

**Fire Department Strategic
Analysis Study**

for

Bainbridge Township

by

The Ohio Fire Chiefs' Association

December 2015



Executive Summary

The Ohio Fire Chiefs' Association (OFCA) was contracted to provide an operational review and analysis of the Bainbridge Township Fire Department. This review included an examination of the department's policies, procedures, staffing, governance, service delivery and organizational structure. A written report was provided to the township that identifies operational areas of concern and the development of recommendations and strategies to improve overall system performance.

Bainbridge Township is located in southwest Geauga County, bordering Portage County to the south and Cuyahoga County to the west. The township is approximately 25 square miles and lies along the intersection of State Route 306 and State Route 422. The fire department provides fire suppression, emergency medical service (EMS) and fire prevention activities to approximately 12,000 residents. The fire department has a history of being recognized as a well-equipped and progressive department, especially with regards to EMS, as one of the first paramedic services in the area. Over the past 10 years, the department has experienced a 25% increase in calls for service. EMS demand has steadily increased during that time period while fire responses have fluctuated from year to year. The fire department has 53 members, including the Fire Chief, two Assistant Chiefs, six line officers, and 44 firefighters and emergency medical technicians. All but one of the members is classified as part-time; the single full-time employee serves in the rank of Assistant Chief and while performing some supervisory functions, primarily serves as the department's public education coordinator.

The department attempts to staff five positions on-station around-the-clock. The Fire Chief is a part-time position with an expectation of providing approximately 20 hours of work per week. Over the past few years, it has been increasing more difficult to consistently fill staffing positions. Of particular concern is the ability to cover shifts on holidays and weekends. As a result, a significant amount of staff time is needed to complete shift and crew scheduling. Use of bonuses as incentives to fill positions have been offered, though it is not uncommon to have positions go unfilled or for the Chief or full-time Assistant Chief to cover unfilled shifts.

Internal communications, scheduling, training, operations and response performance were analyzed as part of the study. It was determined that the department does not currently have response performance goals or objectives. Internal department communication appears to be ineffective and has created significant challenges for the department.

Some of the recommendations developed for the township's consideration to improve the department's performance and service delivery are briefly outlined in the following paragraphs:

Recommendation - *Create a full-time Fire Chief position.*

Based on the personnel management and administrative needs of the organization as well as increasing service demands, the township should create a full-time Fire Chief position. Day-to-day operations have become less efficient and numerous projects have experienced delays including apparatus repairs, purchases and software implementation. A full-time position that is working each day will provide the management and command consistency needed for a developing department on a day-to-day basis. Staffing a 40-hour administrative position also provides another trained professional who is available to respond to emergency incidents during times of simultaneous emergencies.

Recommendation - *Consider adding six full-time positions in the department.*

The township should begin planning to add three full-time firefighter and three company officer positions. This would allow for one full-time officer and one full-time firefighter/EMT-P on each shift. These full-time positions would provide for a more consistent emergency response and the immediate management oversight needed for emergency incidents. As full-time positions are created and implemented, the corresponding number of part-time positions may be reduced.

Recommendation - *Review and revise the department's current job descriptions.*

The current job descriptions need to be revised to more closely reflect current job requirements, hiring criteria, and technical and professional requirements. The revision and formalization of job descriptions may eliminate confusion or challenges in future hiring processes and will better reflect the current roles and technical requirements of its members. This process should be a cooperative effort with the department's administration and members, with final approval by the Board of Trustees.

Recommendation - *Reevaluate the department's hiring and promotional processes.*

The department's current hiring process should be revised to incorporate the involvement of line personnel in the interview process. Involving firefighters and shift officers in the interview process assists in the development of administrative skills of those involved, promotes "ownership" of the process and allows for transparency. An interview panel concept may also include a representative of the Board of Trustees, potentially eliminating the need for a separate trustee interview.

Future promotional selections should be standardized to include a more formal, open and transparent process. A testing component should be identified and an interview panel should be incorporated into the process. Using an interview panel, including representation from the department and Board of Trustees, would provide the same advantages and benefits as those identified for the revised hiring process.

Recommendation - *Develop a formalized training program.*

The department needs to revise and develop a more formalized training program. A training committee should be organized to identify core competencies, training goals and develop the training schedule. These competencies then become the basis for the training goals and schedule. Development of a standard curriculum would allow for consistent training across shifts with commonly accepted department techniques and procedures. In addition, a training delivery schedule needs to be developed that provides multiple presentations to accommodate part-time personnel and their varied work shifts.

Recommendation - *The department needs to prioritize the implementation of its new records management and data collection software.*

Currently, there are a number of stand-alone software programs being used for prevention, apparatus maintenance, and scheduling. Without a standard software system that can be used department wide, there is the potential for loss of records, inconsistent record keeping and difficulty in assembling the data necessary for orderly record keeping and management oversight. The inability to gather consistent information from a single source also hinders the department's ability to identify and evaluate critical performance criteria.

Recommendation - *Improve the department's internal communication system.*

Communication within the department, which included use of memoranda posted on the station bulletin board, text messages, special messages over the emergency notification pagers and word of mouth has not been effective and has contributed significantly to the challenges the department now faces. The department's electronic e-mail system needs to be expanded so all members of the department have e-mail accounts/access. E-mail access allows employees the opportunity to communicate directly with supervisors or the administration at any time, which is especially advantageous with work schedules that are so varied. This would allow directives, memos, orders and general information bulletins to be distributed in a timely fashion so that all personnel can access them.

Regular staff and officer meetings should be scheduled, agenda posted, and meeting minutes and actions subsequently posted and distributed to the members. In addition to regular officer meetings, the Fire Chief needs to ensure that direction on policy, procedures and other specific direction is consistent and communicated to all officers who may have to deal with similar incidents or situations. Labor-management meetings should be regularly scheduled where concerns from both line personnel and administration can be addressed openly in a professional atmosphere. Developing a multi-faceted and effective communication system is a key component for any organization to maintain an informed work force and keep personnel functioning in an effective and cohesive manner.

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Introduction

At the request of the Bainbridge Township Trustees, the Ohio Fire Chiefs' Association (OFCA) performed an operational review and analysis of the Bainbridge Township Fire Department, which included a review of policies and procedures, organizational structure, staffing, training and determining future organizational and performance needs of the community. The project was limited to these specific areas of study.

Overview

Bainbridge Township is located at the southwest corner of Geauga County and borders the city of Solon (Cuyahoga County) to the west and the city of Aurora (Portage County) to the south. The township is approximately 25 square miles and has a population estimated at slightly less than 12,000¹. The township is known for its laid back, semi-rural charm, larger residential lots, exemplary school system and convenient access to the Cleveland metropolitan area. It is primarily a bedroom community with focused expanding retail redevelopment in the area once known as Geauga Lake. Main roadways in the area include State Route 422 which runs east and west connecting the Cleveland and Youngstown metropolitan areas and State Route 306, which runs north and south providing a link between Lake County to the north and Portage County to the south. A map of Bainbridge Township is contained in Figure 1.

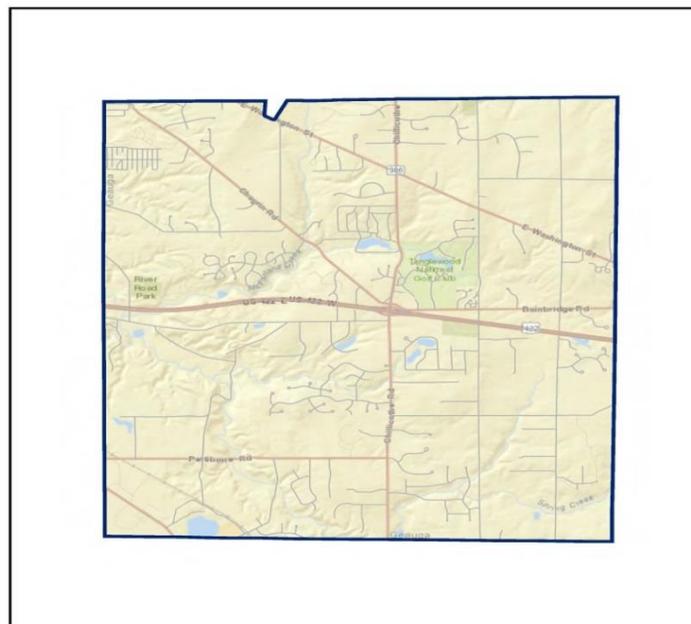


Figure 1

¹ U.S Census

Department History

The Bainbridge Township Fire Department (BTFD) was originally organized in 1942 as the Bainbridge Township Fire Company, Inc. The original roster included nine charter members but expanded to 19 members, including a Fire Chief and officers later in the year. The original station was located near the intersection of State Route 306 and Bainbridge Road, in close proximity to the current station and township administrative offices. The department primarily functioned as a volunteer fire department organization until 1950, when the department initiated a volunteer rescue squad, providing emergency medical treatment and transport to residents of the township. Advanced life support (sometimes referred to as paramedic) emergency medical services were introduced in 1978.

As the township evolved, the department expanded its services in order to provide around-the-clock protection. The staffing model for this provision of services was based on using part-time firefighter/EMTs and a recall system for those who lived in close proximity to the community. The staffing requirements slowly evolved into the current system where the station is staffed with five personnel around-the-clock. Additional part-time administrative positions, including the Fire Chief and Assistant Chief were available to augment responses during the week. A contracted partnership between the township and fire company was in place until 2013. This partnership provided the association the ability to provide training, equipment and staffing in order to enable the township and department to meet the community's growing service demands. In 2013 the fire company voluntarily terminated the contract with the township trustees, transferring all staffing and operational needs to the township. As a result of a study performed in 2010 by Emergency Services Consulting International, the township appointed a full-time Assistant Chief in 2014 to assist with fire prevention activities, public education and coordination of the training operations of the department.

Fire & Emergency Services

The BTFD provides fire suppression response and emergency medical services (EMS). The EMS is an advanced life support level (paramedic level) and transport model. The department has experienced a steady increase in emergency calls for service over the past 10 years. In 2006 the department responded to 1,306 calls for service. By 2014 this number had increased to 1,626, which reflects a 25% increase. During this ten-year period, EMS calls increased from 870 to 1,146 (an increase of 32%) while fire calls slightly increased from 436 to 480 (an increase of 10%). Fire responses have fluctuated from year to year, but do not show a pattern of consistent increases. Over the past three years, the greatest numbers of fire responses are in the categories of mutual-aid (no fire) given, fire alarms (no fire) and gas/odor investigations. Bainbridge Township's calls for service over the past ten years are displayed graphically in Figure 2.

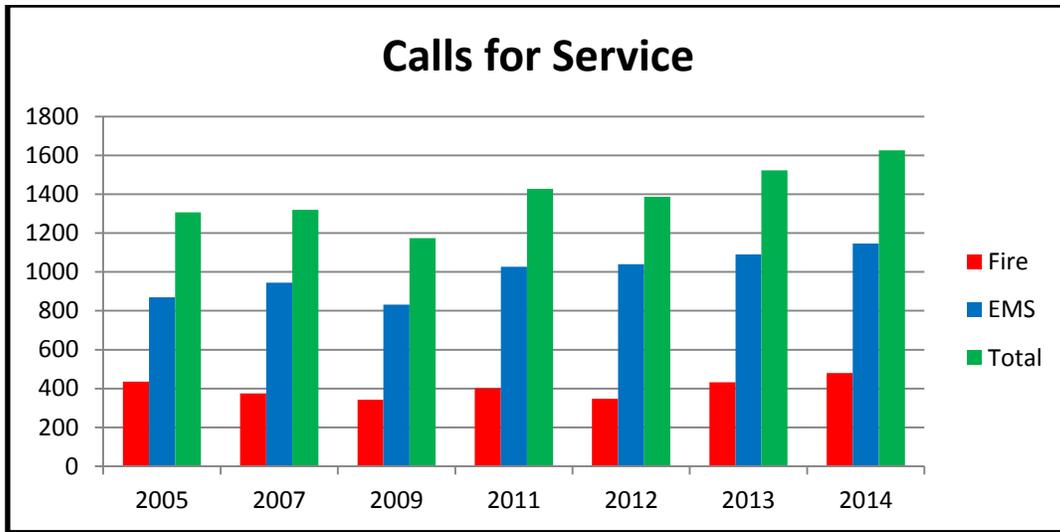


Figure 2

While the department has members trained in hazardous materials and technical rescue response, these services are provided through a service agreement with the Chagrin Southeast Hazardous Material Response Team, which in turn has a reciprocal agreement with the Heights Area Special Rescue Team and the Hillcrest Technical Rescue Team. Resources from some or all three of these regional teams could respond and provide the technical resources needed to deal with a hazardous materials or technical rescue incident. Technical rescue is a term used to describe special response situations including confined space rescue, high-angle rope rescue, trench rescue, fast-water rescue, and hazardous materials response. Technical rescue incidents are referred to as high-risk, low-frequency events which are dangerous to mitigate and involve a special set of skills, procedures and equipment for each particular rescue situation. It is often very costly to implement and maintain proficiency in each particular emergency response capability.

Fire Prevention and Public Education

The department's fire prevention and inspection activities are coordinated and administered by the part-time Assistant Chief. The department's philosophy when performing fire safety inspections has been to address violations at the time of inspection, eliminating the need for follow-up inspections. The department has several certified fire safety inspectors who have historically performed fire safety inspections; however, the frequency of these inspections has diminished over the years. Contributing to the decreasing number of inspections is the focus of shifting part-time hours from prevention activities to station coverage; which has helped the department comply with work hour guidelines and restrictions outlined in the Patient Protection and Affordable Care Act (P.L.111-148) commonly referred to as the Affordable Care Act. A list of regularly scheduled inspections or a policy identifying inspection and enforcement goals was

not available. Reports and records management is accomplished with an iPad-based records system developed by the Assistant Chief that can be used in the field. The chart in Figure 3 identifies the number and types of inspections over the past five years and shows the decrease in the total number of inspections completed.

Types	2010	2011	2012	2013	2014
Fire Inspections	148	184	111	78	66
Occupancy	11	8	3	7	16
Fire Alarm	86	44	41	55	43
Hood tests	61	56	74	61	63
Suppression	35	29	29	39	27
Complaints	4	1	3	3	3
Knox Box	40	40	32	34	18
Emer. contact	24	25	26	26	32
Storage tanks	2	1	1	1	1
Fireworks	6	9	9	12	6
Total	417	397	329	316	277

Figure 3

Public safety education activities provided by the department were identified as a strength throughout the study process. Public education programs, which include cardio-pulmonary resuscitation (CPR) courses, first-aid classes and station tours, are coordinated by the full-time Assistant Chief. The activity and program records reviewed were incomplete and did not reflect the total number of attendees. However, the number of CPR courses over the past two years averaged 27 courses annually with 335 attendees registered in 2013 and 352 attendees registered in 2014.

Funding

BTFD operates under a funding model that is dependent on property taxes. Bainbridge Township has existing millage for fire department operations totaling 7.35 mills. The latest increase was for an additional 1.85 mills that was approved by the voters in 2011. The voted millage is continuing and generates approximately \$2 million annually. Additional income from EMS billing is estimated to be approximately \$350,000 per year. Expenditures for fire department operations in 2014 were \$2.3 million. Capital outlays and personnel costs are the department's largest expenditures. Based on the budgetary worksheets provided, the department is expected to carry a fund balance of roughly \$740,000 from 2015 into 2016. The worksheets also identify planned replacement of apparatus including one ambulance and one engine.

The budgeting process is mandated by Ohio law and is a three-step process beginning with a temporary budget that is submitted and approved for funding levels by the county auditor. Once approved, the temporary budget is available for use as approved by the township trustees. The

permanent or final budget is ultimately approved by the trustees in the first quarter of the fiscal year.

Personnel rates of pay are based on the individual's level of certification or "grades", as well as years of experience. The grades are applied for every 12 months of employment and 500 hours of experience. Current pay ranges start at \$16.62 per hour for a grade C, EMT-B to \$23.09 per hour for grade A, EMT-P. The exception is the full-time Assistant Chief, who is a salaried employee and receives \$75,000 annually plus additional benefits as a full-time employee. The Fire Chief receives an hourly rate (currently \$42.46) and works a varied number of hours within a 40-hour minimum and 58-hour maximum each two-week pay period. Employee costs are approximately \$1.35 million or 62% of expenditures in 2015.

Staffing

The department uses a part-time staffing model with a goal of filling five positions on a 24/7 basis. The recently appointed full-time Assistant Chief is scheduled as a 40-hour staff position. The Fire Chief is classified as a part-time position who works a varied work schedule as previously described. The second Assistant Chief is also a part-time position and is scheduled as available and may be available for emergency responses as needed. Currently, the department's roster reflected a total of 53 personnel. There are three captains and three lieutenant positions assigned as shift supervision; however, one captain and two lieutenant positions are currently unfilled, having been vacated through voluntary resignation of rank only. There is one part-time administrative assistant who reports directly to the Fire Chief.

The majority of department members are cross-trained as firefighters and emergency medical technicians. Currently, there are a total of 50 personnel possessing FF II certification and three are certified as volunteer firefighters. There are 41 personnel with EMT-P certification, one with EMT-I certification (now referred to as advanced EMT) and 11 certified as an EMT-B. This high level of certification can be attributed to the fact that approximately 50% of the department members are employed by other agencies in full-time roles.

The department utilizes an open application system when filling department vacancies. The screening and selection process includes an administrative interview conducted by the Chief and Assistant Chiefs, stress/voice testing, psychological testing, successful completion of a physical capability test and an interview with the Board of Trustees. Upon completion of the process, successful candidates are offered a one-year conditional appointment. While not specifically documented, the department now only hires employees possessing FF II and EMT-P certification, even though this is inconsistent with the current firefighter job description.

The promotional process for officer positions (part-time roles) is overseen by the Fire Chief and includes a performance review and administrative interview conducted by the Fire Chief and selected officers. The most recent full-time position (Training/Fire Prevention Officer) was

selected from current part-time employees with the only prerequisites being possession of FF II and EMT-B certifications.

The scheduling of shifts is based on a voluntary, sign-up system. The current schedule is coordinated through the department's administrative assistant who monitors vacancies, notifies personnel of openings, and completes and distributes the schedule monthly. Initial selections are based on seniority and the availability for either 12- or 24- hour shifts. The selection process entails four rounds of picks, beginning with the selection of three week-day shifts and one weekend shift. Members must comply with these initial requirements in order to proceed to the next round of selections. Members may schedule no more than 48 hours each pay period or a minimum of 60 hours per month. Staffing rules are designed to comply with Ohio Revised Code and federal healthcare reform limitations. Feedback obtained during the study reflected on the difficulty the department is experiencing consistently filling available shifts. A particular challenge is the ability to fill positions on weekends and holidays. On occasion, the township has offered "bonuses" to employees as incentives in order to fill these positions. An organizational chart depicting the department's current structure is displayed in Figure 4.

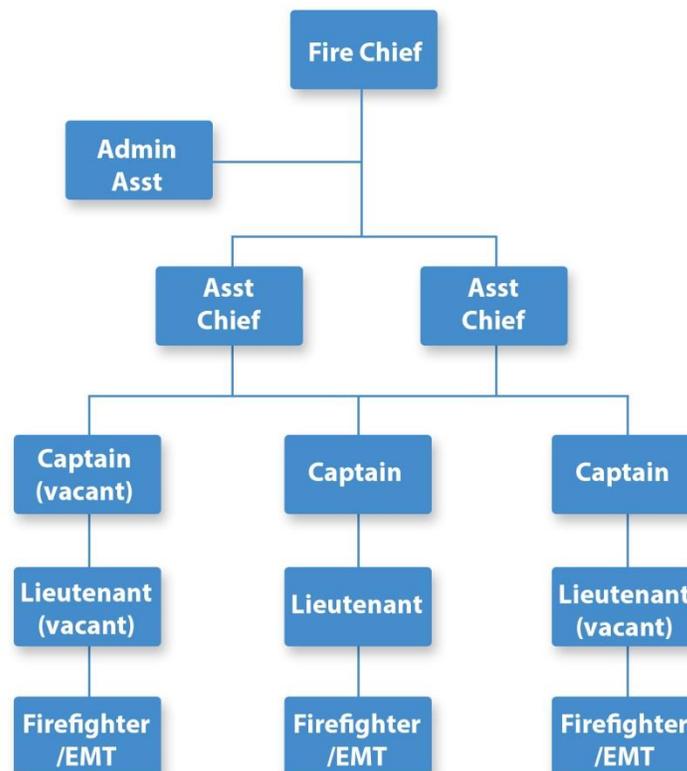


Figure 4

Recommendation #1 - Create a full-time Fire Chief position.

Based on current and future personnel management and administrative needs of the organization the township should create the position of full-time Fire Chief and work to fill the position in the coming year. The growth of the community as well as increasing service demands further justify making the position full-time. A full-time position that is working each day will provide the management and command consistency needed for a developing department on a day-to-day basis. Staffing a 40-hour administrative position also provides another trained professional and command officer who is available to respond to emergency incidents during times of simultaneous emergencies. The creation of a full-time Chief position was also a future recommendation that was identified in the 2010 staffing study previously referenced.

Recommendation #2 - Consider adding six full-time positions in the department.

It is recommended the Board of Trustees develop job descriptions for the positions of full-time firefighter and company officer. While not recommending the immediate creation and filling of these positions; the discussion should be initiated as soon as possible in order to comply with the recently enacted collective bargaining agreement. Based on current salaries, available hours and budget, the appointment of these positions can be supported with the funding sources currently available. These full-time positions will provide for a more consistent emergency response and provide for the immediate management oversight needed for emergency incidents. As full-time positions are created and implemented, the corresponding number of part-time positions may be reduced. As of this review, the assessment team does not see the need for more than six full-time positions; three firefighter/EMT-Ps and three company officers. This would provide one full-time company officer and one full-time firefighter/EMT-P to each shift. However, the implementation of this strategy is secondary to the appointment of the full-time Fire Chief.

Recommendation #3 - Develop a policy that outlines the department's expectation of part-time personnel in regards to scheduling of work shifts.

It is recommended that the policy on work shifts have specific terminology that would require members to sign-up for a minimum of 48 hours each pay period. Based on the current collective bargaining agreement, this requirement will not require overtime and allows for flexibility in scheduling other department activities such as training, inspections, etc. This level of participation would avoid penalties identified by requirements of the Affordable Health Care Act and work hour restrictions in the Ohio Revised Code.

Recommendation #4 - Reorganize the department's management functions.

A strategy should be developed to reorganize the management functions of the department, especially considering the potential to transition the department to a combination department with more dependence on full-time staff and officers. Current roles of administrative positions should be reevaluated, reassigned or eliminated as the staffing needs of the department evolve.

The current organizational structure identifies two Assistant Chiefs, at least one of which should be eliminated or reassigned based on their current operational roles.

For example, one of the Assistant Chief positions serves as training and public education coordinator. Based on the analysis, the position has not performed to the level intended because of a lack of experience, lack of clarity for the position, and a lack of command supervisory experience. In addition, the officer position that will lead the training committee in the future should be an experienced instructor and have certification from the state of Ohio as an EMS or fire instructor, with dual certification being a plus. The responsibilities of the public education and training coordinator do not rise to the level of a command officer. This is a specialty position and should be assigned that title instead of a senior command officer position. This position should be reassigned as the department only needs one Assistant Chief. If this is not possible, the incumbent needs to embark on an aggressive officer development program to gain some of the knowledge and skills needed for a command position. As pointed out in Recommendation # 8, all officers need to complete officer development training.

Recommendation #5a - Reevaluate the department's hiring process.

It is recommended that the hiring process of the fire department be reviewed and updated. While the initial hiring process seems adequate, the opportunity exists to incorporate the involvement of line personnel in the interview process. This involvement allows for the development of administrative skills, promotes “ownership” of the process and allows for transparency. An interview panel concept may also include a representative of the Board of Trustees, potentially eliminating the need for a separate trustee interview.

Recommendation #5b - Revise the current promotional process.

It is recommended that future promotional processes be standardized to include a more formal, open, and transparent process. The administration may choose the specific selection and testing process; however, use of an interview panel concept should be incorporated in the process after the testing or selection component. Use of the interview panel, consisting of representation from the department and Board of Trustees will provide the same advantages and benefits previously identified.

Training

The current roster of BTFD has 53 members including the Fire Chief, two Assistant Chiefs, three captains, three lieutenants and 44 firefighters. All personnel are cross-trained as firefighters and EMTs.

In the state of Ohio, the Ohio Division of EMS is responsible for all of the laws governing EMS. These laws are listed in section 4765 of the Ohio Revised Code (ORC)

[\[http://codes.ohio.gov/orc/4765\]](http://codes.ohio.gov/orc/4765). Each level of certification is based on the National EMS Scope of Practice, which has been incorporated into the ORC. This outlines exactly what procedures can be performed by each certification level. A basic EMT requires a minimum of 150 hours of initial training and at least 40 hours of continuing education every three years. An advanced EMT requires an additional 200 hours of training above that of an EMT-Basic and at least 60 hours of continuing education every three years. Advanced EMTs are able to perform many ALS procedures and administer certain medications to patients. To advance to the paramedic 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 even more life-saving procedures and administer additional medications. They must then obtain 86 hours of continuing education every three years, which includes maintaining advanced cardiac life support certification offered through the American Heart Association.

Department EMS training is offered regularly through Hillcrest/Cleveland Clinic Hospital. Dr. John Kearny, M.D. serves as the department's medical advisor and also is a primary contributor to the department's quality assurance program. The department is not recognized as an approved continuing education site; therefore, all continuing education credits are issued through Hillcrest Hospital. Specialty training classes such as ITLS, ACLS, PALS, etc., are also offered through the hospital's training program.

In Ohio firefighting training has three distinct levels. Volunteer firefighting 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. 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 required areas such as proper use of a self-contained breathing apparatus (SCBA). 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.

The department's fire training activities are coordinated by the full-time Assistant Chief and one of the part-time captains. There are eight state-certified fire instructors on the department. In the past, training activities were scheduled every two weeks on Monday evenings. As the transition of operations to the township evolved, regularly scheduled Monday evening trainings have been mostly discontinued in favor of shift-focused training. A schedule of proposed training was provided for the assessment team, which included monthly training topics and a designated instructor. Topics scheduled for 2015 include SCBA, driving and orientation on the new EMS vehicle, hazardous materials, pump operations and water supply, aerial and ground ladder operations, and radiological emergencies.

A review of training documentation and survey responses reflect a program that is inconsistent in its application, resulting in a wide range of training hours. In some cases, it was reported that members have not received training in months, especially those who primarily work evening shifts. For example, in 2014 there were 391.15 hours of documented fire training. The training report identifies 38 department members being credited with attending some form of training. On an average, each member received slightly more than 10 hours of training. However, some members were credited with as few as one and one-half hours of training. More importantly, based on the current roster, at least 10 members did not receive any fire related training. Training totals as of September 1, 2015 are similar; 52 members are identified as having received 317.17 documented hours. Some members have as few as one and one-half hours of training while others are in excess of 21 hours to date. There does appear to be a focus on completing SCBA and vehicle operations training. However, other topics appear to be randomly selected and there was no information provided that would indicate any training topics that were developed based on identified core competencies or critical tasks.

There is no formal officer development training, though members have attended individual programs, including the Ohio Fire Executive Officer program and Fire Officer I. Specialty training encompassing hazardous materials and technical rescue are not offered as certification courses, though there are members who possess these certifications by completing training requirements as members of other departments. National Incident Management Systems (NIMS) training is completed on-line as offered by the Federal Emergency Management Agency (FEMA).

The training room contains adequate seating and tables for the current roster of personnel. A Smart Board and audio-visual equipment are available as well as a small kitchenette and storage room. The station is not equipped with any engineered training equipment or props. Practical evolutions must be accomplished with improvised props, acquired structures or off-site in areas such as small lakes that can be used for drafting and pump operations.

Recommendation #6 - Develop a formalized training program.

The department is encouraged to develop and implement a formalized training program. A training committee should be organized to identify training goals and develop the training schedule, keeping in mind other duties and responsibilities of department operations. Typically, there will be more training topics and needs than time allows, so a prioritization will need to be completed. The training committee can identify core competencies for firefighting operations. For example, core competencies may include SCBA competency, mayday procedure, pump operation, aerial ladder operation, etc. Then it must be determined how often the competency must be demonstrated by fire personnel. These competencies then become the basis for the training schedule. For example, the department may choose to have each firefighter demonstrate SCBA competency twice each year and aerial ladder placement and operations annually. Development of standard curriculum would allow for the consistent presentation of shift-focused

training. In addition, a training delivery schedule needs to be developed that provides multiple presentations to accommodate part-time personnel and their varied work shifts.

Recommendation #7 - *Reinstitute the new-hire training program.*

The department is encouraged to reinstitute its “new hire” training program. While acknowledging that many members are experienced prior to hire, the “new hire” training or orientation provides the opportunity for members to gain a consistent understanding of Bainbridge’s operations, review skills that may not be applied regularly, provide an indication of an individual’s needs and more importantly, provide opportunities for others to familiarize and get to know these new members on a more personal basis.

Recommendation #8 - *Formalize the education and training requirements for officer positions.*

The department should formalize the education and training requirements for the various officer positions and support those members interested in achieving these certifications. Incumbents should be required to complete this officer development and should be supported in this effort. As full-time officers are added and any future officer positions created, specific company officer development curricula should be an integral component of officer training requirements.

Fire Station Facility

The department operates out of one station located at 17822 Chillicothe Road. This location appears to offer adequate access to thoroughfares and is convenient for township residents. This facility has 26,743 square of space and has been renovated three different times. The structure appears to be well-maintained, is in good physical condition and meets current building and fire codes.

The center section of the facility houses the apparatus, maintenance areas and some storage areas. Living quarters are in the southern section of the facility. HVAC is provided through forced-air heating and cooling units. The facility has a natural gas-fueled emergency generator which is tested every Monday. Facility maintenance is provided by the township service department and outside contractors. The station has an alarm system with smoke detectors, manual pull-stations and ADA alarms; however, it is not protected by an automatic suppression system.

Apparatus Bays

The facility features six drive-through apparatus bays with four 12’ x 12’ and eight 14’ x 14’ overhead, fully-windowed doors. Ceiling fans are located throughout the apparatus bay area. There is no engineered exhaust capture and removal system for engine emissions. However, four

of the department's apparatus are equipped with an exhaust filter system or particulate filter system. The northern bays are adjacent to the mechanic's room and are used for vehicle repairs and maintenance. The southern bay is used for maintaining the ladder. The two southern bays have a higher ceiling that allows the ladder to be raised out of the bay for maintenance. The six bays provide adequate space for additional apparatus. Vehicle parts storage is limited.

Adjacent to the apparatus bays is an EMS room where disposable supplies and spare equipment are stored. There are no drugs or narcotics stored on-station as drugs are exchanged on a one-to-one basis with the local hospitals. The EMS officer conducts a monthly check of the drug box seals.

A designated decontamination (decon) room is located and accessible through a man-door on the south side of the apparatus bay. This area is used to properly clean and disinfect EMS and other related equipment as well as providing containers to properly discard contaminated waste items. This area features a decon shower, dedicated stainless steel sink and counter, and a washer and dryer for cleaning PPE and other equipment.

The oxygen cascade system is located in a separate room beside the EMS Room. A steel fire-door separates it from the apparatus bays. Chains are provided to secure the cylinders; however, not all cylinders were properly secured.

Living Quarters

Overall, the living quarters for the crews appear adequate and well-maintained. The kitchen is large enough to accommodate additional crew members. The gas range is protected by a hood system. The day room is large and open with windows and easy access to the apparatus bays. The fire company maintains a computer in the day room for private use which is not part of the department's computer network. Separate dorm rooms for up to nine crew members are adjacent to the kitchen and day room. There are separate locker rooms for males and females. The living quarters are separated from the apparatus bays by steel fire-rated self-closing doors. A fitness room is in the development stage and currently there is a small amount of exercise equipment available.

Administrative Offices

The administrative offices are on the second floor of the north part of the facility. There are private offices for the Fire Chief and Assistant Chiefs. The captains and lieutenants have separate work stations in a central location. The watch office is used for report preparation and time keeping and serves as a common area for collecting administrative documents prior to submittal to the administrative offices. A moderate-sized conference room and administrative secretary's office complete the administrative office area.

Apparatus and Equipment

The department's apparatus fleet consists of two engines, one tanker, one ladder, one EMS chase vehicle and three EMS vehicles. There are additional administrative vehicles for the chiefs and prevention officer. The following is a summary description of each apparatus and condition.

Engine 3124 is a 2002 Emergency-One engine with a 2,000 GPM pump and 1,000 gallons of



water. The apparatus carries the necessary loose equipment as required by National Fire Protection Association (NFPA) 1901: *Standard on Automotive Fire Apparatus* and also contains a Class A foam system. This unit is in good condition though pump test reports for both 2014 and 2015 identify the inability

to pass the vacuum test.

Engine 3177 is a 2012 Rosenbauer rescue-engine with a 2,000 GPM pump and 1,000 gallons of



water. This unit carries all of the necessary loose equipment as required by NFPA 1901. In addition, this apparatus carries rope rescue and water rescue equipment. The extended front bumper of the unit holds two pre-connected hydraulic rescue tools. This unit is in good condition.

Tanker 3135 is a 2006 Emergency-One engine-tanker with a 2,000 GPM pump and 2,500 gallons



of water. The apparatus carries the necessary loose equipment as required by NFPA 1901 as it relates to a mobile water supply. This unit is in good condition.

Truck 3146 is a 2002 Emergency-One 100' articulated aerial device with a 2,000 GPM pump and 200 gallons of water. The apparatus carries the necessary loose equipment as required by NFPA 1901. This unit is in fair condition and currently lacks an operational generator.



Squad 3151 is a 2009 Horton type III modular ambulance on a GMC chassis. The vehicle is configured and equipped to deliver advanced life support (ALS) care as well as transport service. This unit is in good condition.



Squad 3152 is a 2006 Horton type III modular ambulance on a GMC chassis. The vehicle is configured and equipped to deliver ALS care as well as transport service. This unit is in good condition but is identified as surplus equipment and destined for sale.



Squad 3153 is a 2014 Horton type I modular ambulance on a Freightliner chassis. The vehicle is configured and equipped to deliver ALS care as well as transport service. This unit is in excellent condition.



The apparatus are inspected and checked daily by the firefighters on-duty followed by a more thorough weekly check which includes operating small equipment. Apparatus check sheets are completed by the individual conducting the check. The department mechanic monitors the check sheets and also checks the apparatus monthly. The vehicle maintenance officer expressed concern regarding the validity of the vehicle check sheet process. It is believed that the check sheets are often completed without the proper level of diligence and thoroughness in checking the vehicle expected, which results in a number of deficiencies going unnoticed or unreported. When a vehicle experiences a maintenance issue, the officer-in-charge is supposed to send a group text identifying the problem. The status of all vehicles is displayed on a dry erase board in the apparatus bay area. Any vehicle out of service is to have a sleeve placed over the steering wheel that states “danger, do not operate.”

Apparatus and vehicle maintenance is performed by the captain who is designated as the department’s mechanic. All vehicle maintenance, up to and including complete rebuilding of the engine or transmission is done by the mechanic. The mechanic possesses various Emergency Vehicle Technician (EVT) certifications and has developed his own vehicle maintenance record system that utilizes a Microsoft Access database. While this system has served him well, many of the records are incomplete; some of the records were lost during the last renovation. The maintenance budget is determined by the Fire Chief, including review and approval of all maintenance related purchase orders.

Recommendation #9 - The department should revise the maintenance program regarding major repairs.

While there is benefit to having a dedicated mechanic on the department, the operational needs and ability to perform large mechanical repairs in a timely manner dictates that the department seek options for large and complex repairs. The existence of full-size apparatus placed on floor jacks with loose equipment and automotive supplies such as tires lying unsecured in the apparatus bays also pose potential safety hazards. The assessment team does believe that a balance may be struck between troubleshooting unexpected mechanical failures, fleet management and routine maintenance. However, the value of an officer with significant command experience is minimized when the majority of his work is focused on automotive repairs.

Equipment Maintenance and Self-contained Breathing Apparatus

Pump testing is conducted annually in-house by the department mechanic. If scheduling becomes an issue, W.W. Williams Company is contracted to perform testing. The Insurance Services Office (ISO), NFPA and pump manufacturers recommend or require annual pump testing of all in-service fire department pumpers. There were minimal pump test records available for review. According to the department mechanic, most of the previous records were

lost during the last facility renovation. The pump test records which were available indicated that the pump testing had been conducted appropriately.

Aerial and ground ladder testing and certifications are performed on an annual basis by National Testing Company. Annual non-destructive testing is required to assure safe operation in accordance with current NFPA standards and manufacturers' recommendations. Ohio Administrative Code (OAC) 4123:1-21-05 also requires annual ladder testing in accordance with NFPA recommendations. Testing and maintenance records were reviewed and found to be well-maintained and in good order.

Hose testing is conducted annually in accordance with manufacturers' recommendations and NFPA 1962: *Standard on Inspection, Care and Use of Fire Hose, Couplings, and Nozzles and Service Testing of Fire Hose*. However, there were no hose test records available for review and there was no existing procedure or policy that outlined how hose testing was to be conducted, including proper safety guidelines. The OAC and ISO also require the proper testing and maintenance of fire hose.

Self-contained Breathing Apparatus

The department uses Scott 30-minute, 4,500 psi self-contained breathing apparatus (SCBA). The SCBAs are distributed on the apparatus in compliance with NFPA standards. The SCBA appear to be in average condition with limited maintenance records. Each member is issued their own personal facepiece with annual facepiece fit-testing completed in February. However, fit-testing data and records were not provided to the assessment team. Medical reviews, which are required annually for those wearing respirators in a hazardous environment, are conducted on a biennial basis. Repairs on SCBA units are performed by Warren Fire Equipment, along with annual flow testing as required by NFPA, OAC and manufacturers' recommendations. The department has a Bauer K14-12 air compressor and a cascade system fill-station which is used to fill SCBA cylinders. Breathing Air Systems of Reynoldsburg, OH, services and maintains the compressor system. Air quality appears to be tested annually with the last test in 2015. The intake for the compressor was located in the compressor room.

Personal Protective Equipment

While unable to inspect each member's personnel protective equipment, the following observations are based on what was available for inspection. In general, the majority of personal protective equipment (PPE) is in very good condition. PPE is readily accessible to personnel via three man-doors off the south side of the apparatus bays. The PPE is stored on wire racks to facilitate drying. Each member's PPE has its own rack and shelving for helmet and SCBA mask. The turnout gear was manufactured by Morning Pride, has a PBI gold outer shell and appears to be well-maintained.

While the PPE was well-maintained, current department operating guidelines place responsibility for inspection of the PPE on the individual firefighter. The guidelines are basic in nature and do not identify manufacturer or industry recommendations for the inspection or cleaning process. In addition, personnel have not been trained to perform the inspection properly. If needed, PPE repair is performed by Shamrock or Warren Fire Equipment Companies. The department has two commercial turnout gear washers/extractors for use in maintaining PPE. The PPE is on a 10-year replacement schedule.

Recommendation #10 - Revise the personal protective equipment maintenance (PPE) program to meet NFPA guidelines and fire service best practices.

The department's operational guideline for inspection of PPE lacks specific criteria as recommended by the manufacturer, NFPA, and OAC 4123:1-21-02 (E). It is recommended either officers or designated members of the department receive training specifically on these inspection criteria and that a formal record keeping system be established which records and identifies repairs made to each garment. The department has the facilities and equipment necessary to maintain member's PPE properly and has identified a third-party contractor to make needed repairs. However, proper and regular inspection of all PPE, including gloves, helmets, and boots is essential to maintain this critical equipment and assure it will protect the firefighter as designed.

Recommendation #11 - Revise the department's respiratory protection program to meet Ohio Administrative Code and NFPA guidelines.

It is recommended that the department revise and expand its respiratory protection program. NFPA and OAC 4123:1-21-02 [P][3] requires that each firefighter who uses an SCBA receive an annual qualitative fit-test to assure proper fit and seal of the facepiece. Fit-testing is said to be completed, but no records of the type of fit-testing or the results were available for review. In addition, the OAC also requires that all personnel who may operate in a toxic vapor or oxygen deficient environment be approved annually by a physician, or a series of health assessment questionnaires must be completed to wear a respirator or SCBA. The department currently provides medical review biennially. NFPA 1500: *Standard on Fire Department Occupational Safety and Health* also contains similar and related respiratory program guidelines. Revising the program to meet these guidelines is a nationally accepted fire service best practice and provides the greatest degree of protection possible for firefighters working in hazardous and toxic work environments.

Policies and Procedures

The BTFD has job descriptions for all positions within the department, including the administrative assistant. The job descriptions were reviewed and appear to be relevant and

sufficiently detailed. Each job description identifies a general definition and conditions of work, requisite experience, essential functions or tasks, and the knowledge, skills and abilities (KSA's) expected of the position. The job descriptions also identify educational and special requirements for the position, although they were vague and lacked the specific information required. There is no revision dates assigned to the descriptions. The township has recently initiated employee performance reviews for members of the department. Based on information from Chief Phan and a cross-sampling review of six completed performance reviews, minimal effort has been extended by the officers in the performance review process. In fact, all but one of the reviews had identical scores and the performance review documents had few specific comments and no personal goals established.

The township also has extensive rules and regulations developed by the firm Clemons, Nelson and Associates. Discrimination, harassment, and drug free workplace policies are included in this policy document.

The department has standard operating guidelines (SOG's). These procedures identify and describe procedures and actions for general operations such as staffing and important safety procedures including accountability, firefighter "mayday" and emergency evacuation and vehicle operations. However, there were several important procedures that were not found in the SOG manual including specific risk management and operational specific procedures. Incident specific EMS procedures and protocols also have not been developed. The majority of the policies and procedures have been administratively reviewed; however, date specific modifications or training of personnel on the procedures is not documented.

Recommendation #12 - Develop and expand the department's standard operating guidelines to include a risk management plan and incident specific guidelines.

The department is encouraged to review and develop operating guidelines that are consistent and compliant with OAC, 4123:1-21-07. Specifically, the department is required to implement the concept of risk management as it addresses the safety of members operating within the department's incident management plan. The OAC requires that "activities that present a significant risk to the safety of members shall be limited to situations where there is a potential to save endangered lives." Current fire department guidelines do not reflect or identify the concept of "acceptable risks" and fail to properly address the principles of risk management. A comprehensive written risk management plan will accomplish this requirement as well as ensuring that the risks associated with emergency and non-emergency operations of the fire department are identified and effectively managed.

Specific procedures need to be developed and training provided for the most common types of structure fires and other emergencies that the department may respond to. As an example, an SOG should be developed that describes the specific hazards of handling basement fires to include water application, ingress/egress points, and the potential for flashover, rollover and

structural collapse. On a more general level, the department does have written guidelines addressing accountability and incident management; however, there is no documentation or evidence that these guidelines or policies have been updated or applied during training or other department activities.

The department also should develop specific guidelines that address the duties, expectations and operational responsibility of its engine, ladder, rescue and tanker companies. The operational guidelines as provided are scene-focused and lack specificity with regards to the capabilities and operational requirements of these units.

Recommendation #13 - *Review and revise the department's current job descriptions.*

The Board of Trustees should review and revise as necessary the job descriptions to more closely reflect current job requirements, hiring criteria, and technical and professional requirements. As the township is the appointing authority, it is recommended that each job description then be approved by motion or resolution. This formalization of job descriptions may eliminate confusion or challenges in future hiring and promotional processes and will better reflect the current roles and technical requirements of its members. For example, the current job descriptions for officer positions do not list technical requirements, specific certifications, or administrative abilities or expectations for the position. Instead, the job descriptions list qualifications as “determined by the department.” This type of generic description leads to confusion for subordinates seeking promotion and can lead to promotions for which the individual may not be qualified or prepared for, severely limiting that individual’s chances for success and negatively impacting the organization. This process should be a cooperative effort with department’s administration and members of the department.

Risk Analysis

For a community to appropriately provide for and understand the need for emergency services, a coordinated and comprehensive assessment must be performed. Based on a list of target hazards provided by the department, the assessment team performed a risk analysis in order to identify and quantify the known risk or potential danger to the community and the potential consequences of an incident or event. Through a methodical analysis of the risk dynamics present in a given community, a risk analysis makes it possible to develop rational resource deployment strategies. The risk analysis provides “outputs” which identify risks and expectations, service level objectives, critical tasking, matching of risks to resources available in the community and informed public policy debate.

A target hazard is generally described as any large manufacturing or commercial property that typically requires a larger number of resources that is normally deployed for residential and other common types of occupancies. Target hazards also would include buildings of public assembly

of 100 or more people and apartment buildings of 12 units or more. Schools, hospitals, nursing homes, and larger industrial complexes that may contain high-hazard processes or hazardous materials on-site would be included.

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

- 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. The numerical value then allows the property to be categorized into a risk level. These levels are identified accordingly as maximum, significant, moderate and low. Based on the list as provided, the assessment team performed 26 risk analysis inspections. The results of the surveys identify the South Franklin Circle, Weils, and Giant Eagle complexes as being in the maximum risk range. There are 20 occupancies which pose significant risks and three identified as posing moderate risk.

In addition to the property risk information, it is important that departments conduct walk-thru familiarization tours of the facilities and collect and develop pre-fire incident plan information. These pre-fire plans provide responding personnel with key information during an emergency at the property that may not otherwise be available. Pre-fire incident planning is also a component of ISO evaluation requirements and is invaluable as part of the department's training program. Currently, the department does not collect data on these facilities and have no formal pre-fire incident plans.

Recommendation #14 - It is recommended that the department develop a formalized pre-fire planning program.

A pre-fire incident plan is a document developed by BTFD personnel that provides general and detailed information that can be used by responding personnel to assist them with critical decision-making during an emergency at the specific property. For example, a detailed pre-fire plan for a "target hazard" facility within the township would provide fire personnel information regarding the building's construction, systems, processes, storage and other important information that otherwise would not be available to responders. This assists responders with resource allocation, apparatus placement, water supply, strategy and tactics, and other important elements of fire attack. The community risk analysis completed during this project that

identified the significant risk and maximum properties is an excellent starting point to implement the program. NFPA 1620: the *Standard for Recommended Practices for Pre-Incident Planning*, as well as other fire service texts provides the necessary information to develop a standardized approach to pre-fire planning. Directly related to pre-fire planning is determining the available water flows or water sources near target hazards and in various parts of the township in general.

Besides providing staff with this essential information, pre-planning is recognized as approved training by ISO and may be accomplished as an “on shift” activity. While it may be difficult initially due to department software limitations, organizing hard copies in a simple notebook that can be referenced by incident commanders will provide an operational guide that can be utilized in various emergencies.

Insurance Services Office

The delivery of fire protection services has long been considered a function of local government and while local elected officials wish to maintain that control, they also wish to know if there are national standards the fire department are meeting. In this case, there are several standards or grading criteria by which to make that comparison. The Insurance Services Office, Inc., (ISO) conducts field evaluations in an effort to rate communities and their relative ability to provide fire protection. This evaluation is non-binding but does allow ISO to determine and publish the public protection classification (PPC). Nationally, ISO is the leading supplier of statistical, underwriting, and actuarial information for the property/casualty insurance industry. The published classification is based on a scale of 1 through 10, with (1) being the highest rating and (10) indicating no recognized fire department. Bainbridge Township currently has a PPC rating of 5/5Y, which was published in 2015.

How the PPC for each community affects business and homeowners can be somewhat complicated because each insurance underwriter is free to utilize the information as they deem appropriate. Most underwriters in Ohio utilize what’s called in the industry, the “suburban rule.” In this case, the split rating identified for BTFD is a 5/5Y. What this means is that most businesses and residents in the township areas who are located within five road miles of the fire station receive a rating of (5). Those residents and businesses that are located in areas that are not served by a water distribution system with serviceable hydrants receive a 5Y rating. The reason that the rating is generally not more favorable is due to the lack of a dependable water supply. When the ISO field evaluation is conducted on communities, the overall water system, including pumping capacity, storage capacity, distribution system and system maintenance, carries a weight of 40% of the total evaluation. Thus, much of township area does not have the benefit of a water system and as a result, a higher PPC.

ISO's Public Protection Classification Program evaluates communities according to a uniform set of criteria defined in the *Fire Suppression Rating Schedule*. Using the rating schedule, ISO evaluates the fire suppression capabilities of each community in three major areas:

- Receiving and Handling Fire Alarms. This review accounts for 10% of the total classification. This section reviews the facilities provided for the general public to report fires and for the operator(s) on duty at the communication center to dispatch fire department companies to fires. BTFD received 4.8% out of a total of 10% maximum credit.
- Fire Department. This review accounts for 50% of the total classification and focuses upon engine and ladder-service companies, distribution of fire stations and fire companies, equipment carried on apparatus, pumping capacity, training, and available firefighters. BTFD received 25.39% credit out of a total of 50% maximum credit.
- Water Supply System. This review accounts for 40% of the total classification. This component examines the water supply a community uses for fire suppression including water main size, distribution and storage system, hydrant size, type, and installation as well as the inspection frequency, maintenance, and condition of fire hydrants. BTFD received 27.36% credit out of a total of 40% maximum credit.

It should be noted that in the last half of 2013, ISO initiated significant changes to the *Fire Suppression Rating Schedule*. Those changes featured a realigned focus toward nationally accepted standards and loss control efforts rather than an equipment and hardware focus.

Response Considerations

In fire suppression as well as EMS, there are a number of recognized safety and staffing standards that must be considered when analyzing fire protection services. NFPA 1500: *Standard on Fire Department Occupational Safety and Health*, is the safety standard for the fire service. It deals with all aspects of fire department operation for safety. Major components include personnel, apparatus, equipment, and tactics. Even though not formally adopted by the department, it will be a standard used to gauge the safety of operations if injuries or accidents occur.

The Occupational Safety and Health Administration (OSHA) has established a national standard for fire ground staffing. Although the directive is very detailed, it essentially indicates that before two (2) properly trained and equipped firefighters can enter a structural fire there must be at least two (2) or more properly trained and equipped firefighters ready to replace, rescue or assist the initial entry firefighters. This standard is often referred to as the "2-in, 2-out" rule. This rule also is listed in OAC 4123:1-21, which applies to firefighting operations in Ohio.

Another critical factor in meeting service expectations is assuring that response crews are capable of performing the required tasks on arrival. The dispatching of a specific response with a minimum crew assignment is a concept that is widely supported by fire service literature. The NFPA has published a book titled *The Fire Protection Handbook* for easy reference on fire service related matters. In the 20th edition of that text on page 12-12, the NFPA provides a recommendation for a minimum response to various types of occupancies. Figure 5 depicts those recommendations.

<p><u>High-hazard occupancies</u></p> <p>Schools, hospitals, nursing homes, explosives plants, refineries, high-rise buildings, and other high life hazard or large fire potential occupancies.</p>	<p>At least 4 pumpers, 2 ladder trucks (or combination apparatus with equivalent capabilities), 2 chief officers, and other specialized apparatus as may be needed to cope with the combustible involved, not fewer than 24 fire fighters and 2 chief officers. One or more safety officers and a rapid intervention team(s) are also necessary.</p>
<p><u>Medium-hazard occupancies</u></p> <p>Apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or fire-fighting forces.</p>	<p>At least 3 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), 1 chief officer, and other specialized apparatus as may be needed or available; not fewer than 15 fire fighters and 1 chief officer, plus a safety officer and a rapid intervention team.</p>
<p><u>Low-hazard occupancies</u></p> <p>One-, two-, or three-family dwellings and scattered small businesses and industrial occupancies.</p>	<p>At least 2 pumpers, 1 ladder truck (or combination apparatus with equivalent capabilities), 1 chief officer, and other specialized apparatus as may be needed or available; not fewer than 14 fire fighters and 1 chief officer, plus a safety officer and a rapid intervention team.</p>
<p><u>Rural operations</u></p> <p>Scattered dwellings, small businesses, and farm buildings.</p>	<p>At least 1 pumper with a large water tank (500 gal or more), one mobile water supply apparatus (1,000 gal or larger), and such other specialized apparatus as may be necessary to perform effective initial fire-fighting operations; at least 12 fire fighters and 1 chief officer, plus a safety officer and a rapid intervention team.</p>
<p><u>Additional alarms</u></p>	<p>At least the equivalent of that required for rural operations for second alarms. This may involve the immediate use of mutual-aid companies until local forces can be supplemented with additional off-duty personnel.</p>

Figure 5

BTFD has developed response guidelines, but fire response is somewhat fluid based on the origin of the call. For example, commercial responses in a hydranted area will receive a five-person response with an engine and ladder. Residential responses initially receive an engine and tanker with the ladder company as a third unit. Technical rescue responses and automobile fires will get the rescue-engine with four personnel followed by the squad staffed with a single firefighter.

The department does have written mutual-aid agreements with Russell, Auburn and Chagrin Falls Fire Departments. Multiple alarm assignments are accomplished using the Geauga County Mutual-Aid Box Alarm System (MABAS). The department also will call and use the city of Aurora and Solon Fire Departments as well; however, there are no formal automatic- or mutual-aid agreements in place with those organizations. When staffing falls below minimum levels, the department will respond to an emergency incident with the personnel available.

The department strives to provide an advanced level of EMS service. Staffing requirements identify the minimum of one paramedic be assigned to the EMS units and that at least one paramedic be available during mutual- and automatic-aid requests. EMS responses receive a three-person response with a medic unit (ambulance) and command (chase) vehicle. Once on the scene, the in-charge medic will decide if the response will require the full crew or if a two-person transport is acceptable. If this is the case, one member will return to the station.

Response assignments:

- Single-family residence alarm or structure fire: Engine 3124 Engine (3 personnel), Tanker 3135 (2 personnel), Truck 3146 (2 personnel minimum); Rescue-Engine 3177, front-line squad
- Multi-family or commercial alarm or structure fire: Engine 3124 (3 personnel), Truck 3146 (2 personnel), Tanker 3135, Rescue-Engine 3177, front-line squad.
- Grass fire: Engine 3124 (3 personnel), Utility 3191 with gator (2 personnel)
- Carbon monoxide call w/o symptoms: Engine 3124 (3 personnel)
- Carbon monoxide call with symptoms: Front-line Squad (2 personnel with at least one EMT-P), Engine 3124 Engine (3 personnel)
- Auto accident: Front-line Squad (2 personnel with at least one EMT-P), Rescue-Engine 3177
- Haz Mat incident: Rescue-Engine 3177 (3 personnel), Squad 3151 Squad (2 personnel)
- Medical emergency: Front-line Squad (2 personnel with at least one EMT-P), Car 3183

The ISO makes similar recommendations for fire response as outlined in the *Fire Protection Handbook*. Instead of using an occupancy hazard classification, ISO uses a gallon-per-minute needed fire flow criteria for determining the minimum appropriate response of personnel and equipment to a call. Simply stated, the larger the fire flow, the larger the response requirement. However, the net result is very similar to the NFPA recommendations.

Recommendation #15 - It is recommended that the department add additional companies to its response to target hazard and significant risk properties.

Understanding that there is a concern about over utilizing mutual- and automatic-aid companies on routine calls, the existing response to incidents occurring at occupancies identified as target hazards needs to be reevaluated and upgraded to include additional operational resources. This is especially true with the larger occupancies which house senior-oriented care. The continuing development of these types of facilities will only provide additional stress on the department's ability to provide emergency response.

Utilizing the existing MABAS response system, the department should develop a predetermined system that utilizes the resources in the area. Specific elements that should be considered:

- Additional engine companies and/or ladder companies, depending on the occupancy, should be added to the initial alarm for target hazard and significant risk properties. Adding these additional companies will allow the necessary resources required for these larger occupancies to arrive quicker and help assure that response crews will have the capability of performing required tasks upon arrival.
- An additional mutual-aid engine company should be added to any working fire to fill the function of Rapid Intervention Team (RIT).

Recommendation #16 - The department should formally develop and implement mutual-aid or automatic-aid agreements with all departments with whom it responds.

These agreements will help clarify and protect the department and its members when dealing with cross-jurisdictional incidents. If so desired, the Board of Trustees could approve a policy that would allow the Fire Chief or officer acting in this role the latitude to make these responses based on the needs of the incident.

Recommendation #17 - Formalized agreements should be developed and executed for services provided by regional and area special response teams.

The use of regional or area hazardous materials and technical rescue teams is an asset for the BTFD. Because of the unique aspects of these types of incidents and the potential for injury and casualty damage, the response of these agencies should be formalized. This may eliminate any confusion and liabilities when dealing with these types of incidents, especially since some of these resources are cross-jurisdictional, including county boundaries.

Response Performance

Fire Response

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. There are some national guidelines, but those guidelines are non-binding unless adopted by the local jurisdiction. ISO provides some guidelines, but those are singularly focused on travel distance. The most influential standard is 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 requirements that address functions and objectives of fire department emergency service delivery, response capabilities, and resources. The NFPA standard is non-binding, but is recognized as an ideal by which similarly organized jurisdictions should strive to achieve.

The concept of a response time continuum (sometimes referred to as cascade of events) has evolved from the standards set by NFPA and the Commission on Fire Accreditation International (CFAI). Components of the response time continuum include:

- Call processing time
- Responder response time or turnout time
- Travel time
- Total reflex time

Total reflex time is that time which totally encompasses the response event, from the time the call for service is initially received through the time dispatched units arrive on location. The total reflex time is the time in which the department should develop response objectives and analyze their performance based on the stated objective. Based on NFPA 1720 criteria, the BTFD should meet the following response time objectives. 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.

EMS Response

Time requirements for EMS calls are based on research conducted on pre-hospital delivery of medical care and patient outcome and survivability. 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. Interventions include early CPR and electrical defibrillation. Survivability from cardiac arrest is displayed graphically in Figure 6.



Figure 6

While there are recommended response time performance goals for specific medical conditions, a system-wide, empirically supported response time recommendation for part-time and volunteer EMS services has yet to be published. 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 cardiopulmonary resuscitation (CPR) and utilizing an automatic external defibrillator (AED). An AED is a portable device that can be used on a patient who is pulseless and not breathing by a first responder or trained civilian. 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. Furthermore, guidelines provide for no more than a 10-minute response interval for providers capable of performing advanced life support (ALS) level interventions, if that level of service is available.

Emergency medical call response time performance requirements must take into account the most time-sensitive chief complaints. Time sensitivity is a description of the relationship between elapsed time and increases in patient morbidity and mortality. Thus, cardiac arrest is by far the most time-sensitive emergency. Providing CPR and defibrillation in the shortest elapsed time has direct correlation with improved patient functionality and decreased mortality. However, the danger of using cardiac arrest to drive system response time performance goals lies in the fact cardiac arrest incidents are only approximately 1.5% - 5% of the typical EMS call volume.

For medical emergencies a prompt response is needed to relieve suffering and save lives, but few calls for service are true life or death emergencies. Again, a reasonable service goal is to be on scene soon enough to: 1) assess patients and prioritize as to prevent death and disability; 2) intervene successfully in life-threatening emergencies; 3) stabilize patients to prevent additional suffering.

If all of the criteria and literature is examined as a whole, a reasonable quantitative response time criteria can be determined. Keeping in mind that BTFD is a combination department with around-the-clock staffing, a five minute travel time from the station to most emergency scenes is a reasonable expectation, except for the Route 43 corridor. Five minutes is the travel time parameter for suburban organizations (fire and EMS) outlined in the *Standards of Cover*, published by the Center for Public Safety Excellence. In designated rural areas, the travel time is 10 minutes. Even though there are no turnout time standards for volunteer departments, it can be reasoned that the volunteer firefighter or EMT should be allowed at least three minutes or more (depending on traffic patterns and time of day) to get from their place of employment or home to the station. When taken in total, this equates to an eight minute total response time for the EMS emergency to suburban areas and 13 minutes to rural areas. The suburban response objective is consistent with many papers published on the subject in the medical field in which an eight minute or less response interval increased cardiac survival rates (Cummins 1991). The rural objective takes into account the larger geographic response area which is typically less populated. Since BTFD has no defined response performance objective, applying the performance objectives outlined in the *Standards of Cover* would have the first due EMS unit respond within eight minutes to 90% of all EMS incidents in the township.

The BTFD has traditionally used the Firehouse Emergency Reporting Software for collection of its statistical data. It was apparent at the time of the site visit however, that various members had actually developed or were using other software for their respective reports. Because of the use of multiple software systems and other administrative factors, incident data needed to perform a response analysis was not available. The department has not established performance related goals and does not have the ability to track this data internally. Additionally, the department has never attempted to develop a “Standards of Cover” document to identify fire and non-fire risk to the community and to establish performance related goals in providing fire and EMS coverage.

However, the department was beginning to transition all records and reports towards recently purchased software. It is the intent of the fire department administration that all statistical data will transition towards the use of this single software system.

Recommendation #18 - The department needs to prioritize the implementation of its new records management and data collection software.

Currently, there are a number of stand-alone software programs being used for prevention, apparatus maintenance, and scheduling. While these may serve the individual’s purpose, there is the potential for loss of records, inconsistent record keeping and difficulty in assembly the data necessary for thorough report and record keeping and management oversight.

Recommendation #19 - *Develop organizational performance goals.*

The Board of Trustees is strongly encouraged to participate with the fire department administration in developing and adopting organizational performance goals. The department has not developed or adopted performance goals or objectives and currently does not track performance data, including response times. However, the department must first identify what it deems to be essential and critical in the performance of these functions. For example, the goal of achieving acceptable response times for specific incidents includes evaluating initial receipt of and call handling, notification and turnout time, and identifying the time it takes to respond from the station to the actual location of the incident. The performance goal(s) then provide the foundation, along with other factors, from which to determine the appropriate level of resources to meet the goal(s). This also provides a method from which to analyze response and other related data and report to the citizens on the agency's performance in a clear and understandable manner.

The performance criteria concept may be applied to prevention, public education, vehicle repairs and other department operations as well. More importantly, it is also provides an opportunity for township administration and department staff to collaborate on developing these goals when deciding how best to serve the community. The software implementation identified in Recommendation #18 will assist in the data collection necessary to evaluate these criteria.

Communications

The department is dispatched via the township's communication center, located within the police department and staffed with communications technicians employed by the township. The center is normally staffed with two technicians, though additional capacity is available with supervisors as needed. The site is secured and has a back-up auxiliary power supply as required. The communication center is equipped with Spillman Technologies computer-aided dispatching (CAD) software, which was purchased and provided through Geauga County. The system has redundancy with the township's communication center having the capability to serve as a primary safety answering point that can serve as a back-up for the Geauga County system. Conversely, the system allows Geauga County to serve as the township's dispatch center if needed. This center also has the ability to seamlessly communicate with Portage and Cuyahoga Counties. The township and county operate on an 800 MHz radio system originally purchased through Geauga County. All subsequent upgrades also have been supplied through Geauga County, including the recent upgrade to Fujitsu mobile data terminals (MDT's). The department utilizes two primary channels; dispatch and tactical. Being that the system is county-based, the department shares and has access to other common channels shared by mutual-aid departments. Department officers are assigned individual portable radios and each riding position on emergency vehicles has portables available. Portable radios are manufactured by Motorola and each has the ability to adjust zones and channels as required. Emergency alerting is

accomplished with the use of simulcast paging alerts. All maintenance of the radios and system is the responsibility of Geauga County. The CAD software has the capability to produce incident and response reports and may be a source for future data needed to establish performance and response criteria.

Recommendation #20 - *The department should investigate if the county's CAD system can provide incident response data.*

Large-scale systems such as the Spillman Technologies CAD typically have the ability to report specific response data, though those with administrative access will most likely be required to provide this information. More importantly, it may be used to identify a “big picture” of area-wide capabilities, information that may be essential in pre-planning target hazard and significant risk properties.

Interviews

In conjunction with the operational review of the fire department, OFCA developed a survey for a consistent and uniform approach to gaining input from department members. The survey addressed key issues and concerns that emerged from the township administration and offered members an opportunity to weigh-in anonymously about organizational and operational issues as well as identifying opportunities for improvement.

Department members were offered the opportunity to participate by several methods. The OFCA assessment team made itself available for interviews during both days of its site visit. Those members interested had the opportunity to participate in-person at the fire station or other government office. Members who could not attend in person were given the opportunity to provide their input via a telephone survey. As a result, 28 total surveys were completed. Twenty-one of the surveys were completed by fire department employees, including officers. The remaining seven surveys included township employees and other community stakeholders. The participants of this survey demonstrated passion and provided input in a completely respectful and professional fashion.

It is clear that the members of the department are committed to the delivery of quality service and have a tremendous amount of community and organizational pride. There is however, a growing feeling of frustration, disenchantment, lack of direction and sense that the organization is beginning to lose the level of respect once held in the community and by other area departments. Many acknowledged that the department has had relationship issues with the township's administration, but communicated a willingness to move forward in building the department. According to those interviewed, while the quality of service continues to be very good, patient interaction and the “positive customer service experience” is not as consistent as it should be.

As in many organizations, internal communication appears to be one major area where the department is weak. Items of necessity and importance are communicated within the organization by several methods. Those include in-person, text messaging, group paging and memoranda posted on the station bulletin board. The department does not have an internal e-mail system and relies on members to use their personal e-mail for communications. There does not appear to be a standard and clearly defined method to communicate important information in a timely manner. The line staff feel that the officers, and specifically the chief officers, are not “on the same page” in regards to policies, personnel and some operational issues. The officers also feel similarly; one employee or officer is directed to handle an issue or operational detail in a certain manner and others are told to handle the same issue in a different manner. This pattern of communication occurs on a consistent basis and creates an atmosphere of confusion and inconsistency between shifts. It also negatively affects the credibility of the officers.

When asked if the department afforded personnel the opportunity to provide input on special projects and general operational issues, the majority of responses indicated that those opportunities were limited or “selective” based on the member making the suggestion. Of those opportunities provided, an extremely negative concern was identified in that input provided is frequently ignored or dismissed without further discussion or explanation. One continuing issue appears to be the hiring and use of new employees. Many senior firefighters have communicated that there is not an established method of integrating these personnel into the operations of the department, including communicating qualifications, training levels and operational capabilities. According to respondents, officer or staff meetings have become a thing of the past and most officers are not aware of current department activities. The lack of openness in the decision-making process has led most to consider continued involvement as a “waste of time”.

Personnel were asked if the department promotes advanced training in addition to those training classes needed to maintain certification levels. With the exception of only a couple of responses, the overwhelming number of members felt strongly that outside and advanced training was supported and always approved. However, the strongest negative responses received during the survey process were received when asked about the department’s in-service training program. What was once a regularly scheduled and highly attended function of the department has digressed to the point where most feel it to be nonexistent. Training has shifted from a department event to more of a shift-oriented focus. Unfortunately, the lack of a consistent communication process combined with the lack of formal training guidelines, performance objectives or course curriculum has contributed to this transition being unsuccessful. The training records reviewed during this analysis supports this point. Another primary concern is focused on the training of newer members and the department’s lack of an orientation or “probationary” training program. Many newer members lack experience and they are often asked to function in roles that they are not prepared or equipped for, creating a safety and liability concern.

When asked about future issues that could affect the delivery of fire and EMS services, a wide variety of responses were received. However, two major but related concerns were identified: the potential need for more consistent staffing and the potential for increased growth and service demand, especially in the State Route 43(Geauga Lake) corridor. This area continues to be the area for large retail development and many of the target hazards surveyed in the community risk assessment are located in this area. This future development is underscored by recent discussions of additional senior-focused care facilities being developed in this area and the potential increased service demand, especially as it relates to EMS. This developing area is at the farthest distance from the station within the response district, which creates additional concern regarding increased response times. The inability to consistently staff the station with qualified members is a concern, especially on weekends and holidays. It is common for the department to enter the beginning of the month with unfilled shifts, which often results in the township extending additional funds for bonuses previously described or the vacant positions on the shift going unfilled. With the resulting short-shift, the potential for not being able to provide initial ALS level EMS response exists.

Personnel were asked to rate the organization in several areas based on their individual knowledge and experience. Using a Likert rating schedule, respondents were asked to rate each individual area with (1) being very poor and (10) being exceptional. The aggregate results are displayed in Figure 7.

Organizational Area	
Advanced Life Support service delivery	7.5
Public education programs & community outreach	7.8
In-service training provided	2.6
Professionally managed department	4.3
Quality of members	7.5

Figure 7

Finally, respondents were given two opportunities to provide input on how the organization could be improved. The two questions were: “if you could change one thing in the organization, what would it be?” and, “what other comments do you feel would assist the assessment team in this study?”

Two issues emerged from these responses. The first and most mentioned is the need to develop, improve or reorganize the department’s leadership and management structure. The overwhelming feeling is that the department has lost its direction and that the officers are no longer working in a cohesive and coordinated manner. Related to the first concern is the need to develop an improved internal communication process by which more members of the department feel included in the operations and better informed in order to more efficiently function as a department member.

As a result of the interviews there were three areas identified as significant issues for the department. The overriding issue identified was an improved management or leadership focus. The department is attempting to deliver full-time effectiveness with an almost 100% part-time staff. This is made more difficult by the fact that all but one of the officers, including the Fire Chief, is employed full-time with other agencies. This alone makes it difficult to deliver consistency in communications, operations, training or direction. However, the make-up of the department is such that it provides a wealth of experience with significant potential and opportunity for growth. The need to implement the new incident reporting software in a timely manner will also support increased management efficiency. The need to establish and evaluate performance goals is an important step in evaluating the effectiveness of service delivery. It also will allow for a single point of data in reviewing areas of management including maintenance, inspections, incident response and personnel.

Second is the need to institute, develop or explore options in providing a more consistent method for staffing the station with qualified personnel in order to carry out the core functions of the department. It is common for shifts to go unfilled, resulting in decreased efficiency, especially on weekends and holidays. Associated with qualified staffing is the need to reestablish an effective training program. This will allow new members the opportunity to develop the skills necessary to function as a member of the department. It will also provide the opportunity for more senior members to review, refine and apply skills they already possess.

Finally, while communication within organizations is always challenging, a part-time department attempting to provide full-time service presents its own set of challenges. This is primarily due to the varied and staggered hours members are available, especially those working other full-time positions. Significant improvement with internal communication would have a positive effect throughout the organization and affect several areas in the department including training, policy development, special projects, equipment acquisition and general operational effectiveness. It also would provide a conduit where personnel feel that their input is valued and considered in making some of the organizational decisions.

Recommendation #21 - Improve the department's internal communication system.

The current method of communication within the department includes some use of memoranda posted on the station bulletin board, text messages, special messages over the emergency notification pagers and word of mouth. Based on information received in the interviews and observations during the site visit, it is clear that the current communication methods have not been effective. This has contributed significantly to the challenges the department now faces.

The electronic e-mail system needs to be expanded so all members of the department have e-mail accounts/access. E-mail access allows the employees the opportunity to communicate directly with supervisors or the administration at any time, which is especially advantageous with work schedules that are so varied. This would allow directives, memos, orders and general

information bulletins to be distributed in a timely fashion so that all personnel can access them. It should be pointed out however, that important policy changes and other critical messages should always be delivered in person whenever possible and then backed up by e-mail, hard copy or both. This can be accomplished with the use of a daily, formal roll-call process and “pass log”, where important information and communiqués are communicated to the oncoming shift.

Regular staff and officer meeting should be scheduled, agenda posted and meeting minutes and actions subsequently posted and distributed to the members. In addition to regular officer meetings, the Fire Chief needs to ensure that direction on policy, procedures, and other important issues is consistent and communicated to all officers who may have to deal with similar incidents or situations. Labor-management meetings should be regularly scheduled where concerns from both line personnel and administration can be addressed openly in a professional atmosphere. Developing a multi-faceted and effective communication system is a key component for any organization to maintain an informed work force and keep personnel functioning in an effective and cohesive manner.

Summary

The Bainbridge Township Board of Trustees is to be commended for their leadership and commitment to this organizational evaluation of the fire department by the OFCA. The assessment team found the employees of the township and members of the department to be open, truthful, passionate and professional throughout the review process. The passion and dedication to the township community allows the department to be a community-focused organization with some of the “hometown” feel often associated with smaller fire service organizations.

However, the semi-rural feel of the township, combined with population growth and commercial development potential along major corridors is placing stress on the fire department to maintain the high level of service it has been known for. The ability to provide around-the-clock coverage with a 100% part-time staff has been both cost-effective and for the most part, operationally effective. Like many departments in similar situations, the organization is being challenged by a number of factors including a decreasing part-time labor pool, increasing service demands, and a reduction in local revenue. In addition, future growth of senior-focused housing and compliance with state and federal guidelines and restrictions all contribute to the increasing administrative needs and challenges of an organization in transition.

The recommendations and strategies developed are intended to assist the township and fire department in meeting these challenges, assuring a continued ability to provide the high level of service expected by the community. While the recommendations are lengthy, the township and fire department have the technical and administrative expertise to address them in a coordinated and practical manner. It should be remembered that the Board of Trustees and in some cases,

fire department administration, ultimately decide which recommendations should be implemented and in which order they would be of most benefit to the township and its residents.

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