



South Carthage, Tennessee

Insurance Service Office (ISO) Public Protection Classification Improvement Study

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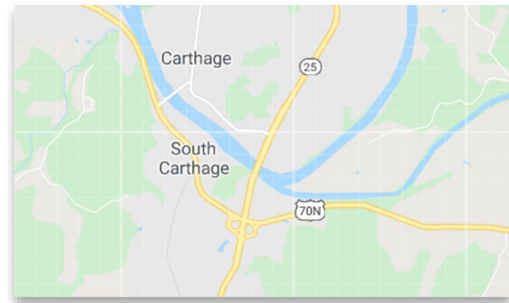
Introduction and Scope of Work

The staff of the University of Tennessee Municipal Technical Advisory Service (UT-MTAS) strives daily to meet its consensus mission. As an agency of the University of Tennessee, MTAS leverages the resource of the University to improve the lives of the people of Tennessee with technical consulting, research, and training for municipal governments. This study works toward UT-MTAS's mission and was conducted at the request of Chief Ricky Slack, Fire Chief for the South Carthage Fire Department. Information provided as a part of this study was drawn from the South Carthage's Insurance Service Office (ISO) audit report dated July 2015. Conducted telephone interviews with South Carthage Fire Chief Ricky Slack and Smith County 911 Director Jeff Crockett. The purpose of this study is to analyze the credit the department earned on their 2015 Insurance Service Office audit, update improvements made since, and make recommendations on how to improve services even further in 2020 and beyond.

The University of Tennessee Municipal Technical Advisory Service (UT-MTAS) will provide the final version of this report to the Shelbyville Fire Department, in an electronic as well as a physical hardcopy binder.

Background

South Carthage a municipality located in central region of Smith County adjacent to Carthage, the county seat of Smith County. South Carthage is geographically located along the Highway 70 corridor between the cities of Lebanon and Cookeville. South Carthage is in the Nashville Metropolitan Statistical Area and entirely in Smith County. The level of fire protection, public safety and other municipal services are a local policy issue.



A community must balance available local resources against what is determined to be acceptable risks for the citizens of a community by their elected officials. Data provided for this study was provided via an ISO Audit report completed in July 2015. Also conducted telephone interview with Jeff Crockett, Smith County 911 Director and Chief Slack. The South Carthage Fire Department provides fire services to an estimated population of just over 1,400 residents, based on the United States census estimate. From a historical perspective, South Carthage is on the move; growing in population by approximately 1.5% between 2000 and 2010 then an estimated 4.2% between 2010 and 2018.

The residents of South Carthage have a median age of 38.8 years just slightly above the state median age of 38.6 years. The residents of South Carthage have a median household income of just over \$40,000 annually which is below the state median of approximately \$52,000 annually.

Fire Department-Description

Organizational Overview

The fire department is municipal department led by a fire chief. The municipality is governed by a Mayor/Council form of government with a professional city manager. The department is made up of approximately 42 career firefighters that provide for all-hazards response within the municipal boundaries. The department further provides mutual aid services throughout Bedford County when requested.

South Carthage's Insurance Services Office (ISO) Public Protection Classification (ISO rating) is currently a Class 6/6x. The Class 6/6x ISO rating places South Carthage in the lower tier of the percentages of communities in Tennessee (Figure 1) as well as in the lower tier percentage of communities across the nation (Figure 2) in terms of fire protection. This rating indicates that the department's leadership with the support of city staff and elected officials have made some good decisions in the past but there is room for improvement. As we analyze the findings of ISO, there will be opportunities to improve components of the organization thus improving services provided to the community and potentially reducing the city's Insurance Service Public Protection Classification.

Figure 1 – Public Protection Classification (ISO Rating) in Tennessee

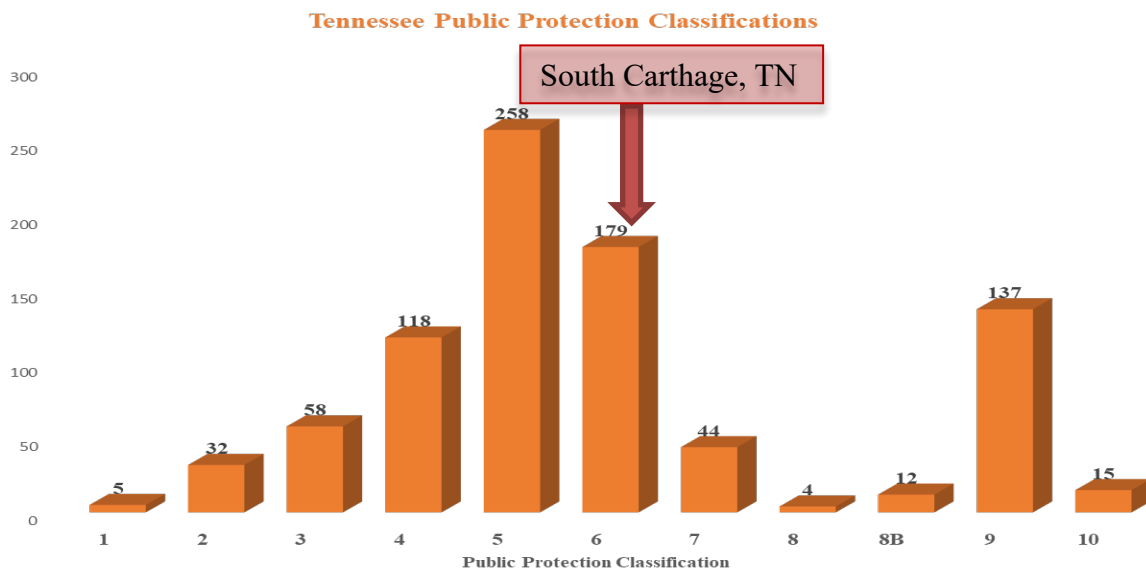
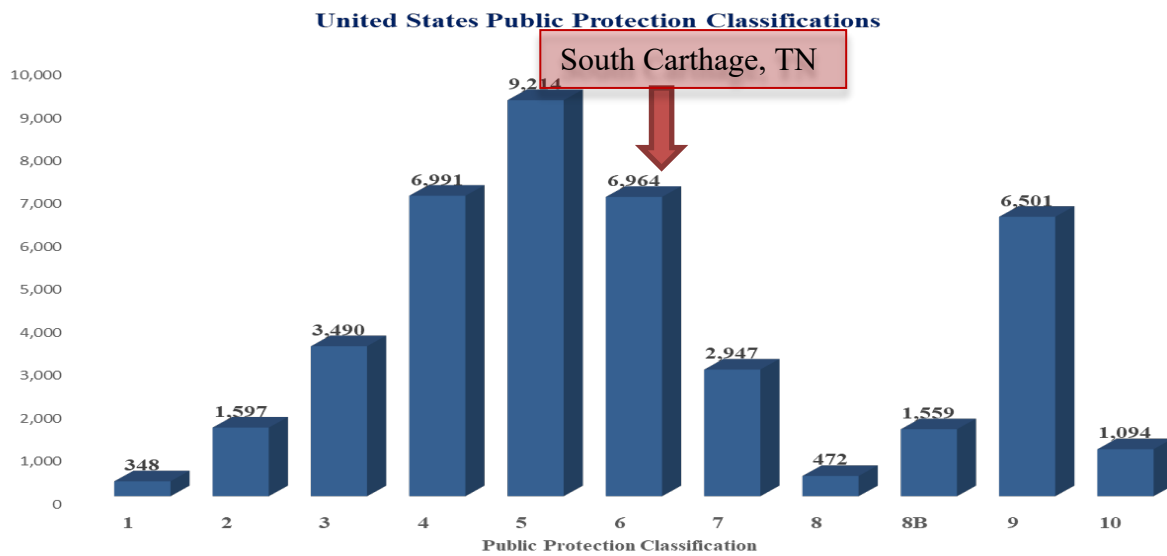


Figure 2 – Public Protection Classification (ISO Rating) in the US



South Carthage’s ISO “6” is the classification assigned to the community for structures located within five (5) road miles of a fire station and within 1,000 feet of a fire hydrant. The “6X” classification is assigned to the community for structures located within five (5) road miles of a fire station but not within 1,000 feet of a fire hydrant.

ISO Public Protection Report by Category

In analyzing the ISO report dated July 2017, we reviewed each section of the Public Protection Classification report to determine what actions has and/or what actions should be implemented in the future in order to possibly improve the community’s public protection classification.

Emergency Communications

The emergency communications office earned a total of 9.25 of a possible 10.00 points in this category. This section analyzes the emergency communications center emergency reporting, telecommunicators, and dispatch circuits.

Credit for Emergency Reporting

The department earned 2.55 of a possible 3.00 points in this category. In order to earn full credit in this section, the communications center should provide Basic computer aided dispatch, computer aided dispatch with a management information system, a computer aided dispatch with appropriate interoperability, and a fully integrated computer aided dispatch with geographical information system equipment with automatic vehicle location that provides dispatch assignments.

- **Recommendation for Improvement:** In order to receive maximum credit, the communications center needs to ensure that the center and apparatus are equipped with geographical information system and automatic vehicle location (GIS/AVL)

system that assigns appropriate fire department resources to each incident. The Shelbyville FD staff noted that their fire apparatus are equipped with tablet computers connected to the internet.

Credit for Telecommunicators

The department earned 4.00 of a possible 4.00 points in this category. In order to earn full credit in this section, the communications center must provide documentation that it meets National Fire Protection Association (NFPA) 1221 as it pertains to call processing and dispatch time performance. This section also reviews the communication center to ensure there are policies in place, that communicators are trained/credentialed, and that communicator receive on-going in-service training.

- **Recommendation for Improvement:** The communications center received full credit in this category. Continue current practices to ensure that the center meets national benchmarks, has current dispatch protocols, as well as continue telecommunicator training/certification and that there is an ongoing in-service training program in place.

Credit for Dispatch Circuits

The department earned 2.70 of a possible 3.00 points in this category. In order to earn full credit in this section, the communications center must meet NFPA 1221 in providing the proper number of supervised dispatch circuits for the number of calls dispatched annually from the center. The number of calls is not just the number dispatched to the Shelbyville Fire Department but the total dispatched through the center to all agencies that use the center.

- **Recommendation for Improvement:** The communications center must evaluate the center's call volume and evaluate that number against NFPA 1221 to ensure the center has the proper number of primary and secondary dispatch circuits. The communications center must further work with their equipment vendor to ensure that all dispatch circuits are monitored for integrity.

Fire Department

The department earned a total of 32.05 of a possible 50.00 points in this category. This section analyzes engine companies, service companies, ladder companies, fire station locations, staffing, staff training, and operational considerations. The Basic Fire Flow for the jurisdiction is calculated at 3,500 gallons per minute. This number is used to determine the number of engine companies that should be dispatched on each structure fire and to meet the basic fire flow requirements.

Credit for Engine Companies

The department earned 5.24 of a possible 6.00 points in this category. In order to earn maximum credit in this section, the engine apparatus must be equipped the correct inventory of hose, tools, and equipment as well as current pump test as required in NFPA 1901.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must acquire the required hose, tools, and equipment for each apparatus as well as test the fire pump annually as required by NFPA.

Credit for Reserve Engine Companies

The department earned 0.46 of a possible 0.50 point in this category. In order to earn maximum credit, the department should have pre-arranged a reserve engine apparatus to put into service if the primary apparatus is out of service.

- **Recommendation for Improvement:** The department must have or pre-arrange for the use of a reserve engine apparatus to be put into service when primary apparatus is out of service. The reserve engine must be equipped with the proper hose, tools, and equipment as well as be tested annually as a front line apparatus.

Credit for Pump Capacity

The department earned 3.00 of a possible 3.00 points in this category. The department was evaluated to determine if there was sufficient pump capacity to meet the community's basic fire flow of 3,500 gallons per minute.

- **Recommendation for Improvement:** In order to continue to receive maximum credit, the department must assign, at minimum, two pumper apparatus with enough pump capacity to meet or exceed the stated basic fire flow of 3,500 gallons per minute on each structure fire.

Credit for Ladder/Service Companies

The department earned 3.04 of a possible 4.00 points in this category. In order to earn maximum credit in the section, the department must provide for a fully equipped ladder truck if there are five (5) or more buildings 32' or higher or five (5) or more buildings that have a needed fire flow of 3,500 gallons per minute or more or any combination of buildings that meet the height or needed fire flow requirements.

- **Recommendation for Improvement:** In order to receive maximum credit, the department must inventory all structures within its response district to determine which buildings meet the requirement for a ladder truck. If there are five or more buildings that meet the definition stated above, the department would need an aerial apparatus to deploy to structure fires. If there are not enough buildings in the response district to require a ladder truck, the department must provide for an equipped service company. The needed fire flow component can be controlled by requiring buildings to be equipped with automatic fire sprinkler systems.

Credit for Reserve Ladder/Service Companies

The department earned 0.00 of a possible 0.50 point in this category. In order to earn maximum credit, the department should have pre-arranged a reserve ladder/service apparatus to put into service if the primary apparatus is out of service.

- **Recommendation for Improvement:** The department must pre-arrange for the use of a reserve ladder/service apparatus to be put into service when primary apparatus is out of service. The reserve ladder/service apparatus must be equipped with the proper hose, tools, and equipment as well as be tested annually as a front line apparatus.

Credit for Deployment Analysis

The department earned 8.62 of a possible 10.00 points in this category. The department was evaluated on the number and adequacy of engine apparatus and ladder/service apparatus located within the 1.5 mile engine company service area and 2.5 mile ladder/service company service area. Credit is earned through existing engine apparatus and engine apparatus equipment credit earned and ladder/service and ladder/service equipment credit earned. The number of engine and ladder/service apparatus needed is calculated based upon the percentage of built upon area falls within the response zones above.

At the time of the department's 2017 ISO audit, the department staffed and answered calls for service from two fire stations. There are engine apparatus deployed from both stations and a ladder apparatus deployed from station 1. Based on the square miles of the municipality covered, the department should have a minimum of three engine apparatus and more than one ladder apparatus. The quint apparatus recommended below will allow firefighters to serve the community more efficiently as well as earn the fractional ladder credit your city needs for maximum credit.

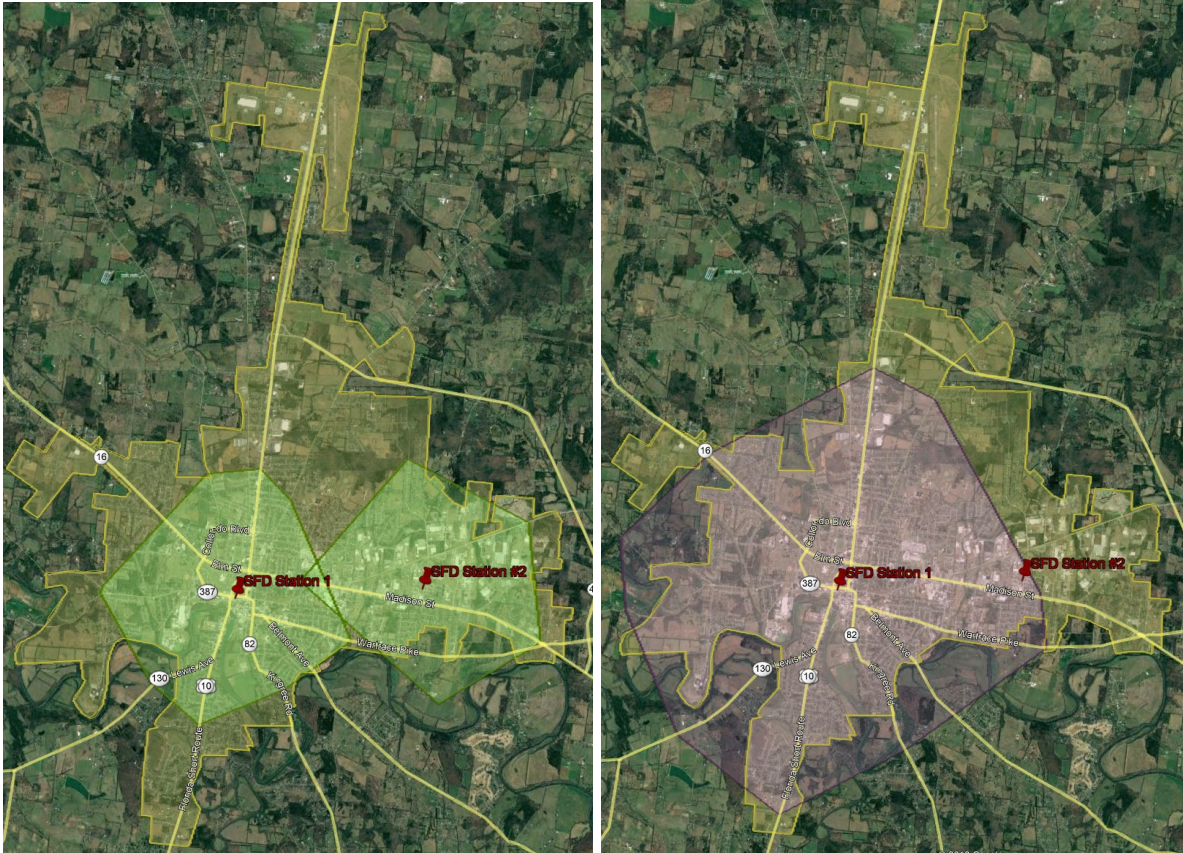


Figure 3 – Current Shelbyville Engine Response (Left) and Ladder Response (Right)

- **Recommendation for Improvement 01:** In order to earn maximum credit, the department must do the following:
 - Conduct a fire apparatus equipment inventory audit and a fire station location study.
 - Fire apparatus must be equipped with the tools, appliances, and equipment as specified in NFPA 1901.
 - The fire station study should analyze the jurisdiction to ensure fire stations are located strategically to service the community that meet the NFPA 1710 deployment standard. Figure 3 denotes the two current staffed fire station locations and the associated 1.5 mile engine company response area and the one Ladder Company assigned to Station 1 and its associated 2.5 mile ladder company response area.

- **Recommendation for Improvement 02:** In order to earn maximum credit, the department must do the following:
 - Complete the rehab of fire station 3 located at the airport.
 - Recruit adequate members to staff the fire apparatus assigned.
 - Procure a quint fire apparatus to deploy from station 3. The quint earns 100% engine apparatus credit as well as 50% ladder apparatus credit. The quint apparatus is a tool to allow firefighters to work much more efficiently for provide for better care of the jurisdiction.

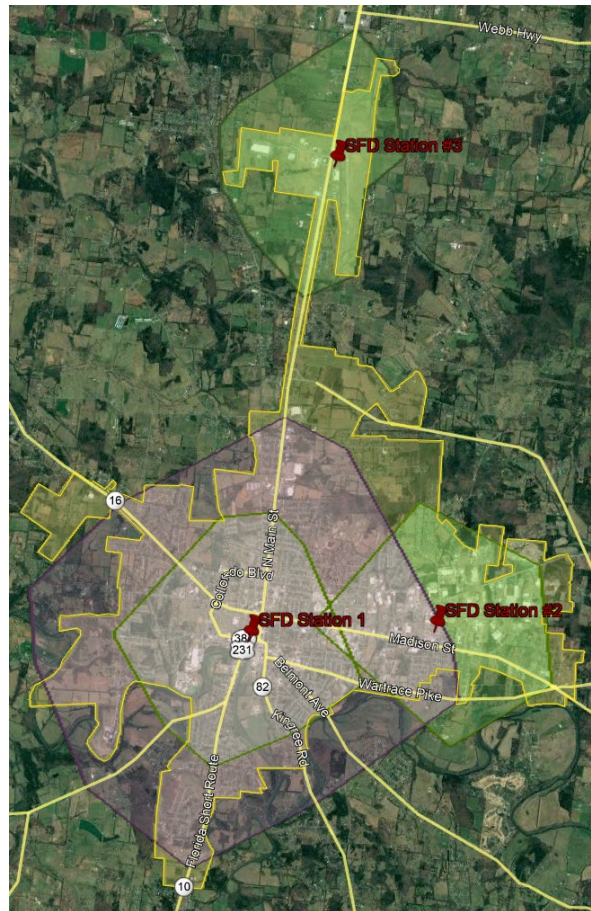


Figure 4 – Recommended Engine& Ladder Response with Fire Station 3

The adoption of an automatic fire sprinkler ordinance and the strategic deployment of fire apparatus are imperative to maximize your citizens’ chances survival should they experience a structure fire. Time is our customer’s as well as the fire department’s worst enemy. Refer to Figure 5 - Home Fire Timeline on the following page. This graphic illustrates the consensus agreed upon timeline that visually reflects the elapsed time from fire ignition to the occurrence of flashover (moment when contents of room/home ignite) in the home, and fire department arrival at the emergency.

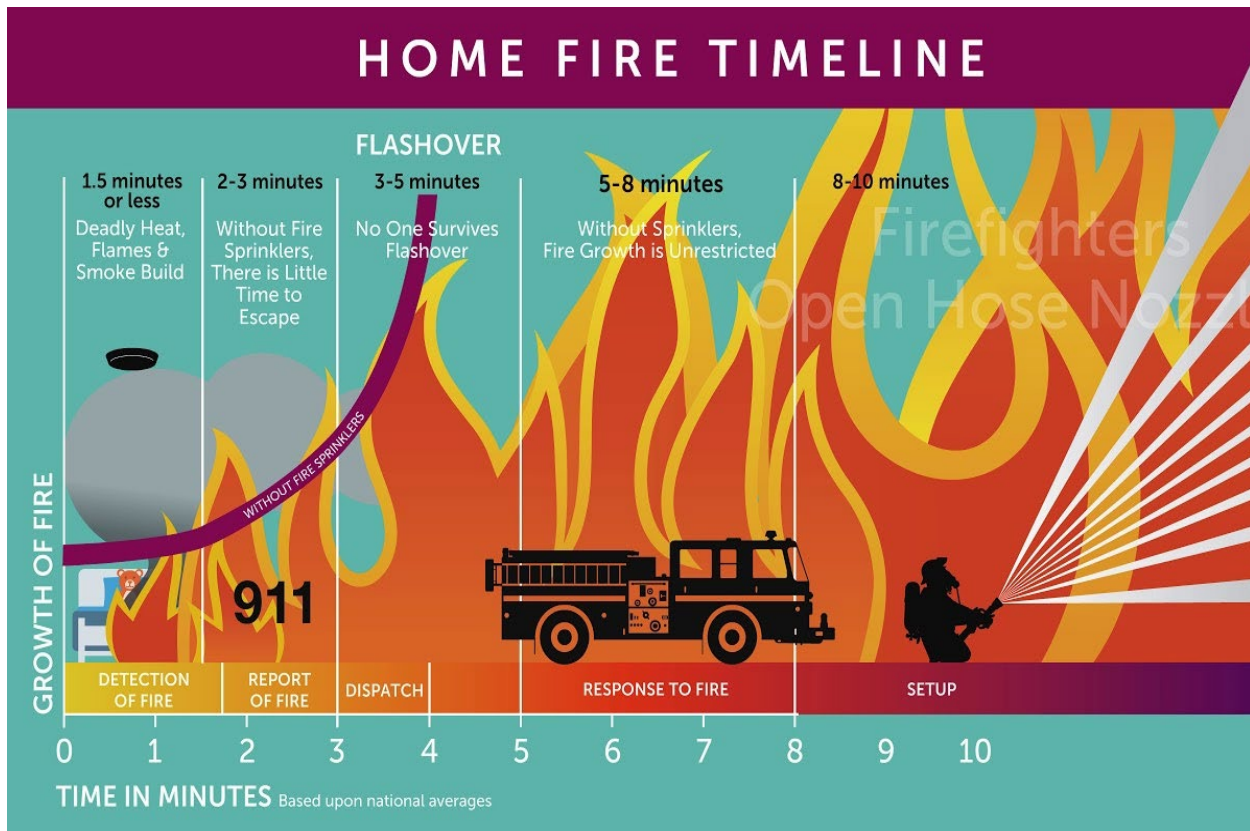


Figure 5 – Home Fire Timeline

Credit for Company Personnel

The department earned 5.81 of a possible 15.00 points in this category. The department was evaluated on the number on-duty personnel and average number of on-call personnel that responded to each structure fire. ISO credited the department with 10.62 on-duty personnel and an average of 6.46 on-call personnel responding to each structure fire.

- Recommendation for Improvement:** In order to earn maximum credit, the department should develop a strategy to move toward the staffing recommended in the National Fire Protection 1710 staffing/deployment standard of four members per apparatus including a supervisor. Since each member of the department is trained and responsible for fire incident mitigation, each member must be utilized for incident mitigation. The department should evaluate the different levels of risks associated with the occupancy types in the jurisdiction and develop a dispatch protocol to assign adequate staff to each structure fire.

Credit for Training

The department earned 3.88 of a possible 9.00 points in this category. The department was evaluated on training facilities and use, company training, officer training, new driver training, existing driver training, hazardous materials training, new recruit training, and pre-fire planning activities. Training is an imperative component of a successful and safe fire department. The department must aggressively address training activities and documentation in the department. It is important to note that the department can earn additional fractional

credit in any aspect of the grading schedule with improvement. Each point of improvement in the different components of the training category moves the overall schedule's grade by 0.09 points. *Example: the 35.00 points available in facilities and Use-If the department earned all 35.00 points, the department would earn an additional 3.15 points on the overall grading schedule.*

Facilities and Use: The department earned 0.00 of a possible 35.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop a training program that includes the use of a training facility with two acres of improved surface and document a minimum of 18-hours of fire training per firefighter annually. We discussed the use of existing buildings in your jurisdiction as well as the utilization of the state fire academy and/or the state fire academy's portable training facility to provide the needed training opportunities for your members.

Company Training: The department earned 19.25 of a possible 25.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop and document a minimum of 16-hours of monthly training for each firefighter. The training must meet the knowledge, skills, and abilities outlined in NFPA 1001 standard. It important to note that ISO does award fractional credit so if firefighters average 8-hours monthly, corresponding credit should be earned.

Officer Classes: The department earned 6.92 of a possible 12.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop an officer training program and require that officers/acting officers earn certification. The department can earn 50% of this credit by ensuring each officer/acting officer participates in a minimum of 12-hours annually of specialized training related to NFPA 1021 officer knowledge, skills, and abilities. In addition, the department can earn 50% of this credit by ensuring each officer is certified, at minimum, at the Fire Officer I level from the Tennessee Fire Commission, IFSAC, and/or ProBoard.

New Driver Operator Training: The department earned 1.00 of a possible 5.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop a new driver operator training program to ensure each new driver operator participates in a minimum of 60-hours of initial specialized

training program meeting NFPA 1002 related to the knowledge, skills, and abilities related to fire apparatus operator.

Existing Driver Operator Training: The department earned 5.00 of a possible 5.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must continue to ensure that existing driver operators complete a training program to ensure each existing driver operator participates in a minimum of 12-hours of specialized training program meeting NFPA 1002 related to the knowledge, skills, and abilities related to fire apparatus operator.

Hazardous Materials Training: The department earned 0.85 of a possible 1.00 point available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must ensure that all members participate in a minimum of 6-hours of hazardous materials training related to the knowledge, skills, and abilities as outlined in NFPA 1072.

Recruit Training: The department earned 2.13 of a possible 5.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop a recruit firefighter training program to ensure each new firefighter participates in a minimum of 240-hours of firefighter training related to the knowledge, skills, and abilities as outlined in NFPA 1001. ISO awards fractional credit if an average of less than 240 creditable hours of training is evaluated. Firefighters that are hired that are already certified Firefighter II are not recruit firefighters and are not required to do 240-hours initially unless this is a local requirement.

Pre-Fire Planning: The department earned 7.92 of a possible 12.00 points available in this category.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop a pre-fire planning program as outlined in NFPA 1620 and show a practice whereas all commercial, industrial, institutional facilities, and residential over four occupancies, in the jurisdiction, are pre-planned at a minimum

of once annually. Pre-plans should be documented with current notes, dates of inspections, and a sketch of the facility.

Credit for Operational Considerations

The department earned 2.00 of a possible 2.00 point available in this category. The department was evaluated on its Standard Operating Guidelines and use of an Incident Management System at structure fires.

- **Recommendation for Improvement:** The department should continue its current practices by reviewing/revising its Standard Operating Guidelines at minimum annually. This review should be documented to illustrate a practice of annual review. The department must also continue its practice of utilizing the incident management system to manage resources at emergency incidents.

Water Supply

The water purveyor earned 37.35 of a possible 40.00 points available in this category. The following categories were evaluated to calculate the credit awarded for the water supply category.

Water System: The department earned 27.35 of a possible 30.00 points available in this category. Water system evaluates the adequacy of the jurisdictions water supply as it pertains to fire suppression. In communities where there is a needed fire flow of 2,500 gallons per minute or less, the system should be capable of delivering this for a minimum of two hours. In communities where there is a needed fire flow of over 3,000 gallons per minute, the system should be capable of delivering this amount of water for a minimum of three hours. In addition, the jurisdictions fire hydrant locations, fire hydrant inspection, and fire hydrant flow testing programs are evaluated to ensure national standards are met.

- **Recommendation for Improvement:** The department should work closely with the water purveyor to ensure adequate water volume and pressure is available in the district for fire suppression activities. The department must also have pre-designated plans for tender support when structure fires are reported in areas of the district with hydrant greater than 1,000 feet from a structure and/or no fire hydrants.

Fire Hydrants: The department earned 3.00 of a possible 3.00 points available in this category. The water system has done well in this category. At the time of the audit, the department had 1,153 fire hydrants in the response district. All fire hydrants are consistent in size, threads, and operation.

- **Recommendation for Improvement:** The department should continue to work closely with the water purveyor to ensure consistent type fire hydrants are installed

within the district. Each hydrant should have consistent size, wrench type, and turn on/off in the same direction.

Hydrant Inspection: The department earned 4.00 of a possible 4.00 points available in this category.

- **Recommendation for Improvement:** The department should continue its current practice of inspecting its fire hydrants annually and that proper documentation is maintained on the inspections.

Hydrant Flow Testing: The department earned 3.00 of a possible 3.00 points available in this category.

- **Recommendation for Improvement:** The department should work with the water purveyor to ensure that fire hydrants are flow tested per NFPA 291 (multi-hydrant flow tests) at minimum every five years and that proper documentation is maintained on the flow tests.

Divergence

The jurisdiction earned -5.85 divergence rating score. Divergence is the mathematical reduction of the fire department credit based on the relative difference between the fire department and water scores. It is important to build capacity in both categories (fire and water) rather than investing primarily in one category.

- **Recommendation for Improvement:** The department should focus on implementation of outlined recommendations to improve the fire department's administration and operation thus having the potential of improving services to the community as well as improving the fire department's ISO classification. Improving the fire department's credit has a synergistic effect on the total public protection classification credit earned. As the fire department's credit improves, the divergence score will be reduced. Reducing the divergence points reduces the number of points subtracted from the department's credit.

Community Risk Reduction

The department earned 4.28 of a possible 5.50 points available in this category. In this category, the department earns credit through its proactive approach to fire prevention and fire safety. The department is evaluated on fire prevention and code enforcement, public fire safety educators, and fire investigations programs.

Fire Prevention and Code Enforcement: The department earned 1.81 of a possible 2.20 points available in this category. In this category, the department was evaluated on the fire prevention code adopted, fire prevention staffing, fire prevention training and certification, and fire prevention programs. Each of these categories are evaluated for their individual score then translated into the overall Community Risk Reduction credit.

Fire Prevention Code Adopted: The department earned 10.00 of the 10.00 the points available.

Fire Prevention Staffing: The department earned 4.12 of the 8.00 the points available.

Fire Prevention Training and Certification: The department earned 4.25 of the 6.00 the points available.

Fire Prevention Programs: The department earned 14.60 of the 16.00 the points available.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must continue to ensure the fire prevention code adopted is within seven years of the most current code. The department should designate certain members of the department as fire prevention officers. These fire prevention members must be trained and certified as a fire inspector. Finally, the department must develop and implement additional fire prevention programs to ensure the safety of facilities within the jurisdiction.

Public Fire Safety Educators: The department earned 1.62 of a possible 2.20 points available in this category. In this category the department was evaluated based on public fire safety educator training/certification as specified by the department and public fire safety programs available.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must develop adequate public fire and life safety education programs for the department. The program should outline the initial and ongoing training and certification requirements for a public fire and life safety educator. Then the department must develop and present quality fire safety programs for the public.

Fire Investigation Program: The department earned 0.85 of a possible 1.10 points available in this category. In this category, the department was evaluated on fire investigation organization and staffing, fire investigator training and certification, and the department's use of the national fire incident reporting system.

Fire investigation organization and staffing: The department earned 8.00 of the 8.00 the points available.

Fire investigator training and certification: The department earned 1.50 of the 6.00 the points available.

Use of national fire incident reporting system: The department earned 6.00 of the 6.00 the points available.

- **Recommendation for Improvement:** In order to earn maximum credit, the department must continue its practice of providing organization and staffing for fire investigations as well as reporting to the national fire incident reporting system. The department must focus efforts on ensuring that fire investigations staff members are trained and certified based on the knowledge, skills, and abilities outlined in NFPA 1033.

Recommendation Implementation

To provide for firefighter safety, excellence in customer service, while making efforts to maintain or improve Shelbyville's Class 3/3x ISO Public Protection Classification rating, Shelbyville should consider the recommendations of this study and develop a comprehensive plan to implement each recommendation. The recommendations made, in this report, will require considerable resources time and dollars so this must be planned for accordingly. Consideration must be made for any initial capital outlay as well as annual sustainability.

Summary

The department's leadership must continue to demonstrate a priority on firefighter safety and internal/external customer service. Growth has occurred and with the amount of development that appears to continue in Shelbyville, the fire department must plan for immediate needs of the community as well as its future needs. Shelbyville's fire station #1 is a nice facility strategically located to provide NFPA 1710 engine coverage to the middle and southwestern portions of the municipality as well as NFPA 1710 ladder coverage to most of the most densely populated area of the municipality. Fire station #2 is a nice facility strategically located to provide NFPA 1710 engine coverage to the middle and southeastern portions of the municipality. The municipality has considerable areas across the northern end of the municipality that is not located within a NFPA 1710 engine/ladder apparatus response area. The municipality must consider staffing a third fire station.

Based on the scope and findings of this study, Shelbyville should implement as many of the recommendations made in this report as feasible. This action will greatly improve firefighter safety, provide for quick and efficient emergency services to the public, and could improve but

surely prevent a possible future reduction (worsening) of Shelbyville’s Class 3/3x ISO rating. It is important to note that a worsening of the ISO by 1 classification most likely would lead to an increase in insurance premiums for residents of one and two family dwellings.

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Recommendations

The most efficient and cost effective way for the Shelbyville to provide for an all-hazards fire service delivery program that addresses community risks and needs is addressed in the previous category recommendations as well as in the following broad recommendations. These

recommendations were based on the department's latest ISO evaluation of the jurisdiction dated July 1, 2017.

1. Adopt a comprehensive automatic fire sprinkler ordinance for all new construction and incentives for retrofit of existing buildings. Use resources like the National Fire Sprinkler Association as a partner as you plan for this step. It is worth noting that buildings equipped with fire sprinkler systems are much safer and occupants/firefighters are more likely to survive if a fire occurs. Also, when determining the basic fire flow for a community, ISO does not consider properties protected by a code complaint automatic fire sprinkler system. In a sprinkled building, the amount of time between the occurrence of a fire and reopening for business can be as little as a few hours or days versus months, years or even never rebuilding for a non-sprinkled building. This will help provide greater safety for the citizens/visitors to the community as well as help ensure a steady consistent revenue stream for the city.
 - Tennessee's fire mortality rate for civilians has been among the highest in the nation. During 2002-2010, the time period for the Tennessee Fire Mortality Study, the national fire mortality rate declined, but the rate in Tennessee increased. Residential structure fires account for about three-fourths of all civilian fire deaths in the state. Residential sprinklers save money and lives and are a good investment in a home, but they are controversial in many communities which is why this study recommends research on residential sprinklers before considering adopting an ordinance. Adopting an ordinance to require automatic fire sprinkler systems is a proactive community risk reduction rather than reactive fire response and suppression.
2. Adopt a response time standard for the community. Shelbyville Fire Department is a perpetual organization that will outlast current leaders, and this study looks at current and anticipated future needs. Once adopted, the response time standard will serve as a planning guide for future leaders. This study recommends a response time standard of a maximum of 6:35 (six minutes, 35 seconds) for 90% of all responses, which is based upon recommendations found in NFPA Standard 1710, Standard for the Organization and Deployment of Fire Suppression Operations. The 6:35 breaks down as follows: ring time: 15-seconds, call processing time: 60-seconds, firefighter turnout time: 80-seconds, and travel time: maximum 240-seconds. Using this standard, planners would look for fire station locations to maintain a 4 minute travel time to as much of the area to be protected as possible future needs.
3. Adopt a comprehensive Community Risk Reduction Program. This will assist the fire department in identifying risks posed throughout the response district. As a comprehensive program, the intent would be to have a team of leaders from all areas of government to identify these risks posed at all levels of government and then systematically mitigate each

of these risks. This practice will pay huge dividends in providing for the safety and livability of the city.

- Adopt and enforce the current fire code.
 - Investigate the cause of all fires.
 - Provide public education programming to meet the needs of the community.
 - Utilize the national fire incident reporting system to document all fires in the community.
4. Review, plan for, and implement as many of the category specific recommendations provided throughout this report. Use UT-MTAS as often as needed to assist with any of your needs.

References

Insurance Services Office. (2017). *Fire Protection Rating Schedule*. Jersey City, NJ: Insurance Services Office (ISO).

Insurance Services Office. (2015). *Fire Protection Rating Schedule*. Shelbyville Fire Department Dated June 2015.

City Data Website: <https://www.city-data.com/city/South-Carthage-Tennessee.html>

