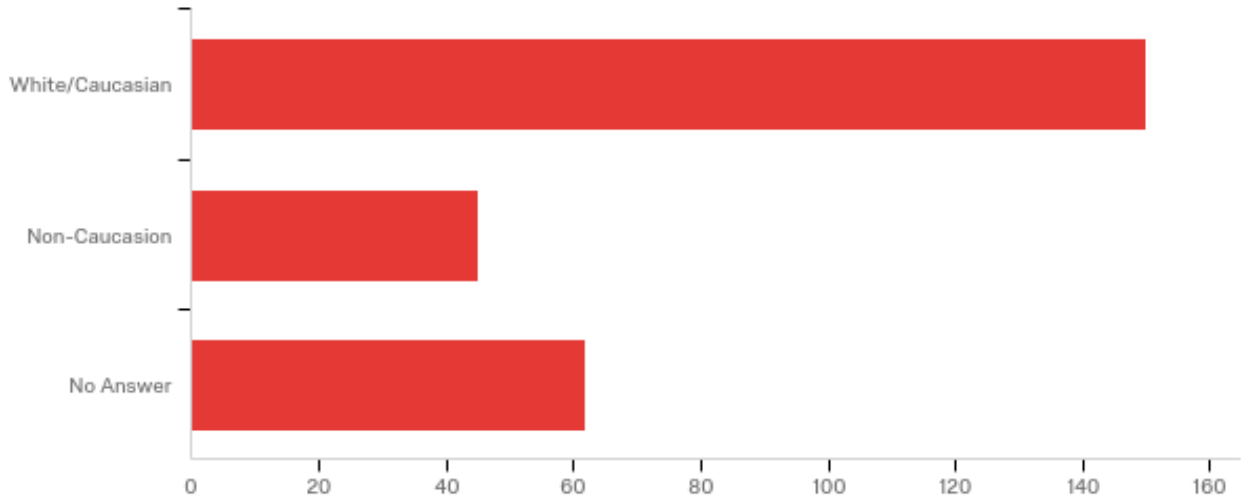
**Q33 - My supervisor is always willing to help me with problem-solving.**



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	My supervisor is always willing to help me with problem-solving.	1.00	5.00	1.63	1.04	1.07	257

#	Answer	%	Count
1	Strongly Agree	62.65%	161
2	Slightly Agree	24.51%	63
3	Neither Agree nor Disagree/Neutral	4.67%	12
4	Slightly Disagree	3.89%	10
5	Strongly Disagree	4.28%	11
	Total	100%	257

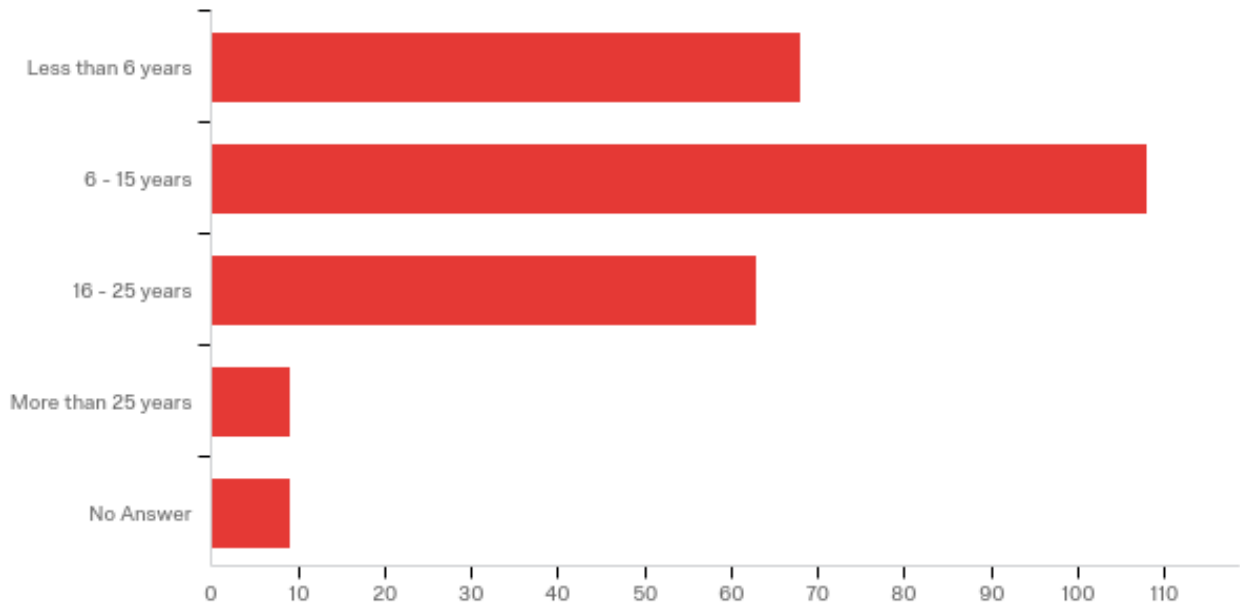
### Q34 - What is your race/ethnicity?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	What is your race/ethnicity?	1.00	3.00	1.66	0.84	0.71	257

#	Answer	%	Count
1	White/Caucasian	58.37%	150
2	Non-Caucasian	17.51%	45
3	No Answer	24.12%	62
	Total	100%	257

### Q35 - How many years have you been with the Savannah Fire Department?



#	Field	Minimum	Maximum	Mean	Std Deviation	Variance	Count
1	How many years have you been with the Savannah Fire Department?	1.00	5.00	2.16	0.97	0.94	257

#	Answer	%	Count
1	Less than 6 years	26.46%	68
2	6 - 15 years	42.02%	108
3	16 - 25 years	24.51%	63
4	More than 25 years	3.50%	9
5	No Answer	3.50%	9
	Total	100%	257