Fire Station Feasibility Study

for

Swancreek Township

Prepared by

The Ohio Fire Chiefs' Association

PREMIER • PROFESSIONAL • PROACTIVE

November 2019

Executive Summary

The Ohio Fire Chiefs' Association was contracted to conduct a fire station location analysis for Swancreek Township. Swancreek Township is located in southeastern Fulton County and has a population of 6,303 in the unincorporated area of 39.78 sq. miles. The township is primarily a rural agricultural area with some residential subdivisions. The village of Delta is located in the northwestern portion of the township and the village of Swanton is located in the northeastern portion of the township.

The township receives fire and rescue response services from three agencies by contractual agreements: Swanton Fire & Rescue Division (SFRD), Delta Community Fire Department (DFD) and Providence Township Fire Department (PTFD), which is located in Lucas County. Fulton County has a countywide emergency medical services (EMS) program. Those services are delivered by contract with local fire department agencies. DFD and SFRD both operate one of the county's five advanced life support (ALS) level EMS units. PTFD also has an ALS level EMS unit.

An operational overview of the three departments that service Swancreek Township was completed. This overview included a review of staffing, response performance, service demands and community risk assessment.

DFD is a combination agency with a full-time fire chief, six full-time, 18 part-time and 17 paid-on-call personnel. There are two full-time personnel on duty around-the-clock that staff one of the Fulton County EMS units plus two part-time personnel staff the station from 7:00 am to 7:00 pm Monday through Saturday. Paid-on-call personnel are notified by pager and respond on all structure fires and other similar incidents.

Over the past four years, the department experienced a 39% increase in service demand, responding to 1,037 calls in 2018. The department responded to 149 calls for service into the Swancreek Township service area in 2018.

PTFD is located in the village of Neapolis in Lucas County. It is a combination agency with 11 part-time personnel, 13 volunteers and four personnel who serve both in a part-time capacity and as a volunteer. The department staffs the station with two part-time personnel around-the-clock, although at times there may be only one person on duty. The department has augmented their in-station staffing with an "on-call" system where available volunteers sign up for a 12-hour shift and must be available to respond to an emergency call. Volunteers are notified by pager and respond on all structure fires and similar incidents.

Data on PTFD's service demands for the past five years was not available. However, in 2018 the department responded to 92 calls in the Swancreek Township service area.

SFRD is a combination agency with a full-time fire chief, one full-time captain, two full-time lieutenants, six full-time firefighter/paramedics, and 19 part-time personnel, including one part-time captain. The department has four personnel on duty around-the-clock including staffing for one of the Fulton County EMS units.

Over the past five years, the department's calls for service have remained relatively constant. In 2018, the department responded to 847 calls for service. SFRD responded to 238 calls into the Swancreek Township service area in 2018.

A fire station location analysis was conducted to strategically site a future fire station to improve service delivery to Swancreek Township residents. Utilizing fire analysis software and the latest GIS maps of the township, full-color planning maps were developed to analyze travel times and coverage areas from the existing fire stations and potentially a new fire station location. A new fire station constructed in the area of Township Road C and Township Road 4 would provide the greatest travel time improvement throughout the township.

Estimated costs were developed for a two-bay fire station with sufficient space for around-the-clock staffing. Annual operating costs for the fire station and staffing was developed to enable the Board of Trustees to fully analyze the cost and benefits of adding a fire station.

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Introduction

At the request of the Swancreek Township Board of Trustees, the Ohio Fire Chiefs' Association (OFCA) performed a fire station feasibility study. Swancreek Township receives fire suppression, emergency medical services (EMS), and fire prevention services, etc., from three fire department agencies based on geographic location. The Board of Trustees recognizes that the service demands within the township have been increasing as have the cost of contractual services. The Board of Trustees had previously discussed the benefits of constructing a fire station in the township and having it staffed. Some of the questions raised by the Board of Trustees included: will staffing a station in the township improve service to the citizens and will this additional station help control increasing costs.

The feasibility study included a review of the service area and risk analysis, a review of the three departments providing services, including apparatus and equipment, staffing and response history, and a review of general operations and training. Geographic Information System (GIS) mapping and state-of-the-art software was used to determine the optimal location of a fire station.

A site visit was conducted on June 13, 2019 to review the project scope, concerns and expectations with the Board of Trustees. The assessment team also met with the three fire department chiefs to review related policies and procedures, staffing, response data, as well as facilities and apparatus. Information requested by the OFCA for review was made available via hard copy or electronically.

Overview

Swancreek Township is located in the southeastern corner of Fulton County. It is bordered by Fulton Township to the north, Swanton Township (Lucas County) on the east, Providence Township (Lucas County) to the southeast, Washington Township (Henry County) on the south, Liberty Township (Henry County) to the southwest, York Township on the west, and Pike Township to the northwest. A portion of the village of Swanton is located in the northeastern corner of the township and a portion of the village of Delta is located in the northwest corner of the township. Both Delta and Swanton have annexed portions of the township into their villages. The population in the unincorporated area is estimated at 6,303 in an area of 39.78 sq. miles. Main roadways include State Route 2, County Road B, County Road D, County Road 6 and County Road 6-1. Fulton County is part of the Toledo Metropolitan Statistical Area.

The township is primarily a rural agricultural area, with pockets of low- and medium-density residential development, primarily south of the village of Swanton. Maumee State Forest is located in the southern portion of the township and features riding trails and an ATV Park. The

Maumee State Forest has 3,100 acres in multiple areas across Fulton, Henry and Lucas Counties and is managed by the Ohio Department of Natural Resources. The Toledo Express Airport is located approximately six miles east of Swancreek Township. The airport handles commercial aviation and also serves as the home to the 180th Fighter Wing of the Ohio Air National Guard.

Some portions of the township, primarily in the northeastern areas south of Swanton, are served by a water distribution system which includes fire hydrants. Water is supplied by the city of Toledo and the Swancreek Water District manages the water system.

Fulton County has a comprehensive plan that was developed in 1998. The plan identified that the county had historically experienced slow growth. The population predicted for 2010 was 42,500, in comparison to 42,698 published by the U.S. Census Bureau. The population prediction for 2020 was 45,100. The U. S Census Bureau 2018 population estimate shows a slight decrease at 42,276. The county is currently in the process of updating their comprehensive plan.

Swancreek Township has not experienced any significant industrial or large-scale commercial growth. As noted previously, there has been single-family residential growth. There have been some individual residences built with highway frontage in the rural areas. Most of the residential growth has been planned subdivisions, which are served by the water system. The township is expected to continue to experience slow residential and isolated small commercial growth.

Swancreek Township is currently working on the development of a joint economic development district (JEDD) along the Airport Highway corridor. This commercial district is a joint venture with the villages of Delta and Swanton.

Funding

Swancreek Township has two levies against real property for fire department services. A 1.5 mill levy with an additional .5 mills was approved in November of 2018. Collection of funds will begin in January of 2020.

The township has contracts with three local government entities to provide fire and rescue response: the village of Swanton, York Township and Providence Township (Lucas County). The village of Swanton operates the Swanton Fire & Rescue Division, York Township operates the Delta Community Fire Department, and Providence Township operates the Providence Township Fire Department. The response areas in Swancreek Township for Delta, Swanton and Providence Township are outlined in Figure 1.

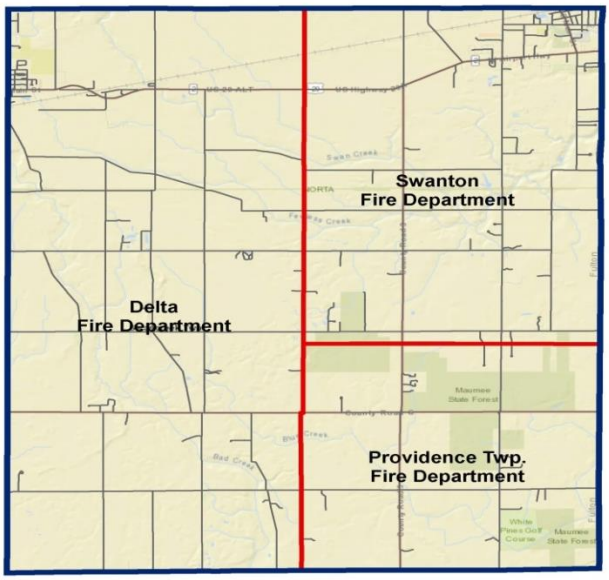


Figure 1

The annual contract fees paid by Swancreek Township for services are as follows:

- Village of Swanton $162,520
- York Township $93,631
- Providence Township $30,008

Fulton County has a countywide EMS program that provides around-the-clock pre-hospital emergency medical response, treatment and transportation. There are four advanced life support (ALS) level EMS units located in Archbold, Delta, Swanton and Wauseon. ALS is sometimes referred to as paramedic level service. A fifth ALS unit operates in Lyons from 8:00 am – 4:00 pm Monday through Friday. Three basic life support (BLS) units operate in Fayette, Lyons, and Metamora during daytime hours.

Although this is a county system, the services are delivered by contract with local fire department agencies. For example, Fulton County contracts with Swanton Fire and Rescue Division to staff and respond one of the county's ALS units. This operational arrangement will be described in more detail for each of the department's that are part of this study. Funding for the Fulton County EMS system comes from a countywide tax levy against real estate. Fulton County also receives revenue from EMS billing for patients transported to the hospital. However, Fulton County does send revenue back to the local community providing service through what was described as a "run bonus".

Delta Community Fire Department

Delta Community Fire Department (DFD) is located in the village of Delta. Delta is 2.67 sq. miles and has a population estimated at 3,117. The department operates from two fire stations; Station 1 (main station) located at 500 Main Street and Station 2 located at 6955 County Road FG. The Station 1 facility is owned by the village of Delta and is leased to York Township. Station 2 is owned by York Township, which is the governing body over the fire department.

Station 1 was constructed in 1980 and is approximately 8,100 sq. feet. It features six back-in apparatus bays. The facility contains administrative offices, a report room, storage and maintenance rooms, a secure EMS storage room, and a combination day/training room with an adjacent kitchen. The facility was clean and well-maintained. Equipment and supplies appeared to be stored appropriately, although some fire hose and miscellaneous equipment was stored on the apparatus floor. The apparatus and associated equipment, including personal protection equipment (PPE) was also clean and well-maintained. Administratively, the department was organized and had in place appropriate response procedures and administrative policies.

Training Room

Apparatus Room

DFD provides services to the village of Delta, approximately three-fourths of York Township, one-third of Pike Township, one-third of Fulton Township and half of Swancreek Township.

The department is a combination agency with full-time, part-time and paid-on call personnel. Paid-on-call firefighters are volunteer personnel who receive a stipend or hourly pay for a response or time dedicated to training. Part-time personnel are scheduled to work a shift on-station and also respond from home for emergencies the same as paid-on-call personnel. The current roster of 42 includes a full-time fire chief, 18 part-time personnel, 17 paid-on-call, and six full-time contract employees.

Fulton County contracts with DFD to staff and operate one of the county's five ALS EMS units. DFD contracts with Mercy Health-Life Star Ambulance Service in Toledo, OH, to provide six paramedics to staff the EMS unit. These six employees are paid by Mercy Health but fall under the immediate supervision of Chief Smith. The fire chief has full control of hiring and operational assignments.

Fulton County ALS 2 operates from Station 2. Two full-time personnel staff the unit working 24-hour shifts. Two part-time personnel staff Station 1 from 7:00 am to 7:00 pm Monday through Saturday. After 7:00 pm and Sundays paid-on-call personnel respond for emergency calls. During these time periods, two personnel sign up to be available to respond from home around-the-clock. The fire chief works a standard 40-hour work week and responds to emergencies as needed. When the department is dispatched to a structure fire, motor vehicle accident or similar incident, the department members are notified by pager and the paid-on-call personnel who are available respond in addition to the personnel on station.

Over the past several years, the department has experienced an increase in call volume. In 2014, the department responded to 774 calls for service. In 2018, that number had increased to 1,037, which is a 39% increase in service demand. During the five-year period examined, fire responses increased 80% while EMS responses have increased 27%. In 2017, DFD provided 115 mutual-aid responses to other agencies and received assistance from other agencies 26 times. In 2018, the department provided 136 mutual-aid responses and received assistance from other agencies 30 times. The department's calls for service over the past five years are displayed graphically in Figure 2.

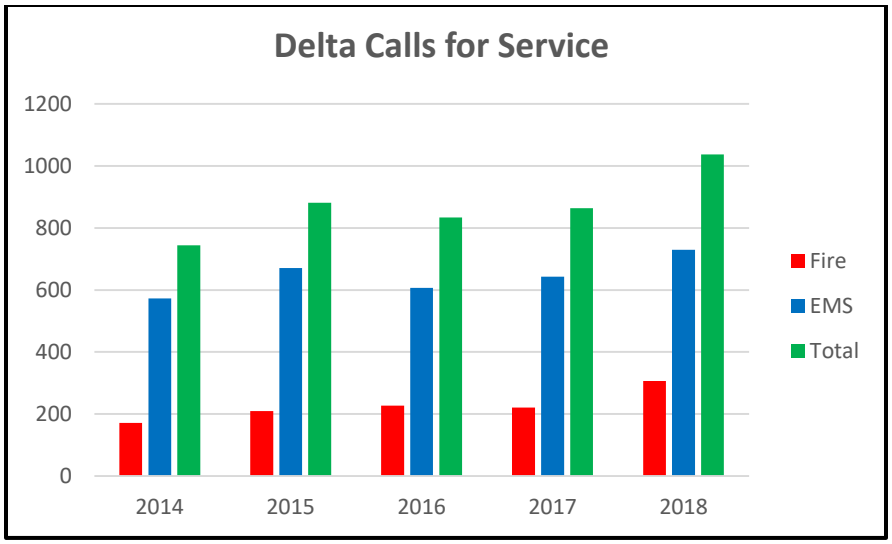


Figure 2

In 2018, DFD responded to 149 calls into the Swancreek Township service area; 18 fire incidents and 131 EMS calls. Response data prior to 2018 was not available. Fire loss in the Swancreek Township response area was $32,375 in 2018.

Training

The department has a regular training schedule. Training sessions are held every Monday and include a variety of firefighting and rescue topics as well some EMS training. The sessions are typically two to three hours in length. There is an evening session and daytime session to accommodate various work schedules of department members. There is also a training session scheduled one Saturday each quarter which typically involves a more involved hands-on topic.

The department has completed incident management training and provides some officer development training. Department members are trained to the Hazardous Materials-Operations level and the department is a dedicated county asset for water rescue. Two of the department's captains manage and develop the training program.

Of the paid-on-call personnel, one is trained to the Volunteer Firefighter level, 11 are trained to Firefighter I level and five are trained to the Firefighter II level. Seven part-time personnel are trained to Firefighter I and 11 hold Firefighter II certification. With the exception of one paid-on-call firefighter, all personnel also have EMS certifications ranging from First Responder to Paramedic. Detailed information regarding sate of Ohio training requirements can be found in Appendix A.

Funding

The department currently has a $950,000 operating budget, which includes a $40,000 capital line item appropriation. As noted previously, Swancreek Township receives services from DFD via a

contractual agreement with York Township. The current four-year contract is based on property valuation. For 2019 and 2020, the amount of the contract is based on the potential revenue of a 1.5 mill levy throughout the response area in Swancreek Township serviced by DFD. That amount is obtained from the Fulton County Auditor and based on the revenue calculated from the previous calendar year. In 2021 and 2022, that amount will increase to the potential revenue of a 1.75 mill levy. The contract amount for 2019 is $93,631.

Risk Analysis

For a community to appropriately provide for and understand the need for emergency services, a community risk assessment must be performed. A community risk assessment (CRA) tool was used to assess the property risk within the Swancreek Township area served by DFD. The CRA allows for an accurate assessment of the fire risk with minimal personnel time commitment.

The CRA process involved performing a coordinated survey of every "target" commercial property within the service area. The target hazards reviewed within the response area are normally beyond the normal risk encountered by fire departments and typically require a larger number of resources to be deployed than provided for residential and other common types of occupancies or situations.

Each property was assessed for the risk posed for each of the following elements:

- Life hazard
- Community impact
- Hazard index
- Water supply
- Building usage
- Building construction
- Number of stories
- Square footage

Each of the areas described received a rating score from 1 to 3, with 1 equating to low risk or impact and 3 representing high risk or high impact. Each address was provided with a final CRA rating from 0-9 for the lowest risk properties to 21-24 for the highest risk (based on the eight rated categories). The scores were reviewed and the following levels of identified risk were classified.

Risk	CRA Score
Maximum	21-24
Significant	16-20
Moderate	10-15
Low	0-9

The township response area is primarily rural in nature; however, there is a mixture of commercial and service related occupancies located in the area. There were seven significant risk properties identified, which are listed in Figure 3.

Occupancy	Address	Score	Risk
All God's Children Daycare and Preschool	1852 County Road 6	17	Significant
Brehm's Dairy Farm	4397 County Road F	18	Significant
GB Manufacturing	1120 E. Main Street	17	Significant
Pike-Delta-York Elementary School	1099 Panther Pride Drive	17	Significant
Pike-Delta-York Middle School	1101 Panther Pride Drive	17	Significant
Shiloh Christian Union School	2100 County Road 5	16	Significant
USA Propane	6871 Enterprise Drive	16	Significant

Figure 3

DFD has developed pre-fire plans for specific target hazards within the response area along with specialized training and response procedures. In addition, the department is in the process of developing a Risk Reduction Division and completing annual commercial fire safety inspections.

Insurance Services Office

The Insurance Services Office, Inc. (ISO) is the leading supplier of statistical, underwriting, and actuarial information for the property/casualty insurance industry. ISO conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection and mitigate fire risk. This evaluation allows ISO to determine and publish the Public Protection Classification (PPC). The published classification is based on a scale of 1 through 10, with 1 being the highest rating and 10 indicating that the community's fire suppression program doesn't meet ISO's minimum criteria.

ISO conducted a field evaluation of the DFD and the Delta community in May 2011. As a result of the field evaluation, the community received a split PPC of 5/9.

The first number refers to the classification of properties within five road miles of a fire station and within 1,000 feet of a creditable water supply (typically a fire hydrant). The second number applies to properties within five road miles of a fire station but beyond 1,000 feet of a creditable water supply. ISO generally assigns Class 10 to properties beyond five road miles of a fire station.

Each insurance underwriter is free to utilize the information as they deem appropriate. This can

result in different applications to similar property owners. However, in general, the lower the classification will result in lower insurance premiums to the property owner.

When ISO conducts their field evaluations, the overall water system including pumping capacity, storage quantity, distribution system and system maintenance, carries a weight of 40% of the total evaluation. The fire department rating is 50% of the evaluation process. The third component of the evaluation is how well a community receives and dispatches fire alarms and accounts for 10% of the rating. An additional factor now evaluated is the community risk reduction section in which fire prevention, fire safety education and fire investigations are evaluated. The inclusion of this portion provides recognition for those communities that employ effective fire prevention practices and allows for extra points in the evaluation process.

Response Considerations

DFD has a written response guideline. The document specifies the equipment assignments and the order of response for basic run types including structure fires, fire alarms, vehicle fires, motor vehicle accidents, technical rescue and water rescue. The structural response for areas with or without hydrants is also specifically detailed. For example, the initial response to the township area without hydrants would include: Engine 205, Tender 204 and ALS 2. Paid-on-call personnel would bring additional equipment as they arrive at the station. In addition, all of the Swancreek Township area serviced by DFD has Swanton Fire & Rescue Division dispatched as part of an automatic response plan.

Since EMS is delivered by Fulton County, EMS response performance is not included in this analysis, and limited to an examination of the department's fire response performance. It is important to note however, that communities should establish their own response objectives that meet the expectations of its citizens within the context of available resources.

Response goals are a local decision and are based on a variety of factors. Some of those factors include demographics and size of the response area, risk, demand volume, and public expectation. In reviewing the department's current policy and procedures, there has been no formal policy adopted that identifies response performance goals or targets for the community. Since there is no local response performance goal established, the assessment team reviewed other nationally developed criteria. A number of efforts have been made to develop a consensus standard for response time, unit staffing and deployment of resources. While there is no one consensus standard, there are several that provide guidance.

ISO provides some guidelines, but those are singularly focused on travel distance. There are three national publications that address fire response performance. One publication is National Fire Protection Association (NFPA) Standard 1710. NFPA 1710 is the *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* The standard outlines criteria that address functions and objectives of fire department emergency service delivery, response

The National Fire Protection Association (NFPA) is a global self-funded nonprofit organization whose mission is to reduce death, injury and economic loss due to fire, electrical and related hazards. In addition to research and training, NFPA has developed over 300 codes and standards through a consensus process and involvement of all disciplines in a particular subject area. NFPA standards are followed almost universally and establish the criteria from which fire apparatus are built and personal safety equipment is designed and manufactured. The most universally recognized standard is NFPA 70, which is the National Electric Code and adopted in all 50 states.

capabilities, and resources. NFPA 1710 applies to organizations that have primarily full-time personnel.

Based on NFPA 1710 criteria, DFD should meet the following response time objective: for 90% of all fire incidents, the first-due unit shall arrive within 7 minutes, 06 seconds total response time. This response objective includes 106 seconds (1:46) for call processing, 80 seconds (1:20) for turnout, and 240 seconds (four minutes) for travel time. This response objective begins when the 9-1-1 call is received at the communications center.

The second published criterion is found in the *Standards of Cover*, published by the Commission on Fire Accreditation International (CFAI), which is part of the Center for Public Safety Excellence. CFAI criterion refers to the NFPA 1710 standard for communities that have personnel on-station, regardless if the personnel are full-time or part-time, or the community is suburban or urban in nature.

The third criterion is found in NFPA 1720, *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Volunteer Fire Departments.* The standard outlines criteria that address functions and objectives of fire department emergency service delivery, response capabilities, and resources. This standard applies to organizations that have primarily volunteer personnel.

Based on NFPA 1720 criteria, DFD should meet the following response time objective: for 80% of all fire incidents, the agency should respond to the scene within 14 minutes with at least six personnel. Firefighters responding with mutual-aid companies are counted in this six-person objective.

This response objective begins when the firefighters are notified by the communication center of the emergency. Urban settings have a 9-minute response time standard, suburban communities are set at 10 minutes and the rural area benchmark is 14 minutes. Swancreek Township is considered a rural community based on the township's population density of 158 people per square mile. Population density and other information are described in NFPA 1720.

The published response criteria are based on national fire behavior research. There also is

information on EMS response in relationship to patient outcomes. This research and other information can be reviewed in Appendix B.

Data Analysis

Response data for the Swancreek Township area during 2018 was analyzed for overall performance. NFPA and CFAI have recognized the use of percentiles as the most accurate method to analyze and evaluate response performance. Figure 4 and 5 displays the department's overall response performance for fire responses into the Swancreek Township service area against both NFPA 1710 and 1720 standards. The percentage column identifies the frequency the department meets the target-time benchmark. Meeting the target-time benchmark for at least 70% of the responses is often considered the baseline or threshold measurement.

Fire Response NFPA 1710 Standards

Element	Target	Percentage
Fire Response	7:06	28%

Figure 4

This is a significant performance gap compared to the standard's criteria. However, it is not unexpected since Delta's response area encompasses approximately 50% of the township and includes the most remote areas in the southwest area of the township. It can be argued that the NFPA 1710 standard is not applicable since the response area is predominately rural and remote in nature and the response force is predominately paid-on-call except for the four personnel on station.

Fire Response NFPA 1720 Standards

Element	Target	Percentage
Fire Response	14:00	95%

Figure 5

The analysis of the response data indicates excellent performance overall when compared to NFPA 1720 standards. Additionally, 78% of the department's responses were 10 minutes or less. The location of the incident in relationship to the location of the fire station will affect the response performance. The department would benefit from more detailed data capture for future response analysis.

Apparatus and Equipment

The department currently operates two engines (sometimes referred to as pumpers), one tender-engine, one heavy rescue, one off-road brush unit, one staffed command unit and three EMS units. A detailed inventory of equipment carried on each piece of apparatus is maintained in the department's database. Overall, the department's fleet and equipment appears well-maintained

and is of the appropriate size and design for the intended purpose. The following is a summary description of each apparatus and general condition.

Engine 205 is a 2008 E-One top-mount pumper on a Freightliner chassis with a 1,500 gallons per minute (GPM) pump and carries 1,000 gallons of water. It also features a 30-gallon onboard foam system that carries a combination Class A, B and D fire extinguishing agent. This vehicle is equipped with the necessary hose and equipment as required by NFPA 1901, *Standard on Automotive Fire Apparatus.* This vehicle carries hydraulic rescue tools, a typical compliment of hand tools, EMS equipment and an automated external defibrillator (AED). The unit is in good condition.

Engine 203 is a 1998 Pierce pumper on a Freightliner chassis with a 1,500 GPM pump and carries 1,000 gallons of water. It carries a portable drop tank that allows crews to provide a temporary water reservoir with sufficient capacity to sustain water application in lieu of hydrants in rural areas. The vehicle is equipped with the necessary equipment as required by NFPA 1901. It also carries EMS equipment and an AED. It is in good condition.

Rescue 201 is a 1995 American Fire & Rescue heavy rescue vehicle. It carries the department's water rescue and other miscellaneous rescue equipment. It is in fair condition.

Tender 204 is a 2018 Sutphen on a Freightliner chassis. It carries 3,000 gallons of water and has a 750 GPM pump. The vehicle is capable of off-loading water through three electronically controlled chutes located on either side or the rear of the apparatus. It carries a portable drop tank that allows crews to provide a temporary water reservoir with sufficient capacity to sustain water application in lieu of hydrants in rural areas. Together with Engine 203, the department can deploy two drop tanks prior to the arrival of mutual aid companies. The vehicle is also equipped with the necessary equipment required by NFPA 1901. This unit also carries EMS equipment and an AED and is in excellent condition.

Brush 206 is a 2007 brush and grass firefighting vehicle on a Ford F350 4-wheel drive pick-up truck. It has a "skid load" pump and carries 300 gallons of water and features front-mount nozzles. It is in good condition.

ALS 2 is a 2015 Horton Type III modular ambulance on a Ford chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator and a patient power-load system. The unit is in good condition and is owned by Fulton County EMS.

Medic 21 is a 2011 McCoy-Miller Type III modular

An AED is a portable device that the first responder or trained civilian can use on a patient who is pulseless and not breathing. When the device is connected to the patient, it analyzes the patient's heart rhythm and automatically delivers electric shocks (defibrillation) to the patient if needed.

ambulance on a Ford chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator and a patient power-load system. The unit is in good condition and is owned by Fulton County EMS.

Medic 22 is a 2013 McCoy-Miller Type III modular ambulance on a Ford chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator. The unit is in good condition and is owned by Fulton County EMS.

Unit 210 is 2016 Dodge Ram 1500 pick-up truck and is used as the chief's vehicle. It is in excellent condition.

Engine 203

Tender 204

Engine 205

Brush 206

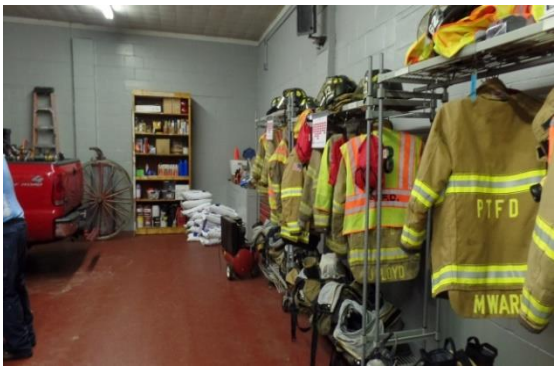
Providence Township Fire Department

The Providence Township Fire Department (PTFD) is located in the village of Neapolis in Lucas County, just east of the Fulton County line. The Providence Township Board of Trustees is the governing body and is the owner of the station, apparatus and equipment. The department operates from one fire station located at 8149 Main Street in Neapolis. PTFD provides services to the village of Neapolis, Providence Township, and approximately one-sixth of Swancreek Township.

The fire station facility contained a kitchen/dining area, small office area, communication room and area near the apparatus room for a gear extractor and breathing air compressor. The upstairs had an area used as a dayroom and space renovated for dormitory use. The facility was clean but cramped. Storage space appears to be at a premium as equipment and supplies were observed in any potential space available. The building has some age and was designed for a volunteer

organization and has been altered to accommodate a staffed station. The apparatus and associated equipment, including PPE was clean and well-maintained.

Report Writing Area



Rear of Apparatus Room and PPE

The department is a combination agency with part-time and volunteer personnel. The current roster is 28; 11 part-time personnel, 13 volunteers and four personnel who serve both in a part-time capacity and as a volunteer. There are also two personnel who volunteer as dispatchers and respond to the station for significant incidents.

The department attempts to staff the station with two part-time personnel around-the-clock. The part-time personnel work 12-hour shifts; 7:00 am to 7:00 pm and 7:00 pm to 7:00 am. The department attempts to always have one firefighter who is cross-trained as a paramedic on duty. Chief Triggs stated, “at times, the department struggles to have both positons filled, leaving only one person on duty.” Additionally, he stated, “this occurs approximately 20% of the time.” To help augment staffing, the department implemented an “on-call” system over the past six

months. Available volunteers sign up for a 12-hour shift and they must be available to respond to an emergency call from home during that time. The volunteers are compensated for this commitment. There is no limit on the number of hours the volunteers commit to the on-call availability. However, part-time personnel have a statutory limitation of 1,500 hours annually.

When the department is dispatched to a structure fire, motor vehicle accident or similar incident, the on-duty personnel respond to the call in the appropriate apparatus. Volunteers are notified by pager and those available respond to the station, assemble a crew and respond with the appropriate apparatus.

Data on the department's previous year's calls for service were not immediately available. The department recently changed to a new database system and the data in the previously used system was lost. However, thanks to the effort of the department's officers, calls for service to the Swancreek Township area served by PTFD were provided. In 2016, there were 66 calls into Swancreek Township and in 2018 there were 92 calls. The calls are shown graphically in Figure 6.

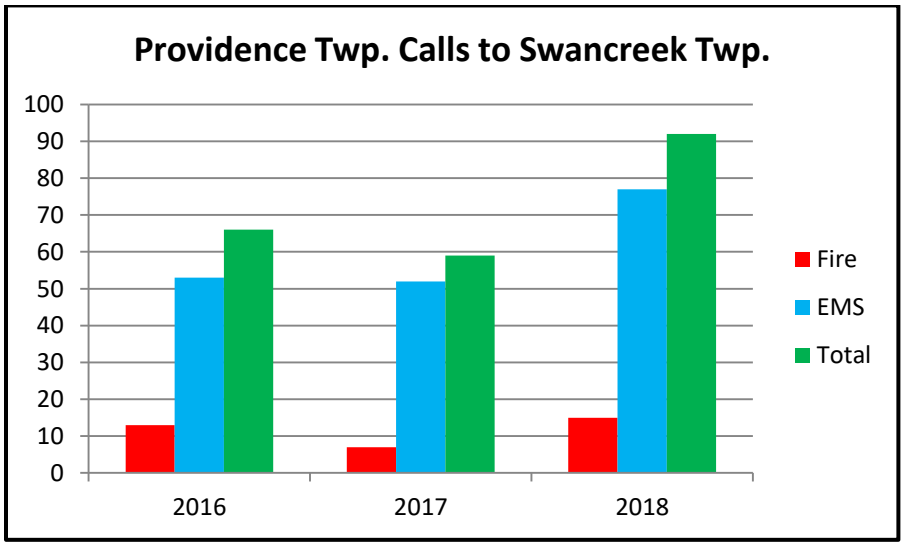


Figure 6

There was no fire loss detailed in the reporting period. There were two structure fire responses in 2018; none in 2016 and 2017.

Training

The department has a regular training schedule. Firefighting and rescue training sessions are held the first Sunday and Tuesday of each month. EMS training is held the fourth Tuesday of each month. The department follows the Lucas County EMS training schedule. The department recently appointed a training officer who is responsible for developing a topic specific training schedule. The department has two certified fire instructors and three EMS instructors and is an

approved training site by the Ohio Division of EMS. PTFD conducts joint training with Grand Rapids and Liberty Center Fire Departments. Chief Triggs indicated he is working to develop joint training sessions with Swanton Fire & Rescue Division.

Firefighter I and EMT-B is the minimum certifications for part-time personnel. Of the department's 28 personnel, one is trained to the Volunteer Firefighter level and the other personnel are trained to Firefighter I or Firefighter II level. Most personnel are dual certified in EMS; eight are Paramedic certified and 14 are EMT-B certified. Six have firefighter certification only. Detailed information regarding state of Ohio training requirements can be found in Appendix A.

Funding

Information on the department's operating budget was not available. Providence Township has a five-year contract (2016-2020) to provide service to the southeast corner of Swancreek Township. Instead of a flat fee, the contract to serve Swancreek Township outlines specific charges depending on the type of response:

- Structure Fire $1,640
- Other Fires $ 840
- MVA/EMS Non-transport $ 448
- Public Service $ 420

Providence Township receives a reimbursement from Fulton County for EMS transports made by Fulton County EMS units and PTFD has responded to assist. Based on the number of calls in 2018, Providence Township received $30,008 from Swancreek Township for responses and $15,950 reimbursement from Fulton County EMS for a total of $45,958.

Risk Analysis

There were no target hazards identified in the Swancreek Township service area protected by PTFD. However, the majority of the Maumee State Forest is in this service area.

Insurance Services Office

As described previously, ISO is the leading supplier of statistical, underwriting, and actuarial information for the property/casualty insurance industry. ISO conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection and mitigate fire risk. The PPC for PTFD and their service area is 4/4Y. Additional information on ISO is described in detail on page 8.

Response Considerations

PTFD has a written response guideline. The document specifies the equipment assignments and the

order of response for basic run types including structure fires, fire alarms, vehicle fires, motor vehicle accidents, technical rescue and water rescue. The initial response for a structure fire is Engine 88-2 with the two personnel on station; Tender 88-1, Engine 88-1, Medic 88-1 and Brush 88-1 will respond as volunteers arrive at the station. A water tender task force is also dispatched as part of an automatic aid response plan for all structure fires, since the area has no water distribution system with hydrant access. Call data that identifies response times was not available.

Apparatus and Equipment

The department currently operates three engines, two water tenders (tankers), two brush trucks, and two medic units. Overall, the department's fleet and equipment appears well-maintained and is of the appropriate size and design for the intended purpose. The following is a summary description of each apparatus and condition.

Engine 88-1 is a 1994 Pierce 1,500 GPM pumper and carries 1,000 gallons of water. This vehicle has a four-person cab and is equipped with the necessary hose and equipment as required by NFPA 1901. The unit is in good condition.

Engine 88-2 is a 2004 Pierce pumper-tender with a two-person cab on an International chassis. It has a 1,250 GPM pump and carries 1,250 gallons of water. It carries a portable drop tank that allows crews to provide a temporary water reservoir with sufficient capacity to sustain water application in lieu of hydrants in rural areas. This vehicle carries the necessary equipment required by NFPA 1901. The unit is in good condition.

Engine 88-3 is a 2001 Pierce pumper with a two-person cab on an International chassis. It has a 1,250 GPM pump and carries 1,000 gallons of water. This vehicle is equipped with the necessary hose and equipment as required by NFPA 1901. The unit is in good condition.

Tender 88-1 is 1984 water tender on a Mack chassis. It carries 3,900 gallons water and has a small "trash pump" to off-load water. This unit is in fair condition and was kept outside the fire station.

Tender 88-2 is 1984 water tender on a Mack chassis. It carries 3,900 gallons water and has a small "trash pump" to off-load water. It is currently deployed and operated by the Grand Rapids Fire Department. It is dispatched to all structure fires as part of the tender task force within PTFD's service area. This unit was not reviewed by the assessment team.

Medic 88-1 is a 2010 McCoy-Miller Type III modular ambulance on an International chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator. The unit is in good condition.

Medic 88-2 is 2004 Wheeled Coach Type III modular ambulance on a Ford chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator. The unit is in fair condition.

Brush 88-1 is a 2004 Ford F-350 4-wheel drive pick-up truck. It has a skid load package for grass and wildland firefighting, which includes a power take-off pump (PTO) and 250 gallons of water.

Brush 88-2 is a 1977 Chevy K-20 4-wheel drive pick-up truck. It has a skid load package for grass and wildland firefighting, which includes a PTO pump and 250 gallons of water.

Engine 1

Tender 1

Brush 1

Medic 88-1

Swanton Fire & Rescue Division

The Swanton Fire & Rescue Division (SFRD) is located in the northeastern section of the village of Swanton. The village has an estimated population of 3,894 in 3.13 square miles with a small portion of the village extending into Lucas County. The village is formed as a statutory Mayor-Council form of government utilizing a village administrator for day-to-day management. In addition to providing fire and county EMS services to the village, they extend full service protection, by contracts, to the northeast quadrant of the unincorporated sections of Swancreek Township bound by County Road 4 to the west and County Road D to the south, and a significant portion of Fulton Township located north of the village. The division also responds, through an automatic aid arrangement, on first alarm fire assignments with DFD and Metamora Fire Department. Fulton County contracts with SFRD to staff and operate one of the county's five ALS EMS units.

The division operates from one station, located at 432 Church Street. The facility was constructed in 1967 and is approximately 20,000 sq. ft. It features eight single back-in bays. The facility contains administrative offices, an officer/communication room, storage and maintenance rooms, a secure EMS storage room, and a combination day/training room with an adjacent kitchen. There are eight individual dorm rooms with appropriate restrooms with shower facilities. The station has a natural gas-fueled emergency generator. The facility was well-maintained, organized, with safety and ease of movement well-planned.

Dayroom and training room

EMS storage and supplies

SFRD is a combination agency with full-time and part-time personnel. The current roster totals 29 personnel which includes a full-time fire chief, one full-time captain, two full-time lieutenants, six full-time firefighter/paramedics, and 19 part-time personnel, including one part-time captain.

The division has daily around-the-clock in-station staffing which consists of one full-time lieutenant or captain, two full-time firefighter/paramedics and one part-time firefighter/EMT for each 24-hour shift. In order to meet federal work hours under the Fair Labor Standards Act (FLSA), Swanton has established a floating "48/50/52" work week for full-time personnel, depending upon the number of hours scheduled within their established FLSA cycle. Part-time firefighter positions are organized into two 12-hour shifts per day. Part-time personnel, in order

to maintain working continuity, are assigned permanently to one of the three shifts but are not required to provide any specific duty hours in the FLSA work cycle. The division utilizes the When To Work™ software program to aid in scheduling part-time personnel. As stated previously, SFRD staffs and operates Fulton County ALS 7 with full-time personnel around-the-clock.

At the time this report was being finalized, the division had implemented a two-phase process to establish captain ranks within the division. In the first phase, one of the lieutenant positions was changed to the rank of captain, with specific administrative duties assigned by the fire chief. This change will be analyzed for operational success. If deemed successful, the division intends to add two more full-time captains so the remaining two shifts would be directly supervised by a captain. The former lieutenant positions will be filled, allowing each shift a captain and lieutenant. All captains would be assigned administrative as well as operational and response shift duties. The village has instituted a structured promotional model consisting of a written test, interview and assessment center for the rank selection process.

Over the past several years, the call volume for the division has remained relatively constant. In 2014, the division responded to 997 calls for service. In 2018, the division responded to 847 calls for service. In 2017, SFRD provided 25 mutual-aid responses to other agencies and received assistance from other agencies 15 times. In 2018, the department provided 75 mutual-aid responses and received assistance from other agencies 34 times. The department's calls for service over the past five years are displayed graphically in Figure 7.

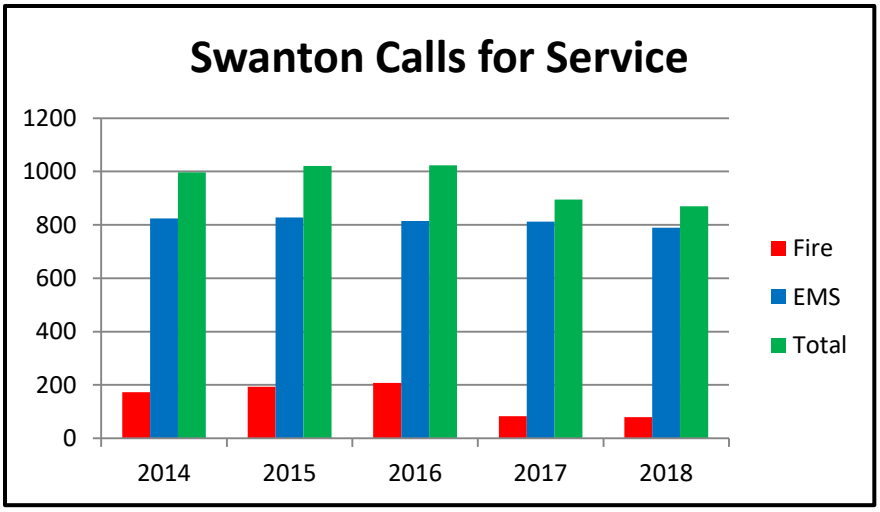


Figure 7

The calls for service into the Swancreek Township response area have fluctuated over the past five years. In 2014, there were 278 incidents; 48 fire responses and 230 EMS responses. In 2016, that number had increased to 334; 65 fire responses and 269 EMS responses. In 2018, there were 238 calls for service; 34 fire responses and 204 EMS responses. The calls for service

are displayed graphically in Figure 8.

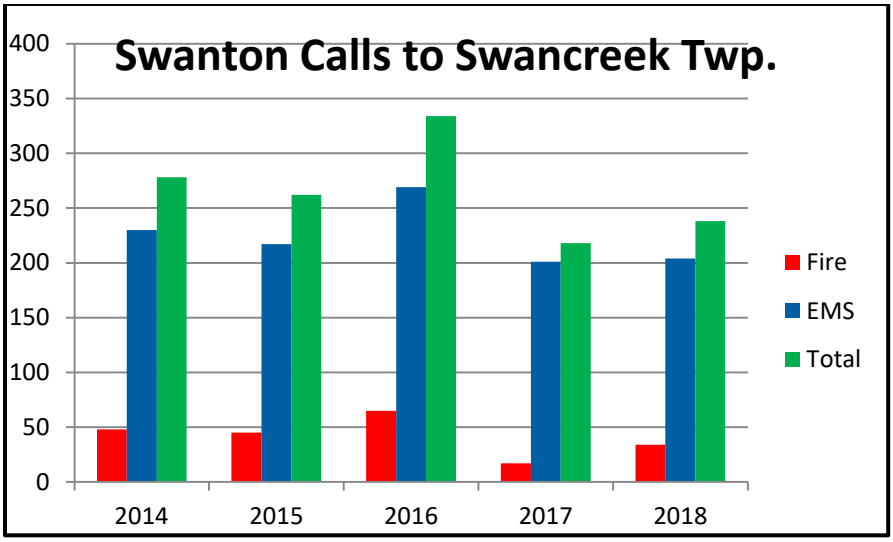


Figure 8

Fire loss in the Swancreek Township response area was $20,000 in 2018. Over the past five years (2014-2018), fire loss totaled $459,600. All of the loss was to residential properties except one vehicle fire.

Training

The department has regular training designated each weekday as shift training; specifically, three shift days that consist of fire training and two as EMS specialty training. The division has a total of six EMS or fire instructors who coordinate the training schedule with the fire chief and maintain appropriate records. Fire training continuing education hours are administered through the Four County Vocational Career Center and EMS hours through the Fulton County EMS Consortium.

Personnel completed incident management training and have instituted it as part of their operational procedures. All personnel have Firefighter II certification and all full-time personnel must maintain Paramedic certification. Part-time firefighters hold EMS certification ranging from Emergency Medical Technician (EMT) to Paramedic. All personnel are trained to the Hazardous Materials-Operations level. Recently, a wellness program was implemented. Detailed information regarding state of Ohio training requirements can be found in Appendix A.

Funding

The division has a $1.2 million operating budget for 2019 which is established as part of the village's overall budget. Although the village has a wage earner income tax, funding for the fire division is generated from revenue received through contracts and specific village fire levies. The village has a contract with Fulton County for SFRD to provide EMS services, and contracts

with Swancreek and Fulton Townships for fire and EMS protection services. A unique component in the Swancreek Township contract obligates the village to deposit the funds received by this contract in a "proprietary fund to be utilized solely for the financing of capital improvements or purchase of capital equipment in support of the village fire and emergency services department." In addition, the Swancreek Township contract requires the cost of extraordinary fire or rescue equipment purchased during the term of the agreement "shall" be shared, upon additional agreement between the township and village. The village's current contract with Swancreek Township is for $162,520.

The division has been successful in recent years acquiring additional funding through the federal Assistance to Firefighters Grant and Ohio State Forestry Division and EMS grants. These grants have been utilized to purchase equipment, a vehicle, and for specific training costs. The village also has a capital improvement fund for future capital equipment replacement.

In 2019, a Fire Advisory Board was created by the village to review proposed operational services and capital purchases with the goal to make recommendations to the village. This Advisory Board also provides the opportunity to explain detailed operational aspects regarding the fire division to promote a better understanding of operational and financial needs, and address service delivery goals. The Advisory Board, which meets bi-monthly, includes the mayor and one village council member, and a trustee from both Fulton and Swancreek Townships.

Risk Analysis

For a community to provide appropriate and comprehensive responses to potential emergencies, a well-developed and comprehensive assessment must be performed. Failure to identify such risk will greatly enhance the failure to address the risk appropriately when needed, or the expenditure of valuable resources in the wrong areas.

The CRA tool was used to assess the property risk within the Swancreek Township area served by SFRD. As previously described on page 7, The CRA process involved performing a coordinated survey of every target property within the service area.

As previously discussed, a target hazard can be an occupancy or property that is normally beyond the normal risk encountered. Target hazards could also include natural and man-made hazards such as railroads, interstate-highways, underground pipeline, rivers, ponds, or any other element that may affect response of fire resources.

The township response area serviced by SFRD is primarily rural in nature; however, there is a mixture of commercial and service related occupancies located in the area. There were seven properties reviewed. While there were no maximum risk properties identified, there were two significant risk properties identified, which are listed in Figure 9.

Occupancy	Address	Score	Risk
Affiliated Lumber	5751 County Road 3	18	Significant
Bradley Union Church	5771 County Road 3	14	Moderate
Champion Pools	3527 US 20 Alternate	8	Low
Elite Auto Repair	3668 County Road 4	8	Low
Luce Chimney	3017 US 20 Alternate	10	Moderate
Sampsel's Auto Repair	1818 West Airport Hwy.	8	Low
Tri-County Block	1638 US 20 Alternate	18	Significant

Figure 9

In addition to the properties identified above, a major underground transmission pipeline is being installed through the township that will fall within this category once construction is completed and its use begins.

SFRD has developed pre-fire plans for specific target hazards along with several specialized training and response procedures. Pre-fire plans are also used as a training tool to familiarize personnel with facilities and develop deployment strategies for potential incidents. Recently, Chief Wolever has expanded the depth of their preplan program and formally incorporated this activity with company inspections where possible.

Insurance Services Office

As described previously, ISO is the leading supplier of statistical, underwriting, and actuarial information for the property/casualty insurance industry. ISO conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection and mitigate fire risk. The PPC rating for the incorporated village of Swanton is 5/5Y that was established July 1, 2018. Additional information on ISO is described in detail on page 8.

Response Considerations

SFRD has a written response guideline. The document specifies the equipment assignments and the order of response including structure fires, fire alarms, vehicle fires, motor vehicle accidents, technical rescue and water rescue. The structural response for areas with or without hydrants is also specifically detailed. For example, the initial response to the township area without hydrants would include: Engine 702, ALS 7 and Tender 708. Off-duty personnel who carry portable radios may respond to the station and bring additional equipment as directed by the officer-in charge. In addition, all of the Swancreek Township area serviced by SFRD has DFD dispatched as part of an automatic response plan. Chief Wolever indicated that upon arrival at a structure fire an incident safety officer would be designated as soon as possible from additional arriving resources.

Since EMS is delivered by Fulton County, EMS response performance was not included in this analysis and limited to an examination of the department's fire response performance. It is

important to note however, that communities should establish their own response objectives that meet the expectations of its citizens within the context of available resources.

As stated previously, there are three national publications that address fire response performance. One publication is NFPA Standard 1710. NFPA 1710 is the *Standard for the Organization and Deployment of Fire Suppression Operations, Emergency Medical Operations, and Special Operations to the Public by Career Fire Departments.* The standard outlines criteria that address functions and objectives of fire department emergency service delivery, response capabilities, and resources. NFPA 1710 applies to organizations that have primarily full-time personnel.

Based on NFPA 1710 criteria, SFRD should meet the following response time objective: for 90% of all fire incidents, the first-due unit shall arrive within 7 minutes, 06 seconds total response time. This response objective includes 106 seconds (1:46) for call processing, 80 seconds (1:20) for turnout, and 240 seconds (four minutes) for travel time. This response objective begins when the 9-1-1 call is received at the communications center.

The second published criterion is found in the *Standards of Cover*, published by the Commission on Fire Accreditation International (CFAI), which is part of the Center for Public Safety Excellence. CFAI criterion refers to the NFPA 1710 standard for communities that have personnel on-station, regardless if the personnel are full-time or part-time, or the community is suburban or urban in nature. Since SFRD has no volunteer personnel, NFPA 1720 was not used as the basis for analysis.

The published response criteria are based on national fire behavior research. There also is information on EMS response in relationship to patient outcomes. This research and other information can be reviewed in Appendix B.

Data Analysis

Response data for the Swancreek Township area during 2018 was analyzed for overall performance. NFPA and CFAI have recognized the use of percentiles as the most accurate method to analyze and evaluate response performance. Figure 10 displays the department's overall response performance for fire responses into the Swancreek Township service area against the NFPA 1710 standard. The percentage column identifies the frequency the department meets the target-time benchmark. Meeting the target-time benchmark for at least 70% of the responses is often considered the baseline or threshold measurement.

Fire Response NFPA 1710 Standards

Element	Target	Percentage
Fire Response	7:06	42%

Figure 10

The data shows a performance gap compared to the standard's criteria. However, it is not unexpected since Swancreek Township is a rural area and the fire station is located in the northeastern part of the village.

Apparatus and Equipment

The department currently operates two engines, one aerial truck, one tender, one brush truck and two EMS units. Overall, the department's fleet and equipment appears well-maintained and is of the appropriate size and design for the intended purpose. The following is a summary description of each apparatus and condition.

Engine 702 is a 2007 Ferrara 1,500 GPM pumper and carries 1,000 gallons of water. This vehicle is equipped with the necessary hose and equipment as required by NFPA 1901. It also carries hydraulic rescue tools and other equipment for auto extrication and other rescue situations, along with EMS equipment and an AED. The unit is in good condition.

Engine 703 is a 2000 Pierce 1,250 GPM top-mount pumper and carries 1,000 gallons of water. The vehicle is equipped with the necessary equipment as required by NFPA 1901 and also carries EMS equipment and an AED. It is in good condition.

Ladder 701 is a 1995 E-One quint 50 ft. "Telesquirt" with a 1,250 GPM pump, 500 gallons of water and a 30-gallon onboard foam system. This vehicle provides an elevated stream and can be used to access elevated locations. The vehicle is equipped with the necessary loose equipment as required by NFPA 1901 and also carries EMS equipment and an AED. It is in good condition.

Tender 708 is 2012 E-One tender on an International chassis. It is a "vacuum truck" style tender that carries 3,000 gallons of water and has a 500 GPM PTO pump. The vehicle is capable of off-loading water through three electronically controlled chutes located on either side or the rear of the apparatus. It carries a portable drop tank that allows crews to provide a temporary water reservoir with sufficient capacity to sustain water application in lieu of hydrants in rural areas. It is equipped with the necessary equipment required by NFPA 1901and also carries EMS equipment and an AED. The unit is in excellent condition.

Brush 76 is a 2004 brush and grass firefighting vehicle on a Ford F 350 4-wheel drive pick-up truck. It has a 250 GPM pump and carries 250 gallons of water. It is in good condition.

ALS 7 is a 2017 Horton Type III modular ambulance on a Ford 4-wheel drive chassis. This unit is configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator and a patient power-load system. The unit is in excellent condition and is owned by Fulton County EMS.

Medic 72 is a 2012 McCoy-Miller Type III modular ambulance on a Ford chassis. This unit is

configured and equipped to deliver ALS level care and transport service, including a LIFEPAK 15 cardiac monitor/defibrillator and a patient power-load system. The unit is in good condition and is owned by Fulton County EMS.

Support 4 is a 2014 Chevrolet 4-wheel drive sport utility vehicle. It is used both as a support vehicle and also as a command vehicle.

The department also has a spill response trailer that carries supplies and equipment used for hazardous materials spills.

Engine 702

Tender 708

Ladder 701

Engine 703

Station Location Analysis

Determining the location to build a fire station in a rural area involves evaluating several factors including: travel times, first due-area impact and land availability. The factors examined for this study were limited to travel times and first due-area impact. It is understood that land may not be available at the exact location identified. The best option for the township would be the closest site to the identified location that has sufficient land area, topography, drainage, etc., and is within fair market values.

The most accurate mapping system available utilizes GIS technology. With this information and the ArcGIS9 Fire Analysis Tool Software, planning maps were developed to visually explain the

emergency travel times within the township.

The map in Figure 11 shows the 6-, 8-, and 10-minute travel time areas throughout the township from the current fire station locations. There is a significant area of the township beyond a 10-minute travel time. This is not unexpected given the size of the response areas, especially Delta's, and the distance from the fire stations. In fact, none of the three fire stations are located within the township.

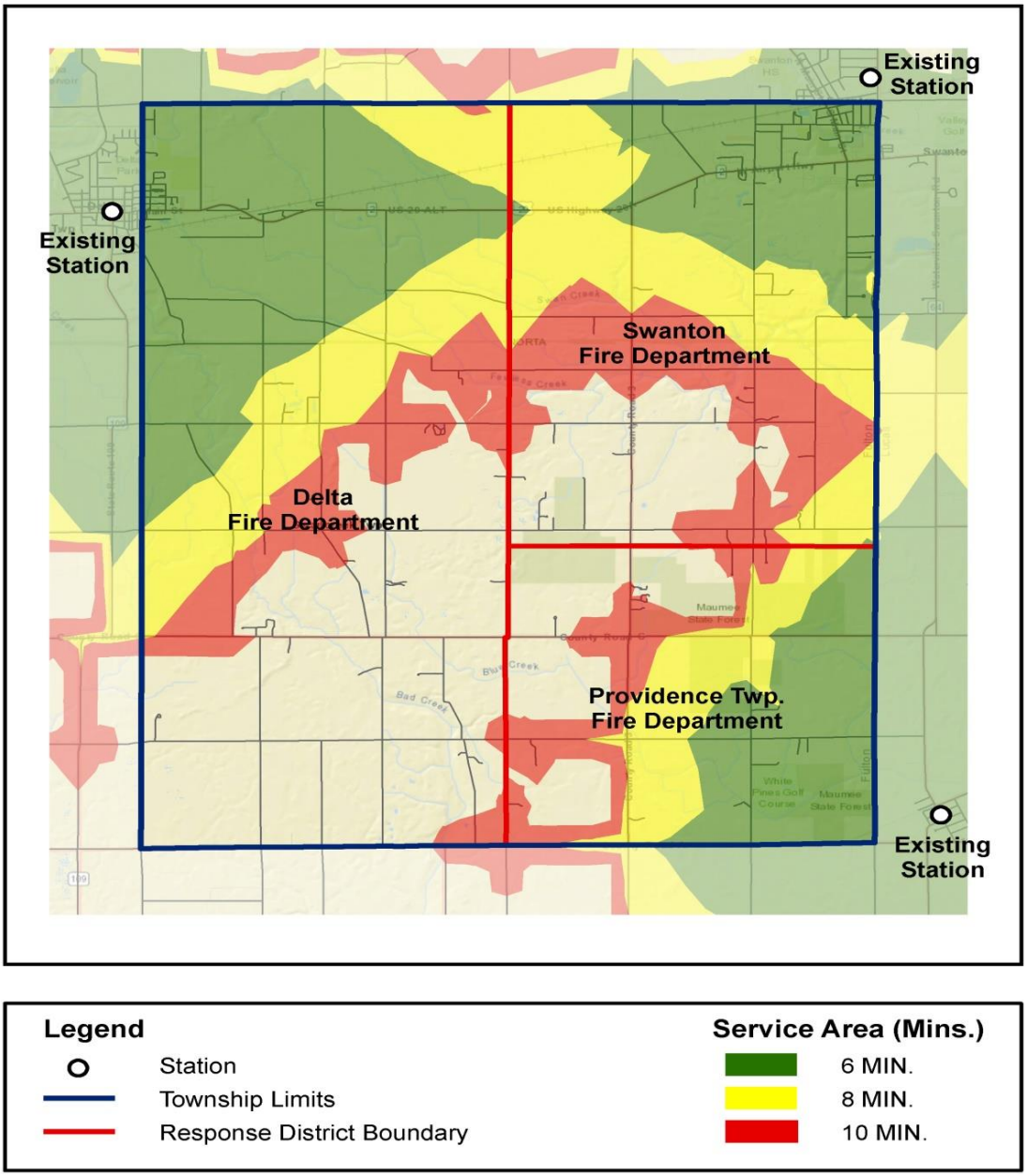


Figure 11

The map in Figure 12 shows a fire station located at the intersection of Township Road C and Township Road 4. This location provides the greatest improvement in travel time coverage throughout the township with only a small segment of roadway on the most remote southwest corner beyond 10 minutes.

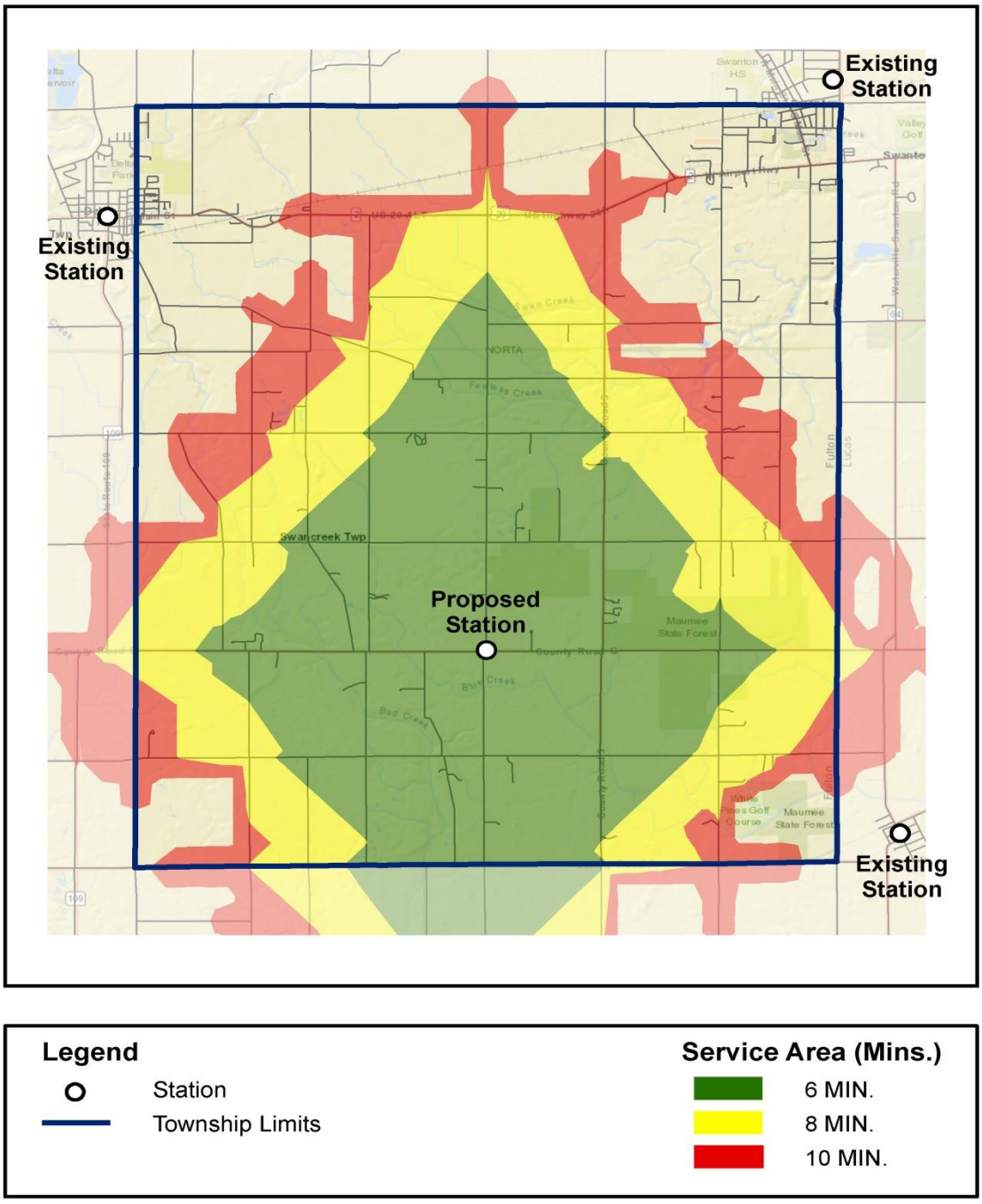


Figure 12

The map in Figure 13 shows the 10-minute travel time overlap from the existing three stations and the proposed station. This overlap, which is depicted in a dark red shade, shows the areas of township in which the second arriving fire company would arrive. The automatic response plans for structure fires provides the highest degree of service for the residents in a rural area, where resources are typically located several miles away. Swancreek Township is an example of this

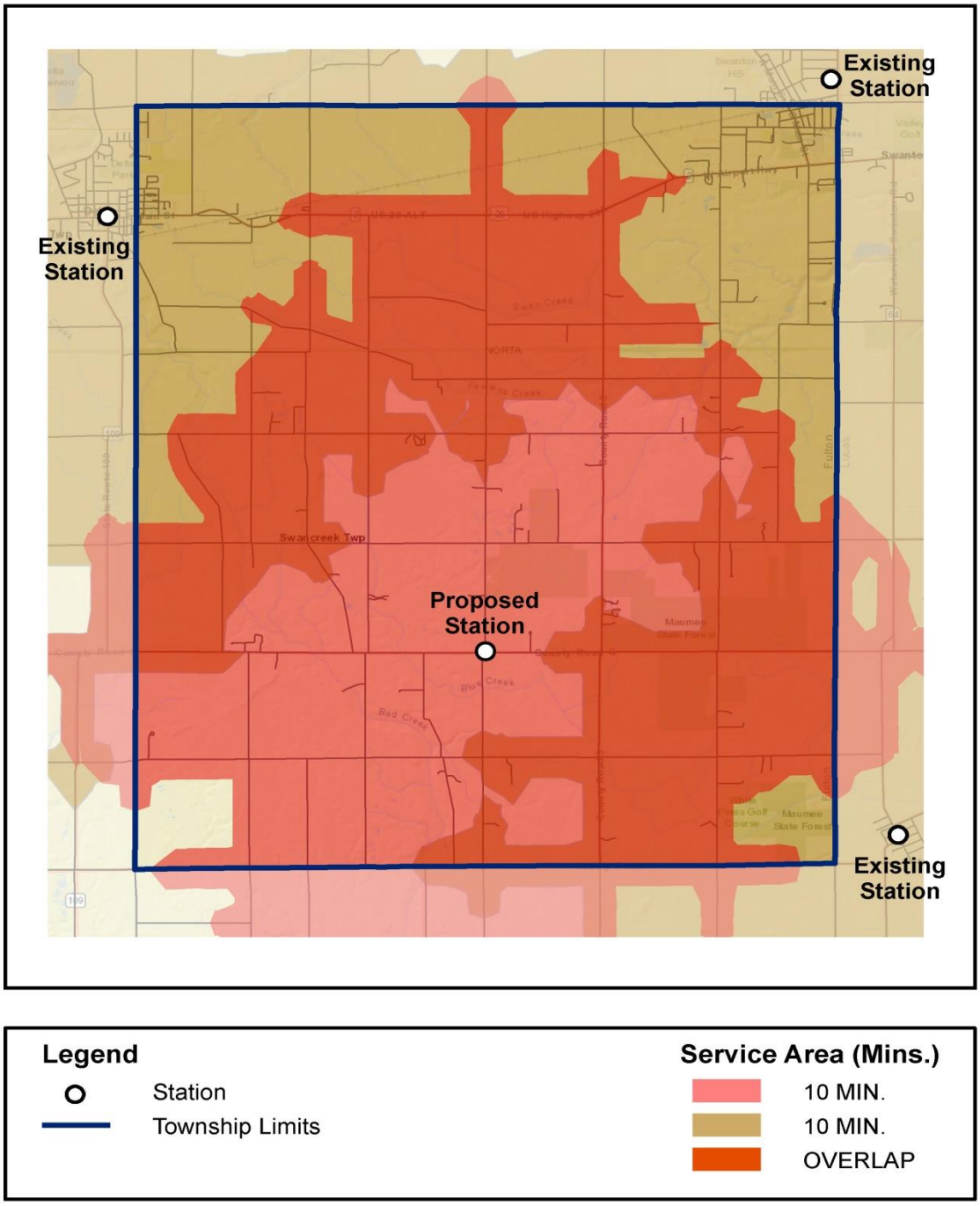


Figure 13

situation, especially the southwestern portion of the township. The adding of a fire station can have a significant improvement on the travel time and subsequent overall response time of the first arriving unit for both fire and EMS emergencies. The continuation of the solid working relationships among the fire departments is essential to the automatic response concept.

The map in Figure 14 was furnished by the Fulton County GIS Department. It shows the response frequency by location in Swancreek Township for fire and EMS responses for 2016 through 2018. Red and yellow colors show a greater number of responses in a particular area. The station location identified in Figure 12 would place an additional station within 6- and 8-minute travel times of the areas with the highest frequency of response and significantly improve travel times to the other areas of the township. The exception are the areas near and around Delta and Swanton.

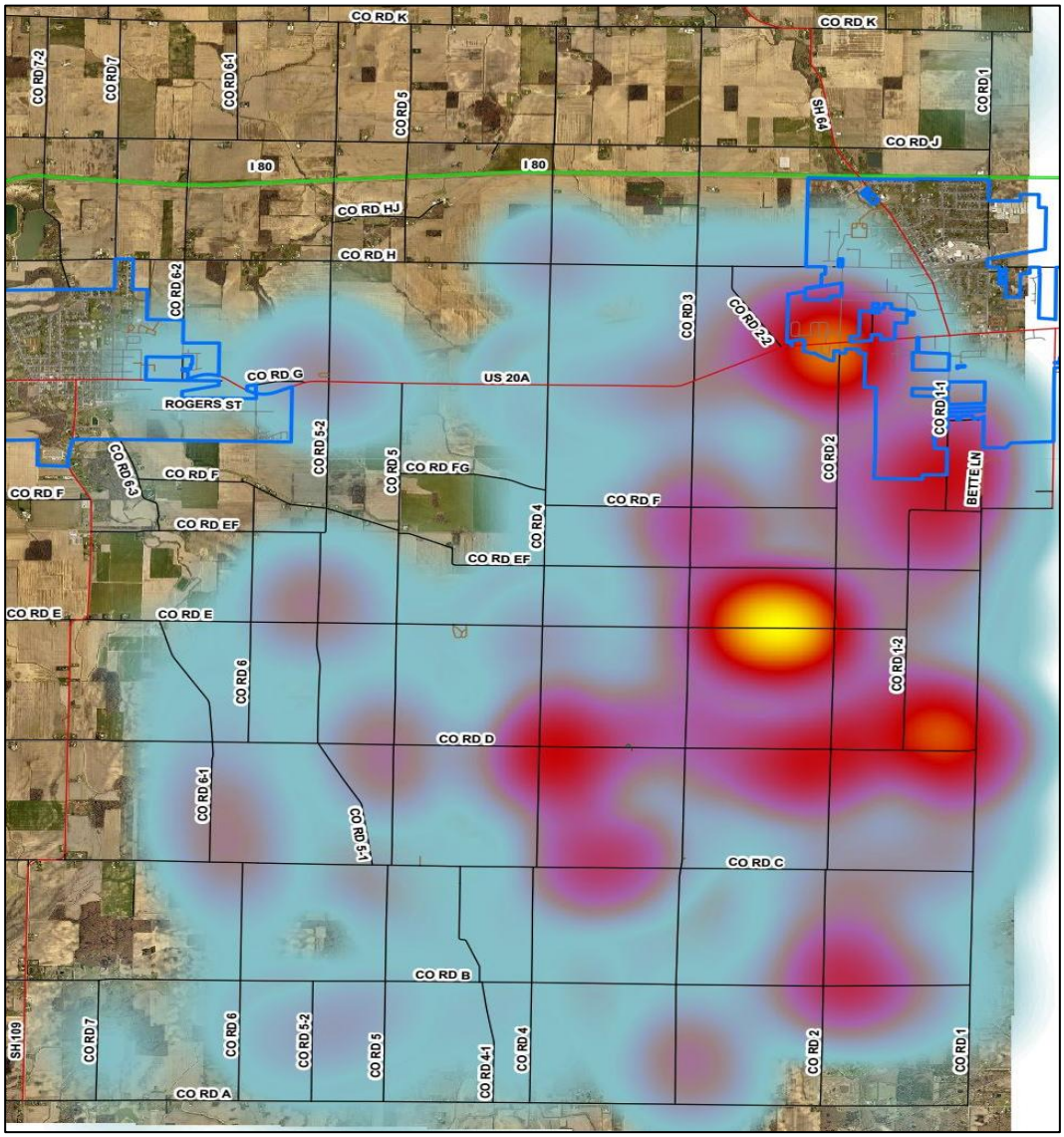


Figure 14

Fire Station Construction

An estimated cost of construction for a fire station facility was developed to assist the Board of Trustees. Research was performed with the Fulton County Auditor's Office regarding the cost of land, recent purchase history in the area and projected cost increases. In addition, the assessment team worked collaboratively with our architectural partners to determine adequate space needs for the facility.

The space requirements for a fire station have been determined to be approximately 6,000 sq. ft. based on a two-bay design with sufficient space for three to four fire personnel on-duty and is listed in Figure 15. The design provides the necessary space for designated areas such as EMS and general storage, decontamination area, turnout gear storage and breathing air cascade system, etc. The facility also must meet the requirements of an "Essential Facility" as set forth in the Ohio Building Code. This means the structure must be designed to remain operational in the event of extreme environmental loading from wind, flood, snow and earthquake. A fire station also must meet the necessary environmental air make-up required in the Ohio Building Code and all current Americans with Disabilities Act requirements.

Space Requirements	
Apparatus Bays	2,400 sq. ft.
Turnout Gear Storage	150 sq. ft.
Clean/Decon Room	100 sq. ft.
Cascade System/Air Production	50 sq. ft.
Workshop Area	200 sq. ft.
Lobby & Air Lock	100 sq. ft.
Training/Conference Room	250 sq. ft.
Captain Office	140 sq. ft.
Report Writing/Workspace	120 sq. ft.
Public Unisex	80 sq. ft.
Day Room	250 sq. ft.
Kitchen	250 sq. ft.
Bunk Rooms (4)	450 sq. ft.
Unisex Showers (2)	160 sq. ft.
Fitness Room	400 sq. ft.
Laundry Room	120 sq. ft.
Linen Storage	20 sq. ft.
Locker Room	120 sq. ft.
Mechanical/Electrical Room(s)	240 sq. ft.
IT Room	100 sq. ft.
Cleaning & Maintenance Storage	100 sq. ft.
EMS & General Storage	200 sq. ft.
Total Square Footage	**6,000 sq. ft.**

Figure 15

Discussions with architectural professionals and contractor associations provided the basis for the estimates. An on-line estimator tool developed by *Building Journal.com* also provided estimates based on current market conditions in over 160 areas across the country. The estimated cost per sq. ft. was increased by 8% to compensate for the recent increase in building materials and the "Essential Facility" code requirements. Construction estimates for a 6,000 sq. ft. one-story fire station in northwest Ohio (Toledo) area are displayed in Figure 16.

Estimated Construction Cost		
Range	Cost per sq. ft.	Total
Low	$124.00	$744,000
Median	$145.00	$870,000
High	$191.00	$1,146,000

Figure 16

It must be emphasized that these are **estimates** and actual costs may vary. Building design, features, interior finishes and market conditions can all affect the final construction cost. The "Essential Facility" classification in the Ohio Building Code will require architectural and engineering assistance in design and will increase the construction cost. A public project also must meet prevailing wage requirements.

There are a number of fixed costs that will also be part of the construction project and are listed in Figure 17. Those include land acquisition, site preparation, permits, and the provision of utilities. A minimum two-acre site is recommended to provide sufficient space for design, water detention, and the installation of an on-site sewage system and water well.

Land Acquisition & Site Work	
Land- 2 acres	$30,000
Site preparation	$20,000
Water & Sewer	$25,000
Permits & Design	$30,000
Subtotal	**$105,000**

Figure 17

The estimated total cost to construct a fire station using the high range cost is shown in Figure 18. The high range was used due to the increase in construction costs due to the building requirements of an "Essential Facility" and the increase in public facility improvements across the state. The high demand on construction projects and building materials has increased market costs. This should provide the Board of Trustees the foundation from which to begin discussions and deliberations on the addition of a fire station to service the township area.

Total Estimated Cost	
Construction Cost	$1,146,000
Site Preparation	$105,000
Subtotal	**$1,251,000**

Figure 18

Operational Cost

If the Board of Trustees moves forward with the construction of the fire station facility, they must plan for the on-going operational and maintenance cost of the facility. Estimated annual operational expenses for the fire station are found in the chart in Figure 19 and include funds assigned to a capital replacement account for future expenditures such as roof replacement, etc.

Fire Station Estimated Operational Budget	
Insurance; building, liability	$10,000
Contract services; HVAC, generator, overhead door	$10,000
Utilities	$9,600
Building Maintenance and Repair	$8,000
Capital Replacement	$3,000
Miscellaneous	$2,000
Total Budget	**$42,600**

Figure 19

Fire Station Staffing

Once the fire station is constructed, the Board of Trustees will need to turn their attention to staffing the station. The best method is for the Swancreek Township Board to enter into a contractual agreement with one of the fire departments currently serving the township. There have been previous discussions by the Board of Trustees to have personnel from both Delta and Swanton staff this proposed station. This is an option that is worth exploring. The Board of Trustees should also consider contracting with one organization to staff and operate the station. This will eliminate any future issues regarding policy, procedures, command structure, pay scale and operating culture. Reviews of previous attempts across the state to co-staff a station are not favorable. While it is not desired to create a situation where one department appears to be a winner or loser, the goal is to identify the best method to operate a fire station for service to the public. If utilizing personnel from both departments is the best option for Swancreek Township to staff a station, that option should be pursued. The Board of Trustees will need to have discussions with the Delta and Swanton Fire Chiefs on their recommendations on staffing, specific equipment, and deployment model.

It is also recommended that the Board of Trustees confer with the Fulton County Prosecutor for the legal requirements and recommended method to negotiate and execute a contract to provide fire protection services. This would include the personnel and equipment to staff and operate a fire station for Swancreek Township and to respond to emergencies in the area designated.

The analysis and cost basis for a fire station has been based on one engine (pumper) being housed at the station. The department who staffs the station may also wish to have some type of utility vehicle such as a pick-up truck; however, the important piece of equipment is the engine. In addition to the standard firefighting tools and equipment, the engine should also be equipped with EMS equipment and a heart monitor/defibrillator. This will allow the engine to respond to medical emergencies and provide initial patient care until one of the Fulton County EMS units can arrive.

A minimum of three personnel are recommended for staffing around-the-clock. At least one of the crew members will need to be an officer (supervisor). Personnel should also be cross-trained as EMT's, with Paramedic certification a plus. Three personnel would allow the crew to initiate an external fire attack or initiate auto extrication procedures until additional resources can arrive. The crew would also have the ability to handle a multitude of less serious incidents. For EMS incidents, the crew can initiate basic or ALS patient care to an injured or ill person. For example, for a person not breathing or trauma victim (such as a gunshot wound, blunt force trauma, fall from six feet or higher, etc.) typically requires three to five EMS personnel to adequately treat the patient. A three-person crew would allow ALS level treatment until the Fulton County EMS unit can arrive.

One of the questions facing the township is the deployment model. The deployment model can be all full-time personnel, all part-time personnel or a mix of full-time and part-time. While there are pros and cons to the deployment models, cost and employee pool will be the major factors. It is the opinion of the OFCA that a part-time staffing deployment model can be employed to meet the township's needs, with the assumption that a sufficient part-time pool can be identified. Pay scale and work hours will be contributing factors. The township should begin with a part-time plan and full-time staffing can be implemented in the future if needed and funds are available.

Part-time pay scales in the Fulton and Lucas County area vary. Telephone surveys to several departments in the area provided an average pay per hour range of $12.75 to $16.00. Using $16.00 per hour for a firefighter/paramedic [1] and $17.00 per hour for a captain/paramedic as a basis, it is estimated the cost to staff the station will be $462,077 annually, which includes payroll tax and Medicare costs. This would be the base contract price and could be slightly higher to cover any administrative costs. If full-time personnel are needed to fill positions, the cost will be significantly higher. Costs to cover benefits for full-time employees such as pension requirements and health insurance typically add 30% to 35% to the base salary.

The cost of the fire truck is an unknown. This would need to be negotiated by the township when the terms of the contract are developed. There may be no additional cost or the agency selected may wish to have an annual or monthly fee for use of the truck plus the cost of fuel.

Together, the annual cost to the township to staff and maintain a fire station facility is estimated at $504,677. This does not include the cost of construction. There will be some offset in expenditures. The areas of the township served by Delta, Swanton or Providence Township would be reduced, with a corresponding reduction in contract fees. The amount of the reduction would be subject to negotiation.

Feasibility

The purpose of this study was to determine the feasibility of constructing and staffing a fire station in Swancreek Township. The Board of Trustees desired an objective evaluation of the concept, potential cost and impact on service delivery.

In this study, the existing service delivery was reviewed as well as existing service demands. A risk analysis of the township service area was also performed. A fire station location analysis was performed to determine the most advantageous location for a fire station and if a staffed fire station could have a positive impact on service delivery. According to the analysis, a fire station located in the area of the Township Road C and Township Road 4 would improve (decrease) travel times to approximately 50 % of the township and allow for the second-due fire company to

[1] Personnel can be cross trained as Firefighter/EMT or Firefighter/Paramedic

arrive quicker in the northwest, northeast and southeastern areas of the township. Additionally, a significant area of the township would be within five road miles of a fire station, improving the ISO rating in those areas. It is worth repeating that the success of operating a fire station in the township is dependent on the continued working relationships of all departments in the immediate area.

After careful analysis and review, the assessment team has determined that it is feasible for Swancreek Township to construct and staff a fire station. Travel and overall response times will be improved which should result in an overall improved level of service for both EMS and fire incidents. However, this improved level of service will require a significant increase in operational expenditures by the township that most likely will require an increase in the levy amounts currently collected. The additional millage needed to construct the station and then staff and operate it annually may detract from the service value. The assessment team does not believe the construction and operation of the fire station will help the township control future costs. The Board of Trustees will be dependent on another organization or group to staff and operate the station. The supply and demand of personnel and normal inflationary increases will make it difficult to control costs. The OFCA offers no opinion on the amount of levy funds that may be needed. The Board of Trustees will need to evaluate what can be funded from existing revenue sources and how much additional funding, if any, may be needed. Ultimately, the citizens will decide if they desire an improved level of service.

Appendix A

In the state of Ohio, the Ohio Division of EMS is responsible for provider licensure, certifications, oversight and enforcement of all of the laws governing EMS and firefighting. There are four levels of EMS certification which has been incorporated into §4765.30 Ohio Revised Code: Emergency Medical Responder (EMR), Emergency Medical Technician (EMT), Advanced Emergency Medical Technician (AEMT), and Paramedic. Each level of EMS certification is based on the National EMS Scope of Practice. [http://codes.ohio.gov/orc/4765].

EMR (formerly known as First Responder) certification is designed to provide basic emergency medical care and stabilization of a patient until a higher level of care arrives. Becoming an EMR requires at least 48 hours of initial training and 15 hours of continuing education every three years. An EMT (formerly known as an EMT-Basic or EMT-B) requires a minimum of 150 hours of initial training and at least 40 hours of continuing education every three years. An AEMT (formerly known as an EMT-Intermediate or EMT-I) requires an additional 200 hours of training above that of an EMT and at least 60 hours of continuing education every three years. AEMTs are able to perform many advanced life support procedures and administer certain medications to patients. To advance to the Paramedic (formerly known as an EMT-Paramedic or EMT-P) level, a person must possess EMT certification and is required to attend nearly 900 additional hours of clinical and didactic training, which allows them to perform additional life-saving procedures and administer additional medications. Examples of these procedures would be applying an external pacemaker, cardiac defibrillation (shocks to the heart) and other advanced invasive procedures. The Paramedic must obtain 86 hours of continuing education every three years, which includes maintaining advanced cardiac life support certification offered through the American Heart Association.

In firefighting, training and certification has three distinct levels. Volunteer Firefighter is the basic level and is limited by law to 36 hours of initial training. It is the minimum level required to perform the duties of a volunteer firefighter and is considered awareness level training. However, the state recommends that volunteer firefighters receive additional training before performing interior firefighting functions or operating in other hazardous environments. This level of training is also the minimum required by law to serve as a part-time firefighter unless additional training is required by the local fire agency.

The next level of firefighter training is Firefighter I (FF I). This level requires an additional 104 hours of training beyond the volunteer course level. This level of training also requires the demonstration of competency in several areas such as proper use of self-contained breathing apparatus. The highest level of training is Firefighter II (FF II). This includes 240-260 hours of training in a variety of subject matter and the ability to demonstrate competency in several required areas. Full-time firefighters in Ohio are required by law to achieve certification at this level to work in their position. Fifty-four hours of continuing education every three years is required to maintain firefighter certification.

Appendix B

The Science of Fire and the Need for Rapid Response to Affect Positive Change

Because there is such a wide variation in the fire dynamics of each particular fire, it is imperative to find a common reference point, something that is common to all fires regardless of the risk-level of the structure, the material involved or length of time the fire has burned. Such a reference point exists. Regardless of the speed of growth or length of burn time, all fires go through the same stages of growth. One stage in particular emerges as a very significant one because it marks a critical change in conditions; it is called flashover.

The flashover stage of a fire marks a major turning point in fire conditions that increases the challenge to a fire department's resources. How and why this is so is explained in the following descriptions of each stage of fire growth in a structural fire.

Incipient stage

The smoldering stage is the first stage of any fire. When heat is applied to a combustible material, the heat *oxidizes* the material's surface into combustible gases. The oxidation process is exothermic, meaning that the oxidation process itself produces heat. The heat from the oxidation raises the temperature of other materials, which increases the rate of oxidation and begins a chemical chain reaction of heat-release and burning.

A fire progresses from the smoldering phase immediately or slowly depending upon the fuel, nearby combustibles, and the surrounding air. For example, a wad of newspapers will smolder only a few seconds before progressing to the next stage, but a couch with a burning cigarette may continue smoldering for an hour or more.

Growth stage

When the temperature gets high enough visible flames can be seen. This stage is called the growth stage or open burning. The visible burning at this stage is still limited to the immediate area of origin. The combustion process continues to release more heat which heats nearby objects to their ignition temperature and they begin burning.

Flashover/fully developed stage

Not all of the combustible gases are consumed in the growth stage. They rise and form a superheated gas layer on the ceiling that can quickly reach 1,500°F. As the volume of this gas layer increases, it begins to bank down to the floor, heating all combustibles regardless of their proximity to the burning object. The gas layer is mostly carbon monoxide so the absence of oxygen prevents the heated objects from bursting into flame.

Oxygen gets introduced into the space in two ways. There is often enough available oxygen near floor level to start the open burning process when the gas layer reaches that level. Or, the high heat breaks a window and the incoming oxygen allows the burning to begin. It should be noted that the room becomes untenable long before flashover. Even though open flaming may not be present until everything reaches 500°F and oxygen is introduced, the room becomes untenable for human survival at 212°F.

When flashover occurs, everything in the room breaks into open flame at once. This instantaneous eruption into flame generates a tremendous amount of heat, smoke, and pressure with enough force to push beyond the room of origin through doors and windows. The combustion process then speeds up because it has an even greater amount of heat to move to unburned objects.

Flashover is a critical stage of fire growth for two reasons. First, no living thing in the room of origin will survive, so the chance of saving lives drops dramatically. Second, flashover creates a quantum jump in the rate of combustion and a significantly greater amount of water is needed to reduce the burning material below its ignition temperature. A fire that has reached flashover means that it is too late to save anyone in the room of origin, and a significant increase in staffing is required to handle the larger hose streams necessary to extinguish the fire. A post-flashover fire burns hotter and moves faster, compounding the search and rescue problems in the remainder of the structure at the same time that more firefighters are needed for fire attack. See the chart in Figure 20.

Pre-Flashover	Post-Flashover
Fire limited to room or area of origin	Fire spreads beyond room or origin
Search and rescue efforts easier	Compounds search and rescue efforts
Requires small attack lines	Requires more or larger attack lines
Requires few resources and can be handled by initial effective response force	Requires additional resources (companies)

Figure 20

It has long been known that the real killer in a structural fire is smoke, not the flame or heat. Smoke contains many toxic gases released as by-products of the combustion process. Carbon monoxide is one of these gases and the most prevalent. Test fires in residential structures have demonstrated the production of carbon monoxide in measurable amounts after 3½ minutes from the ignition of the fire.

The primary objective of fire operations is to provide enough firefighters and equipment in a strategic location so that an effective response force can respond to and reach fire scenes to mitigate the problem before flashover occurs. The "time-temperature curve" standard is based on data from NFPA and ISO, which have established that a typical point source of ignition in a residential house will "flashover" at some time between 5 and 30 minutes after ignition, turning a

typical “room and contents” fire into a structural fire of some magnitude. This is illustrated in Figure 21.

Time-Temperature Curve

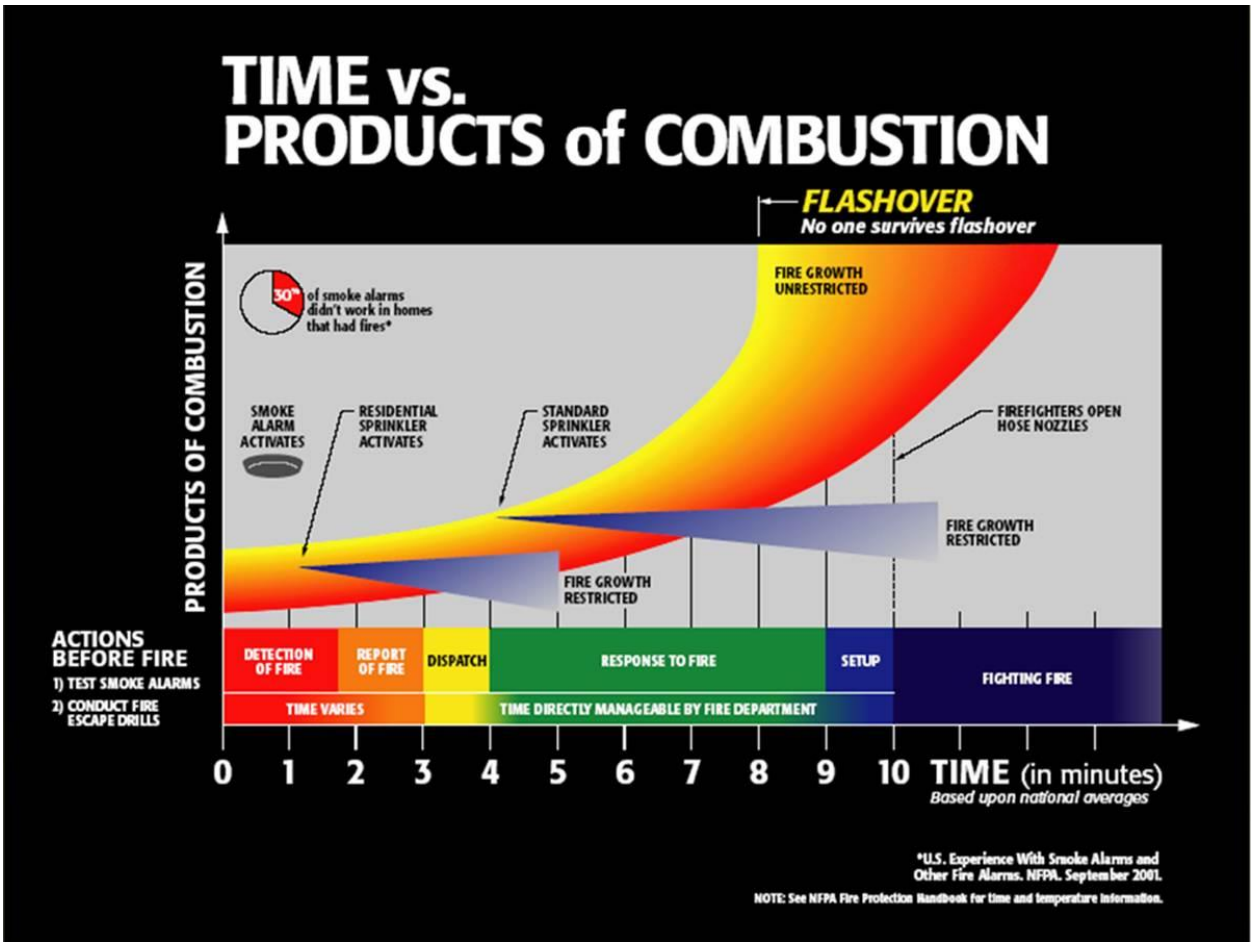


Figure 21

EMS Performance Goal

Time requirements for EMS calls are comparable to fire incidents. The purpose of a quick response, especially in the most critical situation (cardiac arrest), is that the brain, devoid of oxygen and circulation begins to die within four to six minutes. Brain damage is normally irreversible after 10 minutes. Interventions include early cardiopulmonary resuscitation (CPR) and electrical defibrillation. Previous studies show the time to deliver a shock (called defibrillation) to the patient in cardiac arrest to be three to six minutes. Current guidelines from the American Heart Association plus additional guidelines from the American College of Emergency Physicians and the National Highway Traffic Safety Administration suggests a response time interval of not more than five minutes from alarm notification to scene arrival for responders capable of performing CPR and utilizing an AED. An AED is a portable device that

the first responder or trained civilian can use on a patient who is pulseless and not breathing. When the device is connected to the patient, it analyzes the patient's heart rhythm and automatically delivers electric shocks to the patient if needed. Furthermore, guidelines provide for no more than a 10-minute response interval for providers capable of performing ALS level interventions, if that level of service is available. This is displayed graphically in Figure 22.

Figure 22

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