

## Executive Summary

This Executive Summary provides a review or synopsis of the basic recommendations contained within the Review and Evaluation of the Berlin Township Fire Department report. The report itself describes the background data that was used, decision-making criteria involved, and specific details of the recommendations. The report focuses on the present operations, using known data provided by the department and township officials, and the conditions as observed by the evaluators or identified during the interview process. The present state of operations was the baseline used to evaluate the department.

This summary focuses on several of the major points and recommendations for improving the present operation and providing for the efficient and effective delivery of services. It is a master plan containing goals to work toward, while coordinating the needs of a growing community within the constraints of available resources. The evaluation report and its recommendations should assist the Township Trustees in their preparations for assuring a planned and orderly development for the growth of the fire department.

The study of the fire service delivery system for the Berlin Township Fire Department focused on four major components:

1. Full-Time Fire Chief
2. Staffing
3. Fire Station
4. Joint Fire District

The review and evaluation was conducted during visits by consultants from T. G. Fire/EMS, Systems, Inc. During these visits, the command and firefighter personnel of the fire department were interviewed, documentation was reviewed, and information concerning fire statistics and operational guidelines collected. In addition, various processes, procedures, and data provided by administration were reviewed and analyzed, as well as reviewing and discussing various budget and planning documents with the Fire Chief. Our review of fire department documents included:

- Standard Operating Guidelines
- Emergency Operating Procedures
- Berlin Township Fire Department Rules and Regulations
- Hiring Process
- Promotional Process
- Berlin Township Fire Department Organizational Structure
- Maintenance Records System

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- Fire Reporting System
- Certification and Training Levels
- Personnel Information

The following data and information collection methods were used:

- Personal interviews were conducted with various officials of the township, fire department, business community and the citizens.
- Review and analysis of fire statistics such as, number of alarms, fire loss, fire injuries and deaths, etc.
- Training programs were reviewed and discussed.
- The fire department dispatch and response patterns were analyzed.
- The fire station location and its effect on the organization and administrative accountability was reviewed and discussed.

### **STUDY STANDARDS**

Almost since its inception, the fire service has developed a body of knowledge and standards. Standards and sound operating procedures are used in this report to measure the performance of the Berlin Township Fire Department. The study team used high standards for evaluating the department in the belief that the citizens of the Berlin Township Fire Department service area deserve the very best in fire services for their tax dollars.

The measurement guidelines used in this report are from a variety of sources. Some are drawn from the study team's experiences with departments throughout Ohio that have managed to develop programs and procedures to address key fire service issues. Other guidelines are a result of the study team's review of state-of-the-art studies and literature regarding fire operations. This report identifies the best practices, and references accepted fire service standards of performance.

### **1 ~ FULL-TIME FIRE CHIEF**

The operational transition from a volunteer fire department to one with part-time and full-time members involving in-station staffing is a very difficult one from a management perspective. Many departments have made this transition without proper leadership and guidance. With the November 2002 passage of the new levy for daytime staffing, several actions need to occur.

The selection and appointment of a full-time Fire Chief is a necessity and critical to the successful transition and effective operation of the department. Fire departments rarely have successful operations without a full-time Fire Chief, when utilizing part-time and / or full-time employees to staff the department. A lack of leadership and continuity between part-time / full-time personnel and the volunteer members is but one example of what can develop.

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The hiring of a full-time Fire Chief should be the first action taken by the Board of Trustees. A proper selection process must be developed, as this selection is the single most critical action to the process of implementing daytime station staffing.

As the implementation of daytime station staffing operation is planned, the new Fire Chief can make certain that staffing levels meet the needs of the community. His decisions should be based on an analysis of well-recorded and accurate activity information, which minimally would include the type of run, response time, location of the incident, and time of day that they occur. The high hazard potential within the community along with the information obtained through the interview process drives this recommendation, not the activity level. As the report indicates, several important fire department programs are not provided because of the lack of staffing. A full-time Fire Chief could also implement and manage these programs.

### **2 ~ STAFFING**

The operations and staffing of an all-volunteer fire department can become very challenging at times. Ensuring that there are always an adequate number of properly trained personnel available to respond to the emergency can be difficult to achieve. One cannot always predict what that number of individuals will be. The passage of a levy to provide daytime staffing is recognition of this problem.

One of the primary concerns expressed by the members during the interview process was the issue of staffing. Many believed it is now and will be the number one issue facing the department in the next 5 years. Operationally, there is a lack of available volunteer personnel to provide daytime coverage.

The addition of part-time personnel for daytime staffing is recommended. This option will provide more personnel covering more hours than a full-time person. Part-time positions can always be converted to full-time, but eliminating full-time positions can be problematic.

The Fire Chief should be able to develop the correct staffing model utilizing full-time or part-time and volunteers so that the most cost effective and responsive program is developed. As previously stated, begin with the Chief and part-time personnel. Then determine what changes may be required, after some history of daytime staffing is collected and evaluated.

In a combination department, strong officer staff must be available to manage the fire department and personnel in an effective and efficient manner. These officers must provide good leadership and management in developing a cohesive team of volunteers that can respond to calls for service. Not all of these officers will be available all of the time and the need for consistent and competent service requires a well-prepared team.

Many training programs and qualified instructors are available to educate and help develop a strong officer staff. In addition to these programs, an in-house officer development program should be

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implemented during routine officer staff meetings. Anything that can be done to improve the coaching and teambuilding skills of the officers is necessary for the overall success of the department.

There did not appear to be any kind of recruitment or retention program for volunteers in place. A lack of volunteers or the ability to recruit good volunteers is not only a problem in Berlin Township, but the same is true all across the country. However, if the department is going to be successful, they must put together some type of a recruitment program to seek additional volunteers. There are programs that are available from the National Volunteer Firefighters Council, Volunteer Firefighters Insurance Services, International Fire Chiefs Association, and the US Fire Administration that could assist the department in how to identify and recruit potential volunteers.

### **3 ~ FIRE STATION**

The present fire station has served as a facility to store fire equipment for a volunteer fire department response to the community's fire emergencies. As the department transitions from a volunteer to a combination operation, a more flexible fire station facility is required. Facilities that support in house staffing will be required. However, even without in station staffing, change should be considered.

If NFPA 1201, Fire Station Design and Operations is reviewed, it will become obvious that many deficiencies exist with the present Station 390, whether supporting a volunteer or combination operation. These shortcomings do influence the townships ability to provide service. Apparatus bays do not provide sufficient room for safe movement around apparatus. It is likewise difficult to perform basic level maintenance or operational safety checks. The width and depth of the existing apparatus bays are not large enough to facilitate proper safety or operations.

Sufficient support and service areas should also be provided. Designated areas for hose storage, turnout gear storage that is not in the bay areas, turnout gear washer, hazardous material shower, and a segregated decontamination area should be provided. A training area that provides a classroom setting or conference room area with training aids and props, screen, projector, library and training manuals need to be available. Daytime in station staffing will require necessary offices, dayroom, and kitchen, restroom with showers for both men and women along with ample storage.

The fire department has done an exceptional job of using the existing facility, but it does not adequately serve the present day operational or safety needs of the Berlin Township Fire Department. This deficiency will become much more critical when addressing the minimum standards required for in station staffing

The 1972 fire station has provided for the operations of the past, but the present and future operation require improved facilities. It is understood that the township has purchased land at Cheshire and Old State with the intention of building a new fire station and maintenance facility. If maintenance moves out of the present facility first, without extensive remodeling and changes, the needs of the fire

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department operation will not be served. An architect can help determine if these improvements are effective.

### **4 ~ JOINT FIRE DISTRICT**

Like many townships in the State of Ohio, Berlin Township is faced with many changes and challenging issues. As local development and increased population of the township occurs, increased service demand will occur, and because many of the new occupants of the township are coming from areas that have full-time fire departments, the demand for fast and efficient service will occur.

A perspective of this occurrence can be gained by looking to Genoa, Orange, and Liberty Townships to understand what the future holds for Berlin Township in the next 5 – 10 years. The demand for services can only be met with continual increases in taxes to the community. Because the township will continue to be mostly residential with a much smaller tax base than commercial/industrial development, it is very easy for taxes to grow quickly. If the voters do not approve funding issues, then the level of service does not meet the public demand or desires.

Berlin Township is the smallest of the surrounding township and is in a difficult position to combine with another township to form a fire district, however this action should be explored. There are obvious barriers to this approach. Some township residents may fear the loss of local identity, but good cost effective fire protection usually makes more sense to the voting public. Again, remember many of the new residents will want good service regardless of who is providing it.

There are political barriers to this approach. Township Trustees no longer directly control “their” fire department. However, they do retain a fair and equal representation on the Fire District Board of Control. As the economic development and population growth of Berlin Township and the surrounding townships continue, explorative discussion with other willing/interested Trustees is recommended.

If Berlin Township Fire Station is one of several fire stations of a fire district, a coordinated operation can provide a better level of service, including EMS, at a lower cost to township residents without many of the redundancies that occur with individual departments. Many of the redundancies that occur with individual departments covering adjoining districts can be avoided.

The recommendation is to discuss the issue. However, if the current Berlin Township Trustees or the Trustees of surrounding townships are against a Joint Fire District, it will have little chance to be successfully accomplished. Other townships may be experiencing similar issues that could make discussion beneficial to all participants.

### **SUMMARY**

The lack of some detailed information or requested items may have permitted a statement to be formulated that, in fact, is not entirely accurate. Even so, this review and analysis of the Berlin Township

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Fire Department and its associated recommendations for improvements outlined in the report would not substantially change.

The fire department personnel, as well as the community, were candid and open in their responses. They provided valuable information regarding the positive attitudes and attributes of the department and its personnel (and there are many), as well as the current challenges that the department faces.

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THOMAS J. GRILE, President  
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# BERLIN TOWNSHIP FIRE DEPARTMENT

## STUDY METHODOLOGY

T.G. Fire/EMS Systems used the following process steps to arrive at recommendations regarding the defined study items:

First, a fact-finding, and review of the current state of the Berlin Township Fire Department;

Second, interviews with Fire Department members, Officers, Township Officials, other elected officials, citizens and business owners;

Third, document the Berlin Township Fire Department and present level of service;

Fourth, Compare the fire department operation to widely recognized State and National Standards as well as accepted operating practices, and review the budget for the ability to support recommendations;

Fifth, provide a baseline report for review with Township/FD personnel, and

Lastly, a final report will be prepared and presented to the Berlin Township Board of Trustees.

The Baseline Report of the Berlin Township Fire Department is important in that all recommendations for change are based on it. Therefore, it is incumbent upon all participants to ensure that the data was valid, accurate, and properly portrayed.

## OVERVIEW AND DEMOGRAPHICS

Located in south central Delaware County, Berlin Township is primarily a residential area with some farming, light industrial, and manufacturing and a large water recreational area. It was certified as 25 square miles with a population base of 3,313 in the 2000 Census. Due to its location at the southeast corner of the City of Delaware, it has experienced the loss of some land areas due to annexation by Delaware along State Route (SR) 36, and US Route (US) 23 and Cheshire Road. The Township's location just north of Columbus has made it an ideal area for residential development for those citizens who want country living and associated taxes combined with quick access to the metropolitan lifestyle and services.

The overall topography of the township is mostly flat with some gentle rolling hills, but sharp drop-offs and rock outcroppings areas exist around Alum Creek Lake. The Ohio Department of Natural Resources indicates that the lake covers 3,386 acres with most of it shoreline, except the dam, in Berlin Township. It is a popular water recreational area offering a multitude of water activities. Coupled with its central Ohio location, Alum Creek Lake attracts a large influx of boating and recreational users during the warm summer months. It is expected that the use of this popular recreational area will continue to experience significant growth for the near future.

The township has a good road system consisting of two (2) major routes that service the area. SR 37 runs east and west near the northern border of the township. It is a 4-lane roadway with a grass median, and is maintained by the Ohio Department of Transportation (ODOT). US 23 runs north and

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south along the western border of the township. It, too, is a 4 lane non-divided highway. A 5<sup>th</sup> lane for turning exists in various areas of the county on this road. This roadway is also maintained by ODOT.

There are both county and township roads that run north / south and east / west through the township. Shanahan Road on the south; Baker Road on the north; and Three B's and K Road on the east, help set the boundaries of the township along with the western boundary, which is a line from Glenn Road running south just east of Baumiller Road, across Peachbow just east of US 23 and just west of US 23 at Hyatt Road. All roads appear to be properly maintained and in good condition.

SR 37 and US 23 have heavy traffic consisting of large commercial truck and passenger vehicles that present the potential of major traffic incidents and might well involve hazardous material cargo. Additionally, the township has two railroads that dissect the township from the northwest to the south central border. CSX has one track that runs through Berlin Township; Norfolk Southern has two tracks. Both of these rail lines transport high value loads along with a multitude of differing types of hazardous material, again providing the potential for major incidents requiring the services of the fire department.

It is important to note that the fire departments surrounding Berlin Township, which includes the City of Delaware, Tri-Township, Liberty Township, Orange Township, and Genoa Township all have career firefighter personnel on their staff and staff their fire facilities on a 24-hour basis. BST&G is still a volunteer fire department but does staff one personnel on station during the day Monday through Friday. All of these townships also face annexation challenges of their township lands by nearby municipalities. As Delaware and Columbus continue to annex commercial, industrial, manufacturing, and large shopping and service areas, the burden of financing fire services falls increasingly upon the residents of the township. However, it should also be noted that most of the service delivery demand comes from residential component of the Township.

The Trustees indicated that they had recently met with the City of Delaware to discuss services to the newly annexed area of Berlin Township. Although recent changes in the Annexation Laws in the Ohio Revised Code require a revenue sharing or distribution to the township for loss of area, the City of Delaware annexation occurred before the change in the law. The City of Delaware has not refigured these boundaries to include the new land areas and thus, those residents will be subject to a 2% earning tax as well as a 2.5 mil levy of real estate tax to support Berlin Township Fire Department. The Township Trustees realize that they have a legal liability to provide fire services; they certainly are not in total agreement with the City of Delaware that they should or will realize a sufficient gain to offset the cost of providing service

The consultant discussed this issue with Mr. Thomas Homan, the City Manager of Delaware. The specific area in question is a residential development at Tanglewood Golf Course. The planned development is for approximately 600 homes, although no time schedule for build-out was provided.

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In the short-term and on the surface, this could appear to be very favorable to the Township, but it was explained to the City Manager that several portions of this approach were very unattractive to the Township.

First, it is usually the 2<sup>nd</sup> year after occupancy that the property tax millage on the new appraised value is realized or collected. At the present 35% of taxable value times 2.5 mills, the amount can be calculated. Nevertheless, because of the Ohio Revised Code, there is little true increase realized because millage is rolled back each year to provide a millage dollar value realized at the time of the voter approval.

Second, as the number of homes built increases, there is a correlated increase in the demand for service. Private residential occupancies are the largest source of activity for fire and EMS services. Increasing service demand while maintaining the same level of revenue is not a benefit to the Township.

Third, although the City of Delaware may not have a legal responsibility to provide service, a moral one may truly exist. As the number of homes increases, the residents are going to be very vocal about paying for services for both the City and the Township. They will realize that a volunteer / combination department cannot provide the same services as a full-time department and will want the City services. This will present a problem for the City if it wants to continue to annex area from the Townships.

In other discussions with the City Manager, the consultant also suggested other alternatives to providing services to their new areas including co-locating with other area fire departments, which may or may not include Berlin (This is a discussion for the Trustees), or contracting with area fire departments for service that truly benefits them as well as the City of Delaware.

Much discussion and thought is required before a decision should be made about this issue. There are actions that can offer a win-win solution to these cantankerous situations.

### **FUNDING AND BUDGET**

As are most other Township Fire Departments in Ohio, the Berlin Township Fire Department is funded primarily by property taxes. A 2.5 mill levy was approved in November 2002 for a 2-year period. These 2.5 mills raised approximately \$248,000 per year. Personal Property Tax, Trailer Taxes, Rollback, and Homestead Taxes will account for about \$42,000 in 2003. Thus, total anticipated revenue for 2003 is budgeted at \$290,000. The township also had carryover from 2002 into 2003 for the fire department totaling \$468,821.

The millage funding for the fire department is very low compared to surrounding township fire departments. The main reason is the lack of part-time or full-time employees the other departments use for staffing.

As the township fires full-time / part-time employees, the cost of the service will increase. As citizens see the quicker response times and level of services provided during the daytime, more citizen

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requests and demands for 24-hour services will require increasing fire department tax revenues to meet new staffing expenses.

The 2003 Appropriated Budget for the fire department is \$144,290. This results in a sizeable unencumbered amount of money for the fire department. The Trustees have preserved this money for future fire department needs including anticipated staffing costs and capital improvement items such as fire station and / or apparatus and equipment.

The Clerk's budget information is easy to read and understand and is in a standard Ohio Township Budget format that meets the requirement established by the State Auditor. The community should be proud of the Clerk's record keeping and the Trustee's vision of future fire department needs.

The Trustee's actions have indicated that they are good stewards with the community's fire levy funds. After the passage of the new fire levy last year, the Trustees have properly prepared a 2003 budget for the fire department, but also have prepared the 2004 budget as well. This was an important part of establishing a five (5) year Capital Improvement Plan. The plan covers the 2003-2008 periods and includes operational improvements and firefighter safety items. The 2004 budget and five-year plan are provided in Appendix A.

The Township Trustees have established a five (5) year Capital Budget Plan for the fire department. This Budget includes protective equipment and safety items for firefighters including turn-out gear, helmets, SCBA w/ amplified speakers, extra cylinders, air monitors, walkie-talkies, AEDs, computer software and radio pagers. The plan provides a number of items and cost for each of the five years. It includes Capital equipment items such as furniture, office equipment, kitchen accessories, water tank repair, engine replacement, thermal camera, rescue tool, and air compressor, and large (5") diameter hose.

Miscellaneous cost for training, personnel physicals, apparatus repair, maintenance and software agreement, AED maintenance agreement, EMS supplies, walkie-talkie batteries, uniforms, foam and station maintenance items were all included in the 5-year budget projections. In addition, the important personnel / staffing issue is addressed for this timeframe.

Many of the issues that were identified in this report as areas for improvement have been addressed in the 5-year plan

### **PROJECTED GROWTH**

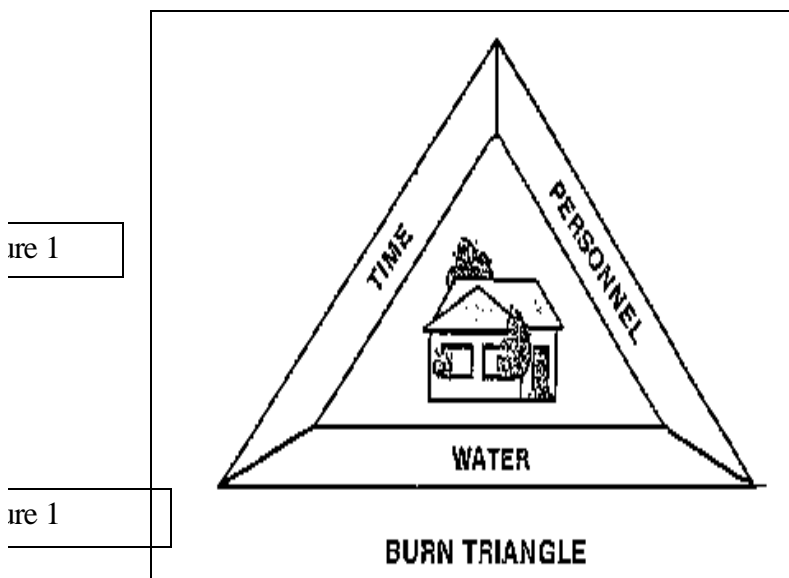
As previously indicated, the 2000 Census (See Appendix B) identified a population of 3,313 residents. However, in September 2002, the Delaware County Regional Planning Commission (DCRPC) prepared a demographic information report that indicates the population projection of Berlin Township is estimated to be 4,645 for 2003 and is estimated to grow to over 5,000 by the year 2005. Although it will not be close to the population numbers of Genoa, Liberty, or Orange Township projections, it does indicate that it is the fourth fastest growing community behind them. It further

identifies the anticipated continued growth of the Berlin Township area as metropolitan Columbus continues to expand to the north and Delaware expands south into area townships.

## SERVICE DELIVERY SYSTEMS - OVERVIEW

### FIRE SUPPRESSION: THE BURN TRIANGLE

In defining resources needed to suppress fires in a community, it is necessary to address the interrelationship between response time, water, and personnel. The following visual depiction known as the Burn Triangle (Figure 1) clearly illustrates that these three basic components control the density of a fire in any structure and that if any one of the sides is removed; the building will burn until the need is satisfied.



#### Time

The first leg of the triangle is time. The most vital component indicates that if the other two legs of the triangle do not reach the building in time, then their effectiveness is negated. Resources must reach a fire prior to the point at which the structure is no longer economically feasible to rebuild, or, secondly, prior to the time the building becomes untenable to life. This is known as the "critical time" of the fire. Time includes such factors as the time for detection, the reporting of the fire, the dispatching of the fire units, the response of the fire units, the travel

time to the fire scene, and the set-up time at the fire.

#### Water

The second leg of the triangle is water. Here, water is used rather than the word "extinguishing agent" since water is the predominantly used extinguishing agent. However, other agents such as foam or dry chemical could be substituted. The key factor is that water must be available in the desired quantities and at the necessary pressure as required by the size of the fire once adequate forces are in position for application. One commonly accepted determination for this factor needed fire flow formula is contained in the Insurance Services Office (ISO) "Fire Suppression Rating Schedule".

#### Personnel

The final leg of the triangle is adequately trained personnel. This factor also includes the necessary apparatus and equipment for adequate application of the extinguishing agent. Personnel requirements are determined primarily by the size of the fire and the physical characteristics of the building, i.e., it takes from 3 to 10 times the personnel to fight a fire in a multi-story commercial building as the same fire in a one-story single-family residence. Personnel are

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most frequently related to the one common need associated with the other two factors and that is required fire flow. The function of applying the fire flow required can be computed by any one of several formulas, but approximates one person for every 50- 100 gallons of water. It should be remembered, however, that this figure is only for fire extinguishments as the formulas do not consider such items as life rescue, care for occupants injured in the fire, firefighters huffing the fire, performing truck and support functions, command, or water supply operations for non-hydrated areas.

Fire services must be planned with these three areas in mind in order to provide for an effective fire suppression system.

### Fire Growth

Through testing and experience, it has been determined that the first five to ten minutes of a fire are of greatest concern. The greatest single factor in providing effective public fire protection is to commence fire suppression operations prior to "flashover".

Because of the physical characteristics of fire, the temperature within a building rises extremely rapidly from the fire's inception to a point when all of the combustible contents within a confined area will ignite simultaneously in what is called a flashover. The actual amount of time required for this condition to develop will vary depending on several factors including the building characteristics and contents.

If an extinguishing effort is initiated before the fire reaches a flashover point, the difficulty of fire control is generally greatly reduced. Further, if lives are to be saved, the rescue of fire victims must be accomplished prior to flashover. Associated with this greater ease of extinguishment would be the elimination of a large financial loss to the occupancy involved in fire, their employees and to the area in general. Therefore, one of the aspects that should be considered in establishing adequate fire protection is to develop the capability of attacking structure fires prior to flashover. Flashover normally occurs between 6 1/2 to 10 minutes after ignition with structural damage increasing as the fire grows in a more or less geometric progression.

There are five critical periods of time that must be considered in determining the ability to attack structure fires prior to flashover. Together the five periods are known as the "reflex time" (See Figure 2) and are defined as follows:

*Fire Detection - the time between the inception of the emergency and detection;*

*Reporting of Fire - the amount of time required to report the alarm to the dispatcher;*

*Dispatching of Units - the amount of time required to receive the alarm, determine the appropriate fire assignments and dispatch these companies to the scene of the emergency;*

*Response Time - the time period between the notification of the fire companies and when the units actually begin to respond, plus the actual travel time of the fire units to the scene of the emergency; and*

*Setup Time - the time required to setup at the fire scene and commence the application of an extinguishing agent.*

Each of the periods is illustrated in Figure 2 on the flashover curve. The more effective fire operations have a reflex time that is lower than the time of flashover.

Because fire can expand at a rate of 50 times its volume per minute, the time from ignition to start of suppression is critical and has a direct relationship to the opportunity to save lives, the fire loss incurred, the amount of fire flow needed for fire control, and the subsequent impact on the number of personnel needed.

### REFLEX TIME ANALYSIS

In order to provide the most effective fire services for the resources allocated, it is necessary to conduct an analysis of each of the five critical periods. Any reduction of time in one area will generally

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result in improved services or the ability to lengthen another portion of the reflex time and maintain the same level of service.

### **Detection of Fire**

The period from start of ignition to detection is most critical stage in a structural fire. Very often, major fires have been the result of an extended pre-burn time prior to detection. In fact, the greatest loss of property generally is experienced when there has been a delay in detecting the fire. Unfortunately, this period is the most difficult period for the Fire Department to control and reduce.

Automatic fire extinguishing systems and early warning devices such as fire and smoke detectors are significant methods of reducing the detection period and assisting in extinguishing fires in their incipiency.

### **Report of Emergency**

The primary mode of emergency notification is the emergency telephone number. The community as well as the entire County has 9-1-1 as their emergency service phone number for fire, police, and EMS emergencies. In order for a person to report a fire, they must:

*(1) Recognize the need for calling the Fire Department-people frequently assume that someone else has reported a fire or they do not believe it is an emergency; and*

*(2) Be able to report an emergency-the reporting party must have access to a telephone; know who to call, and what to say. There are several possible considerations in determining a way to minimize the time required to report an emergency. These include:*

- a. Knowledge of who to report the fire to;*
- b. Proper information to convey when reporting an emergency;*
- c. Availability of telephone stickers;*
- d. Alarm devices; and*
- e. Public education and 9-1-1 stickers on apparatus.*

### **Receipt of Alarm and Dispatch of Apparatus**

It is not known if the Delaware County 9-1-1 Dispatch Center has identified performance goals, but it is expected they have an average dispatch time. The dispatch center alerts members for emergency response via a pager system. A good operations center will receive and dispatch appropriate apparatus in 30-60 seconds.

### **Response Time to the Scene of the Alarm**

Probably, from the citizen's point of view, the most important determination of service level is the length of time between a call for assistance to the time that assistance arrives. Response time, however, does not address the degree of effectiveness of the first arriving unit. For example, if the first unit arrives with two firefighters and twelve are required to control the emergency, the emergency will not be controlled until sufficient personnel and equipment have arrived. However, in the eyes of the requesting citizen, the importance of the time of arrival of that first unit is often critical.

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Response time levels of service are related to the number and geographic location of fire stations and engines, street layout, size of community in square miles, type of terrain, traffic density, and weather conditions. The proper balance for a community lies somewhere between having a fire station on every corner and having a single fire station for the service area.

When considering that the fire companies generally respond from their station, it is evident that station location must become the point of focus in calculating the anticipated lapse time between the fire companies' receipt of alarm and their arrival at the fire scene.

A brief look at the relationship between the time-temperature curve and the total reflex time as seen in Figure 2 provides a visual indication of the critical nature of response time.

### **Setup Time at the Scene of an Emergency**

Set up time is that time required for fire companies to obtain a supply source of water, lay hose lines in place, locate apparatus, select proper equipment and devices, place ladders, gain entry and prepare for the application of an extinguishing agent. The time required for fire companies to accomplish the set up on the emergency scene and apply an extinguishing agent to the fire is directly related to available staffing levels, access to the structure involved in the fire, water supply, and hydrant distribution, built-in fire protection, the magnitude of involvement, number of companies required, and training of personnel.

The ability to control fires in their early stages is directly related to early detection and the application of an adequate extinguishing agent. Comprehensive pre-fire planning, automatic detection and suppression systems, and closer availability of personnel are among many options for early control of fires.

### FIRE RESPONSE CONSIDERATIONS

In considering the level of fire combat capability, it is necessary to understand that the primary extinguishing agent is water. Thus, it is important to define the relationship between the amounts of water able to be delivered through hose lines to the size fire such water will extinguish. Water delivered through hose lines requires trained and equipped firefighters. Along with the personnel to operate the hose lines, officers are needed to direct the attack and additional personnel are required to operate the pumping engines and engage in search and rescue, forcible entry and building ventilation activities.

The determination of the cubic feet of fire each gallon of water will extinguish is not an exact science. According to formulas developed by various national organizations, it takes 1-4 gallons per minute to extinguish 100 cubic feet of fire area. The variables are the combustibility of the burning material and type of building. For example, on a lumberyard fire, master streams delivering large quantities of water can be employed quite effectively. Even though they have very little maneuverability, they work well on an open fire since large quantities of water can be deployed directly into the fire. On

## BERLIN TOWNSHIP FIRE DEPARTMENT

the other hand, they are not as effective in combating an attic fire since that type of fire, though requiring fewer gallons per minute, requires more personnel to ladder the building and to provide water "over and under" as well as ahead of the fire to gain control.

In controlling and attacking larger fires that are not stopped in their early stage and progress to a point where they threaten not only the consumption of a building on fire but neighboring structures as well, large volumes of water with sufficient personnel to apply such streams are required. In calculating the amount of water that would ideally be required to handle a larger fire in a particular building while protecting the exposures, use can be made of the "Fire Suppression Rating Schedule" as the "needed fire flow" or fire flow requirement. This relates to the number of gallons of water per minute that must be applied to a fire through hand held hose lines and heavy stream appliances to affect control. The higher the fire flow requirement, the more apparatus and personnel required to handle the volume. Furthermore, extensive consideration must be given to conditions involving and surrounding the particular building being evaluated.

### RECOMMENDED STANDARDS FOR FIRE SUPPRESSION

It is important for any community to identify the current level of fire protection services provided by the Fire Department and to make a decision as to the level it desires and can afford for the future. The identified difference between what can be handled and the potential fire becomes known as the accepted risk factor. This risk factor can be minimized at the operational level through use of supplemental apparatus and personnel resources including mutual aid, and automatic response programs. The risk can be further reduced with fire suppression systems built into structures.

As part of the risk determination, a community determines what there is to burn and what in fact did burn. The next step is to look at the various target hazards, that is, the larger structures that require protection, and determine the gallons per minute (gpm) fire flow necessary to extinguish a heavily involved fire in each structure. At the same time, a determination can be made regarding the impact the loss of the structure would have on the community.

In fire suppression, as well as EMS, there are a number of recognized safety and staffing standards that the department must consider when determining staffing of fire stations. National Fire Protection Association (NFPA) Standard 1500 is the safety standard for the fire service. It deals with all aspects of the fire departments operation for safety including personnel, apparatus, equipment, and tactics to name major components. Even though not formally adopted by the department, it will be a standard to gauge the safety of operations and the department if injuries or accidents occur.

The State of Ohio through the Industrial Commission, has established Administrative Rules of Law that cover the firefighting ensemble of the firefighter and the safety testing of apparatus and equipment. The Occupational Safety and Health Administration (OSHA) has recently established a national standard on fire ground staffing. Although a very detailed directive, it essentially indicates that

## BERLIN TOWNSHIP FIRE DEPARTMENT

before entering there must be at least two (2) properly trained and equipped firefighters and that two (2) more firefighters must be prepared to replace, rescue, or assist the initial entry firefighters. This standard has a major impact on staffing issues, and is often referred to as the "2-in / 2-out" legislation.

Another critical factor in meeting service expectations is assuring that response crews are capable of performing the required tasks upon their arrival. The dispatching of a specific response with a minimum crew assignment is a concept that is widely supported by the fire service literature. The National Fire Protection Association (NFPA) has published a book titled the Fire Protection Handbook for easy reference on fire service related matters. In the Eighteenth Edition of that text on page 10-34, the NFPA provides a recommendation for a minimum response to various structures. The structures are divided into their general hazards potential. Figure 3 depicts those recommendations.

<p><b>HIGH-HAZARD OCCUPANCIES</b> Schools, hospitals, nursing homes, explosive plants, refineries, high-rise buildings and other high life hazard or large 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 combustibles involved; not less than 24 firefighters and 2 chief officers</p>
<p><b>MEDIUM-HAZARD OCCUPANCIES</b> Apartments, offices, mercantile and industrial occupancies not normally requiring extensive rescue or firefighting 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 less than 16 firefighters and 1 chief officer</p>
<p><b>LOW-HAZARD OCCUPANCIES</b> 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 less than 12 firefighters and 1 chief officer</p>
<p><b>RURAL OPERATIONS</b> 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; not less than 12 firefighters and 1 chief officer</p>
<p><b>ADDITIONAL ALARMS</b></p>	<p>At least the equivalent of that required for Rural Operations for second alarms; equipment as may be needed according to the type of emergency and capabilities of the fire department. This may involve the immediate use of mutual aid companies until local forces can be supplemented with additional off-duty personnel. In some communities, single units are "special called" when needed, without always resorting to a multiple alarm. Additional units also</p>

# BERLIN TOWNSHIP FIRE DEPARTMENT

Figure 3 NFPA Hazard Response Recommendations	may be needed to fill at least some empty fire stations.
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The Insurance Services Office (ISO) makes a similar recommendation. Instead of using an occupancy hazard classification, the 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 about the same as found in the NFPA recommendation.

## WATER SUPPLY / ISO

The Berlin Township Fire Department has an ISO rating of 6/9. This is called a “Split Rating” and means that the residents in a non-hydranted area are graded at a class rating of 9 and those in a hydranted area receive a class rating of 6. ISO rating is on a scale of 1 – 10 with a rating of 1 being the best and lowest insurance costs for structures to a rating of 10 where the insurance costs for structures is the highest. As a volunteer fire department, the rating in the township is what would be expected for the size and scope of the operation. ISO reports were not available to determine graded scores for water supply, fire department, and communications.

Hydrant coverage is not 100% in the district. Only 25% of the district is estimated to be served by hydrants, mostly in newer subdivisions and more recently developed areas. Water service is provided through 4½” discharge and two, 2½” discharges. As an average, firefighters can expect approximately 1000 gallon per minute flows from these hydrants.

For those areas not provided with fire hydrants, the department utilizes the Delaware County Tanker Task Force. This task force has been developed to provide an established water supply during incidents in which fire hydrants are not available. All participating departments, Berlin included, are provided with map books that provide for the location of water sources throughout the county. While this task force has been utilized in the past, no formal process has ever been developed that would provide for expected flow rates. No areas for drafting are identified in these water supply books, however most members are aware of water sources, which can be used as a drafting source. Three dry hydrants have been installed and are identified as water sources within the district. They are located at 1) North of Southeast Plumb Road in Southeast Berlin Township, Southwest part of Berlin Township on US 23 at the pond by the furniture store, and Northeast part of Berlin Township at the Double Eagle Golf Course.

***RECOMMENDATION:*** *The tanker task force should evaluate and conduct a formal exercise by which expected water flow rates could be established (ISO).*

## BERLIN TOWNSHIP FIRE DEPARTMENT

*RECOMMENDATION: Static water sources throughout the district should be identified from which drafting operations can be established. (NFPA 1142).*

### **Department Water Supply**

The Berlin Township Fire Department maintains a 2,500 gallon pumper/tanker and additional pumper to provide for fire attack and water supply. Both apparatus have been pump tested and are certified yearly by a third party contractor. Water supplies are established utilizing approximately 2,000 feet of three-inch fire hose.

*RECOMMENDATION: The department should purchase and deploy large diameter fire hose (5 inch) in order to reduce friction loss during water supply operations.*

*RECOMMENDATION: All fire fighting hose should be tested yearly in accordance with NFPA and manufacturer's standards. These records should be available for inspection.*

### **High Hazard Areas**

While high hazard areas are known, no formal process has been established either to target these areas or to establish required fire flows. V and P Hydraulics is most often mentioned as the Department's highest fire hazard with an estimated, required fire flow of 3,000 gallons of water per minute. The three mainline railroad lines are also high hazard potentials.

*RECOMMENDATION: The department should establish a formal process to identify and pre-fire plan for those areas, or structures presenting with high life or fire hazards. (NFPA 1142)*

## DELAWARE COUNTY EMERGENCY MEDICAL SERVICE

### EMS

Delaware County has the primary responsibility for providing advanced medical care as well as transportation to the residents of the township. The Berlin Township Fire Department provides a basic first responder / EMT-B level of care to assist the County EMS system.

The response times are collected in the fire reporting software. Reports provided indicate there is about a five (5) to six (6) minute response time on emergency medical emergencies.

The members of the department are trained from the basic EMT-B (Emergency Medical Technician-Basic) level to EMT-P (Emergency Medical Technician-Paramedic). The department consists of nine (9) people trained as EMT-B, two (2) people trained as EMT-P and one member is new and is only CPR certified. The EMT-P's are employed by other departments and have received their advanced training there. Although the department has a couple of paramedics as members, the

## BERLIN TOWNSHIP FIRE DEPARTMENT

equipment and supplies needed to perform that level of care is not carried on the vehicles. However, all three fire department medic vehicles carry Automatic External Defibrillator (AED) and Basic Life Support (BLS) equipment. Additionally, all department EMT-B and EMT-P personnel carry First Responder bags in their personal vehicles, so that they can respond directly to all EMS calls. Berlin Township does everything up to the EMT-B level, except transport of victims/patients.

Reports indicate eighty-eight (88) First Responder type incidents were handled in 2001, ninety-seven (97) in 2002 and fifty-three (53) so far in 2003.

The average number of personnel on the First Responder incidents was two (2) personnel.

Emergency medical incidents make up about 36% to 39% of the departments activities. The low percentage compared to many departments (70% to 85%) is due to the level of care provided by the department.

Emergency medical reporting is done at a First Responder level on the fire incident reporting system to the State Fire Marshall. Emergency medical reporting to the State EMS Board is done by the company or department transporting the patient.

*RECOMMENDATION: The department may need to expand services to stay alive due to today's expectations of the fire service. Advanced EMS has become the service most wanted and needed. Having Delaware County EMS co-locate in a Berlin Township Fire Station may be the most cost effective approach that provides for a quick response to all of Berlin Township and provides advanced service.*

Virtually all communities across the United States have some form of an Emergency Medical Service (EMS) system. The components of the EMS system and the level of service must be tailored to the needs and desires of the community being served. While an EMS system is unique to its community, the industry recognizes a standard approach to assessing local needs and meeting those needs with specific elements. Regardless of the system, the following components must be addressed. These components are very similar to the five critical periods for fire attack and therefore, go hand-in-hand with the fire department.

- Rapid Response Time
- Staffing
- Equipment and Deployment
- Employee Health and Safety
- Training
- Dispatch and Communication
- Patient Transport

Fire departments in many communities across the U.S. are primary providers of pre-hospital emergency care. Others like Berlin Township provide 1<sup>st</sup> Responder for EMS. They have played a

## BERLIN TOWNSHIP FIRE DEPARTMENT

key role in the development of pre-hospital emergency care practices and patient transport. Cross-trained firefighters are able to provide time critical 1<sup>st</sup> Response and treatment.

Response time has also been critical in the survival of patients suffering life threatening medical emergencies or illness. Most research on patient survival has clearly demonstrated that rapid on-scene medical intervention produces the best patient outcome. A comprehensive approach to emergency medical care is what makes the difference in patient survival, which is the true measure of quality for any pre-hospital emergency medical system.

EMS providers must respond to a wide variety of situations, including trauma, burns, illness, poisonings, and cardiac arrest. These incidents are unplanned and most of the time urgent. Communities EMS systems must be adequately staffed and flexible to meet the accepted standards of performance for pre-hospital response time.

The most time critical call for EMS is that of cardiac arrest. When the heart stops pumping blood, the oxygen supply to critical organs including the brain is quickly compromised. If blood flow is not restored within a few minutes, irreversible brain damage occurs followed by death. Cardiopulmonary Resuscitation (CPR) must be initiated within four (4) minutes and advanced life support (ALS) procedures initiated within eight (8) minutes of the heart stopping.

The American Medical Association and the American Heart Association have established the following industry standard for emergency response to cardiac arrest:

*For cardiac arrest, the highest hospital discharge rate has been achieved in patients whom CPR was initiated within four minutes of arrest and Advanced Cardiac Life Support (ACLS) within eight minutes. Early bystander rescue breathing as CPR intervention and fast emergency medical services (EMS) response care are therefore essential in improving survival rates and good neurological recovery rates.*

RECOMMENDATION: *A fire station location that provides response times within critical response standards for EMS is important to the community. First Responders, using daytime in-station staffing, should meet the response criteria for Basic Life Support (BLS) level.*

RECOMMENDATION: *Consider having a Delaware County EMS unit that provides Advance Life Support (ALS) co-locate with the fire department. This would greatly improve the overall BLS/ALS response time to the township and meet recommended time standards.*

EMS care is delivered by a variety of personnel trained to different levels. It can range from a single response to a multi-tiered response system. The State of Ohio allows for responding personnel to be certified as one of the following:

## BERLIN TOWNSHIP FIRE DEPARTMENT

- First Responders- Basic training without the ability to transport
- Emergency Medical Technician- Basic (EMT-B)- Basic EMS training including transport and automated defibrillation
- Emergency Medical Technician- Intermediate (EMT-I)- Same as EMT-B, with some advanced procedures.
- Emergency Medical Technician- Paramedic (EMT-P) most commonly referred to as Paramedic. Full advanced cardiac life support training including Pharmacological

Now, defibrillation of cardiac arrest is made possible by the use of an Automated External Defibrillator (AED), which can be administered by an EMT-Basic, Intermediate or Paramedic. The use of an AED early on, combined with CPR and advanced life support care greatly enhances the chances of patient survival.

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The critical time intervals for both fire and EMS responses are similar. Attacking the fire prior to flashover (6½ - 10 minutes) substantially reduces the fire damage. In cardiac arrest, brain death usually occurs within 8 - 10 minutes. The time between heart stoppage and the initiation of CPR, defibrillation, and ACLS determines the patient's chances for survival.

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### References:

- The Journal of the American Medical Association, October 1996.  
Buchman, T.G., "Strategies for Trauma Resuscitation", Surgery, Gynecology & Obstetrics, 1991.  
Penetrating Trauma", Emergency Medical Update, November 1988

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***RECOMMENDATION:** The Berlin Township Fire Department must provide First Responder (EMT-B) support for Delaware County EMS to assure that the citizens are being provided the best level of EMS care.*

## **FIRE / EMS REPORTING**

The fire department is compiling statistical data on Fire and EMS activity utilizing a software package from Firehouse® Software. This supports the tracking of various types of incidents, personnel participation, etc. The following information was obtained by reviewing reports derived from this software. Fire reports are completed using computer software (NFIRS 5) and forwarded to the State Fire Marshall's Office as required by the Ohio Revised Code (2337.24 ORC) on a monthly basis. Using computer collection the data requested on fire activity, fire loss, response times, and types of alarms were provided in a timely manner.

## **CURRENT ACTIVITY**

### FIRE

## BERLIN TOWNSHIP FIRE DEPARTMENT

From reports provided on emergency run activity it appears the department responds to approximately 250 – 265 incidents per year. For 2003, as of August 22<sup>nd</sup>, there have been 144 emergency responses. The average response time from time of call to first arriving vehicle is 5 minutes 40 seconds.

The last three years fire loss was \$19,500.00 for 2001, \$36,700.00 for 2002, and \$111,000.00 to date for 2003. As with all departments, fire loss varies from year to year. It appears one or more large fire loss incidents occurred in the first few months of 2003. One large fire can greatly affect the statistics and you must look from year to year for those large incidents that skew the numbers, but this is a good loss valuation ratio for the size and scope of the department.

It appears that the department has a level of run activity normally encountered with most departments. Today's fire department tasks have increase from handling the average fire emergencies to being the ones called when someone doesn't know who else to call for help. Departments are expected to be able to handle all emergencies someone may have.

Run activity for the department from 2001 through August 22, 2003 breaks down as follows:

2001:	
Fires	27
EMS/Rescue	88
Hazardous Materials	22
Service Calls	24
Good Intent Calls	70
False Alarms	<u>31</u>
Total -	262
2002:	
Fires	24
EMS/Rescue	97
Hazardous Materials	26
Service Calls	21
Good Intent Calls	65
False Alarms	<u>18</u>
Total -	251
2003 (to date of Aug. 22 <sup>nd</sup> )	
Fires	24
EMS/Rescue	53
Hazardous Materials	17
Service Calls	7
Good intent Calls	34
False Alarms	<u>9</u>
Total -	144

## BERLIN TOWNSHIP FIRE DEPARTMENT

With the department being a true or total volunteer structure, staffing was reported for all incidents of having four (4) people per incident. The vehicle-manning requirement of the department is three (3) people on an engine or rescue and two (2) people on a tanker or grass truck for all mutual aid incidents given to neighboring departments. The department allows the manning numbers to drop for incidents within their own jurisdiction.

Reports indicate that the department received fifty-eight (58) mutual aid responses in 2001, forty-seven (47) in 2002, and fifty (50) to date in 2003. The department provided assistance to area departments fifty (50) times in 2001, thirty-two (32) times in 2002 and twenty-eight (28) times to date in 2003.

Berlin Township Fire Department is involved in both Automatic Aid and Mutual Aid programs with area departments.

According to the Fire Chief, the department has nine (9) firefighters trained to the FF-II level and three (3) trained to the FF-IA level. All twelve (12) firefighters are trained to the Hazardous Materials Technician level. He also indicated that he was the only Certified Fire Inspector on the department and is Certified to maintain the departments SCBA's. The Chief along with one Lieutenant are certified Fire Investigators.

As far as building fire pre-plans, he indicated that some high-hazard locations are pre-planned, but this is limited.

The run volume, by the day of the week, appears to be uniform ranging from the busiest day being Wednesday with forty-one (41) incidents and Saturday the least busy with thirty (30) incidents. The busiest hours are between 9:00 am and 10:00 pm.

### **CURRENT STAFFING**

In many small communities and/or townships, volunteer fire departments are operated in a neighbor-helping-neighbor basis when members do not receive compensation. Replacing free labor with some type or level of salaried personnel usually creates an added tax burden on the local population. Availability of personnel is critical to the success of a small rural fire district. The availability of volunteers, in sufficient numbers from the community is clearly limited.

The Berlin Township Fire Department primarily utilizes the true volunteer concept with the exception that the members do receive compensation (\$9.00 an hour) for emergency runs. There are twelve (12) personnel on the department roster. This includes the Fire Chief, three (3) Lieutenants, and nine (9) Firefighters. Personnel are crossed trained in fire, EMT-B, and EMS duties.

The principal resource of a fire department is its trained personnel. When considering personnel especially part-time and full-time maximum use must be made of the personnel by using time

## BERLIN TOWNSHIP FIRE DEPARTMENT

management schedules. Schedules should include such things as apparatus checks and maintenance, training and scheduled building inspections.

Staffing levels vary and are influenced by things such as the population protected, population density, and the number of large structures and frequency of alarms for fires, response distance, and very importantly firefighter safety. Types of staffing range from a true volunteer department, to part-time, full-time or a combination of any of the above.

Since it is almost impossible for most jurisdictions to be able to provide the entire work force needed to protect their area mutual aid becomes a very important resource. Many departments find it necessary to use a combination of staffing in an attempt to meet the minimum staffing requirements of NFPA 1500. Even though the recommended staffing for fire engine companies is four (4) firefighters, including an officer, NFPA 1500 requires that at least four (4) firefighters be assembled on the scene before starting interior fire fighting.

***RECOMMENDATION:** Develop a rigorous recruiting program using local newspapers, township newsletter, door to door in platted areas of the township, and visiting local businesses.*

***RECOMMENDATION:** Develop a program that piques recruits' interest in the department. Detail information about the positive aspects of the position and the gains a member can realize such as education and training, team building and participation, physical exam and workout, injury coverage, social activities, working with other departments and agencies, etc.*

***RECOMMENDATION:** Develop a Retention Awards Program to provide incentives or awards for training levels, years of service, achieving performance objectives, helping recruitment efforts, customer service projects, etc.*

The Township Trustees already realize the difficulty in staffing a volunteer fire department, especially during the day. Letters and information from surrounding fire departments highlight incidents in which Berlin Township companies did not respond, or arrived much later than mutual aid departments to emergencies in Berlin Township. This problem was identified both during the interview process and thru a review of the department's run activity.

The community approval of a fire levy that would include daytime staffing also supports this recommendation, and the Trustees planning documents identifying staffing improvements are in the 2004 proposed budget. The real issue is how daytime staffing can be accomplished. This can occur with full-time or part-time personnel or a combination of both. The recommendation provides the best staffing and fire department operation at an acceptable cost.

## BERLIN TOWNSHIP FIRE DEPARTMENT

**RECOMMENDATION:** *T.G. Fire/EMS Systems recommends that Berlin Township's first fire department employee should be a full-time Fire Chief.*

There is no fire department that has been able to have any full-time or part-time personnel and been successful without proper leadership and authority to manage the program. This must be the Fire Chief. This position provides the leadership, authority, and a level of accountability for the department, Board of Trustees, and the community. The township should have a full-time fire professional in charge of the department, accountable to, and working for the Trustees and interfacing with the community on a daily basis.

Although Berlin Township presently has a volunteer Fire Chief, it is recommended that a selection process be implemented to identify the best candidate for the position. This should include a review and update of the position description, required qualifications, determination of salary and benefits package, advertisement notice, Fire Chief Profile, application process and review, background investigation, trustee interview process, hiring and physical testing. Other steps can be included, but a clearly defined process should be utilized.

If the present volunteer Fire Chief is interested in the position, he and other members of the department can submit an application to demonstrate their interest, if they meet the required qualifications. Because the present Fire Chief is a full-time fire department employee at another good fire department, it is unlikely he would want to be a candidate for the new position. If he does not, a position in the command staff should be provided to him for his effort and service to the township. He can be of great assistance to a new Fire Chief and because of the small number of volunteers available; you do not want to lose a highly trained and experienced firefighter.

Additional staffing could be full-time or part-time. There are positive and negatives for each employment classification. All new employees, whether full-time or part-time will require physicals, uniforms, personal protective gear (helmet, hood, turnout gear, gloves, boots, etc.)

**Full-time Employees** – Salary and benefit costs will be higher. They are easier to schedule, it is their full-time job, but they will have sick leave and vacation time that will have to be covered. The emergency activity is limited, but there are many planning, training, and public education activities to be accomplished. A full-time workforce is usually more stable, but because of limited emergency opportunities and growth potential, it may be used as a stop before going to another department. (See Appendix C)

**Part-time Employees** – Overall cost is less than that of full-time personnel, so you can cover more time at the same price or have increased staffing. Because they have other jobs, scheduling is more difficult and covering of shifts for absences occurs more frequently. Part-time turnover is higher; the department that pays the highest gets the best employees. This requires a good training program for part-time employees. Limited emergency activity could be a plus or minus with this group.

## BERLIN TOWNSHIP FIRE DEPARTMENT

Regardless of the classification of full-time or part-time, the daytime staffing should respond to fire emergencies and 1<sup>st</sup> Responders for EMS incidents. Daily duties would include conducting customer service and public education programs, fire inspections, identifying water sources, hose testing, apparatus checks and repairs, minor station maintenance and inventory. A new Fire Chief will build upon these activities for daytime staffing personnel.

***RECOMMENDATION:** Hire part-time employees for daytime staffing to provide the most coverage at the least cost. A minimum of two (2) personnel should be 'on duty' with the Fire Chief. After daytime staffing is in place, you can review the staffing to determine if additions or changes are required. The Fire Chief can make the recommendations.*

*It is much easier to go from part-time to full-time than full-to part-time when the need arises. It should be noted that present volunteers who may be available to work daytime staffing as fill-in or additional staffing should receive the same compensation rate for their time worked.*

## **FACILITIES**

The Berlin Township Fire Department currently has one fire station located at 3271 Cheshire Road. The department provides fire services only, to a resident population of approximately 3,500 people within a service area of 25 square miles. Delaware County provides EMS services throughout the county.

The general location of the fire station is good for the run volume currently being experienced. However, there is insufficient room at the present location to support any type of expansion or growth such as drive through bays, quarters for 24-hour staffing facilities; proper kitchen and other support areas within the present facility.

### STATION 390

This facility was constructed in 1972 on Cheshire Road, and houses all township offices (Board of Trustee Meeting Room, Trustee Offices, Clerks Office, Zoning Office(s), and Road Department). The portion of the facility identified for fire department use consists of 2½ apparatus bays (approximately 40'x40'). The dayroom, Radio Room, restroom, and Fire Chief's office were the result of an addition to the rear of the apparatus bay area in the 1992-93 timeframe. The design is pole-type construction with vinyl siding and pitched roof. There was no visible evidence of major structural problems.

## BERLIN TOWNSHIP FIRE DEPARTMENT

The apparatus bay area is accessed by two overhead doors, one approx 14' x 16', and the other approx 16'x16'. There is no exhaust system to extract diesel fumes, but there are ceiling fans to circulate the air in the bay area.

The bay area was well maintained for a facility nearly 30 years old. Floor drains (not trough type) are present, and automatic bay door operators are conveniently located. Although minor cracks were observed in the bay floor, they have been patched and sealed.

The facility is heated with natural gas (blowers/heaters are in the bay area) and both the dayroom and Chief's office are air-conditioned (as is most of the office areas used for other purposes). The facility does not have a sprinkler system. There are no kitchen facilities, although a small break area with refrigerator and microwave is located at one end of the dayroom. There are no sleeping facilities (bunkrooms), and space for equipment storage is at a premium. The department has done a very good job of utilizing available space.

The egress from the bay area consists of a well-maintained ramp and drive area that affords a good sight line in both directions of Cheshire Road, although the turning radius from the drive onto Cheshire is at a minimum for long wheel-based fire apparatus.

The facility is serviced by a Detroit diesel (Spectrum 125) 125 KWh automatic switch generator that is "no load" tested on a weekly basis for operability, and on a yearly basis for "full load" capacity. Maintenance Inspection records were not reviewed on our visit. The fire department does not maintain an air compressor or cascade system for refilling air packs. Minimal contagious / haz-mat decontamination is afforded and consists of shower stall for personnel and a washer and dryer for uniforms, which does not prevent cross-contamination possibilities. Facilities for decontamination separate from the other normal equipment are not available.

Restroom facilities were available for both male and female personnel in the Township administrative office side, however; only one shower is available in the fire department unisex restroom.

*RECOMMENDATION: Establish a process to begin development of plans for a new fire station. This should include a professional examination of the present facility to determine feasibility and cost to upgrade and renovate. Both actions should consider co-locating the fire department and Delaware County EMS together to provide an EMS response method that meets national standards.*

NOTE: An on-site review of the facility indicated that this is a multi-use/function building shared with other township departments. Housed within this structure are the Fire Department (operational and administrative functions), Township Clerk, Zoning Department, Township Hall/Meeting Room, Trustee Offices and Road Department (operations and administrative)

## APPARATUS GENERAL DESCRIPTION

## BERLIN TOWNSHIP FIRE DEPARTMENT

### FIRE ENGINE / PUMPER

The fire engine or pumper is the basic fire fighting apparatus used in the fire service today. The responsibility of the crew responding on this apparatus is to secure a water source, stretch hose lines, and to apply water streams to the seat of the fire. This can be accomplished by using either hand-lines or large master stream appliances. The accepted standard used to specify automotive fire apparatus is the National Fire Protection Association (NFPA) 1901. The Insurance Services Office (ISO) also uses very specific standards to qualify fire apparatus and ancillary equipment carried on the vehicle. The life span of this apparatus is 10 – 15 years (for front line / 1<sup>st</sup> due response) and 5 – 10 years (for reserve response) depending, on activity levels.

### LADDER / AERIAL TRUCK

The ladder or aerial truck is essentially a tool and personnel carrier that has the capability of providing elevated fire and rescue operations. The equipment carried provides capability for forcible entry, ventilation, salvage, and rescue. The aerial device normally provides a height range, or reach, from 65 to 140 ft. The apparatus may or may not have a pump and water. Personnel responding, as a crew on the ladder / aerial truck are responsible for life rescue, ladder work, ventilation, salvage and overhaul. Aerial apparatus standards are specified in NFPA 1904 and are part of the ISO grading schedule. The life span of this apparatus is 20 - 30 years, depending on activity levels.

### MEDIC UNIT / SQUAD

The medic and/or squad units are used to transport highly skilled emergency medical personnel and equipment to the scene of medical emergencies. This apparatus carries various equipment to render medical care to ill and/or injured persons. Most units have the ability to transport the patient to a health care facility and to provide treatment while transporting. The life span of this apparatus is 4 - 8 years depending, on activity levels. The difference between Medic and Squad are the level of training for the personnel and the addition of Advanced Life Support equipment and drugs.

### RESCUE UNIT

The rescue is essentially a tool and personnel carrier that has the capability of providing support to both fire and rescue operations. It has a wide range of rescue tools for auto accidents, entrapments, collapses, and fire fighting activities. In some departments without an aerial ladder, the rescue is used to provide many of the required tactical support activities such as forcible entry, ventilation, salvage, rescue, loss control, and overhaul. The rescue is part of the ISO grading schedule. The life span of this apparatus is 8 – 15 years, depending on activity levels.

## **APPARATUS GENERAL OVERVIEW**

The apparatus fleet of the Berlin Township Fire Department appears to be of the appropriate size for the expected levels of activity and types of service that the department provides. The apparatus are outfitted with the appropriate complement of equipment to comply with recognized industry standards. The condition of the apparatus is determined by the operability of the pump, engine,

## BERLIN TOWNSHIP FIRE DEPARTMENT

mechanical serviceability; apparatus body condition, safety features, crew safety, and overall operational worthiness.

It is noted that the fire department provides “first responder” or EMT-B service on emergency medical calls. Delaware County EMS provides treatment and transportation (if needed) to the appropriate medical facility. Therefore, the fire department does not maintain a dedicated EMS vehicle that is capable of providing patient transportation. It utilizes Grass 391 as its 1<sup>st</sup> Responder (EMT-B) vehicle.

*RECOMMENDATION: A complete safety inspection should be conducted on Engine 391 to ensure the vehicle’s suitability for emergency response. A mechanic certified in emergency fire apparatus maintenance should accomplish this. In addition, it is recommended that planning incorporate the replacement of this apparatus as an organizational priority.*

*RECOMMENDATION: Institute a Preventive Maintenance SOG that establishes regular intervals for vehicle and equipment maintenance. This will aid in minimizing unplanned breakdowns for vehicles and equipment. The expected benefit will be to minimize downtime and help extend the vehicles useful service life.*

*RECOMMENDATION: Establish an SOG for maintenance and service testing of ground ladders in compliance with NFPA 1932. Regular testing should be conducted at least annually. Institution of a record keeping system should be established to maintain permanent record of tests and maintenance performed on the ground ladders.*

*RECOMMENDATION: Verify the age of the rescue air bags carried on Engine 391. No records were presented for the manufactured date of the bags. Department members did not know the age of the bags, although they believed them to be “fairly old.” The manufacturer should be contacted, and asked to confirm the age of the air bags (using the serial number), and verify that they are still within the recommended service life. Failure of air bags while under load can occur rapidly and with tragic results.*

### **ENGINE 391\***

1976 Sutphen      1000 gpm pump / 750 gallons of water

## BERLIN TOWNSHIP FIRE DEPARTMENT

38,411 miles / 1,866 engine hours

Condition: Poor

Deployment: Engine / Rescue combination

1<sup>st</sup> Due on motor vehicle accidents and rescue runs

2<sup>nd</sup> Due engine on fire responses

\*Department members expressed concern relating to safe operation of this vehicle. It was reported that it often has to be “revved up” in order to get the steering system to function properly.

### **ENGINE 392**

1995 E-One Custom Pumper 1500 gpm pump / 2500 gallons of water

12,079 miles / 972 engine hours / 113 pump hours

Condition: Good

Deployment: Engine / Tanker combination

1<sup>st</sup> Due Engine on structure fires

### **GRASS 391**

2003 Ford F-350 250 gpm pump / 150 gallons of water

2,149 miles

Condition: New

Deployment: 1<sup>st</sup> Due on EMS responses and grass fires

### **BOAT 391**

1995 12 Ft. Zodiac Inflatable boat with trailer

Mercury 25 hp outboard motor (approx. 2001 purchase date)

Condition: Good

Deployment: Water rescue responses

### APPARATUS: EQUIPMENT INVENTORY

**NOTE:** An on-site review of the inventory of general equipment and ancillary equipment carried on each apparatus was accomplished, and inventory records reviewed. It appears that the apparatus is well equipped with a compliment of standard equipment such as hose of various sizes/lengths, nozzles, ladders, and hand tools typically found on this type of apparatus.

Overall, the fleet appeared to be in good condition, clean, and well maintained. Inventory lists for each vehicle are maintained. A physical check revealed a few minor inconsistencies with the inventory, but otherwise the records appeared accurate and current. These inconsistencies dealt with location and number of coupling and fittings, and commonly occur in most fire department inventories.

The department uses the “FIREHOUSE” software program to maintain testing and repair records for apparatus. This system was satisfactorily demonstrated during the inspection visit conducted on August 23, 2003. Records were easily retrieved upon request.

## BERLIN TOWNSHIP FIRE DEPARTMENT

Equipment inspections are conducted on a weekly basis (Sundays 08:30 – 12:30). Vehicle check sheets were provided, as well as a Vehicle Repair Request Form, and a Missing / Damaged Equipment Form.

Maintenance items are coordinated and tracked by a designated Lieutenant reporting to the Fire Chief. This system appears to provide adequate tracking and accountability for maintenance issues within the department. There does not appear to be an established preventive maintenance SOG.

Records show that yearly pump tests and required maintenance are conducted by Triad Fire equipment. These records appeared to be current and in good order.

It appears that the department has not conducted regular testing of ground ladders in accordance with NFPA Standards. It is believed that testing has only been conducted sporadically, for example, when visible damage was noted subsequent to fire scene usage.

### AERIAL AND GROUND LADDER TESTING AND CERTIFICATION TEST

The department does not operate an Aerial apparatus. The department provided certification / test records that indicate the department's ground ladders, were successfully tested to NFPA Standards last year.

### PUMP AND HOSE TEST

The department performs annual pressure test of all fire hose and maintains records. Pump testing is done by Triad Fire Apparatus and those records are maintained.

## **EQUIPMENT AND MAINTENANCE**

### **Records**

The apparatus was inspected on Saturday, August 23, 2003. Firehouse® software program is used to maintain testing and repair records for the apparatus. Equipment inspections are done on a weekly basis.

## **FIREFIGHTING ENSEMBLE**

### PERSONNEL ACCOUNTABILITY

The department uses a personnel accountability system that includes individual accountability tags (color-coded based on assignment) and an approved system of use. Maintaining this system allows for the knowledge of who is on the emergency scene, what crew they are assigned to, and the location and type of activity being conducted.

### TURNOUT GEAR

#### **Turn Out Gear and Station Wear**

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The firefighting coats and pants (turnout gear) worn by the members of the Berlin Township Fire Department are Morning Pride and Janesville brands. The gear is primarily made of PBI, which is a synthetic fabric, used for its ability to protect the wearer from the harmful effects of heat. This material is considered to offer top of the line protection and durability in structural firefighting gear.

The turnout gear was generally noted to be in good or fair condition, and able to meet current NFPA standards. However, several of the sets should be considered ready for replacement due to age and wear (see manufacturer's recommendations). In addition, members expressed concern that the practice of passing down gear from one member to the next, in some instances has resulted in improperly fitting gear for some firefighters. This would be a safety concern, if indeed verified.

The department has developed a form for turnout gear inspection; however, no records were available documenting regular inspections of member turnout gear. The Fire Chief stated that he does conduct these inspections on an annual basis.

The department does not own a washer and dryer designed to maintain turnout gear. The gear is taken to Orange Township Fire Department when this service is needed.

### BOOTS

The department provides protective firefighting footwear. The boots were primarily manufactured by Servus®. The boots appear properly maintained and meet current NFPA Standards

### GLOVES & HOOD

All members are provided gloves and hoods for firefighting. Several brands of gloves were noted, including American Fire Wear®, and Fire Fighter®. The protective hoods were made of Nomex®. The gloves and hoods meet current NFPA Standards.

### HELMET

All department members are issued CAIRN'S 1010® helmets, which meet current NFPA Standards. The helmets appeared well maintained.

*RECOMMENDATION: The department should develop policies on the inspection and care of firefighter gear as defined in NFPA 1851 Care & Maintenance of Structural Firefighting Protective Ensembles. These policies should address regular gear inspections, procedures for requesting and making repairs, and should outline the procedures involved in regular cleaning. It is critical that the department maintain record of these inspections and track repairs made to gear. However, it is important to note that no records were available showing regular gear inspections.*

*RECOMMENDATION: It is understood that the department plans to replace all turnout gear in a program to be accomplished over the next two years. Our findings support the implementation of this initiative.*

## BERLIN TOWNSHIP FIRE DEPARTMENT

*RECOMMENDATION: The department should consider adoption of standard station wear or fire department uniform. A sharp, clean, professional appearance is good for both morale and the public's perception of the department. This is especially true on EMS calls and public appearances. The adoption of a department uniform could also help create a unity among department members.*

### SELF-CONTAINED BREATHING APPARATUS

The department maintains 11 Self-Contained Breathing Apparatus (SCBA). All are high-pressure (4,500 psi), belt mounted regulator units, with integrated PASS alarms. They are manufactured by Mine Safety Appliance (MSA), and meet the NFPA 1997 Standard. Only the masks assigned to officers are equipped with speaking diaphragms.

The units appear well maintained and undergo yearly bench testing, and service by a certified testing and repair agency. Appropriate records were produced to verify this. Additionally, the Fire Chief is certified in SCBA repair and conducts minor repairs "in house."

Members are not assigned individual masks. Shared masks are carried on each apparatus. No records were produced documenting annual "fit testing" for the masks. Members also do not recall fit tests being conducted.

The department does not own a compressor and cascade system to fill SCBA bottles. Empty bottles are taken to either Orange or Liberty Township Fire Departments to be filled.

*RECOMMENDATION: All policies should address the SCBA requirements as defined in OSHA 29 CFR 1910.134 ("two-in/two-out" regulation), and NFPA 1404 Fire Department Self-Contained Breathing Apparatus Program.*

*RECOMMENDATION: Each person expected to wear a SCBA mask should receive an annual fit test. Properly trained fire department personnel can accomplish this inexpensive qualitative test at the stations. Records of fit test should be maintained.*

*RECOMMENDATION: This study supports the departments plan to replace current SCBA over the next several years. This should incorporate an upgrade to mask mounted regulators (MMR's) and possibly the assignment of individual face-pieces.*

*RECOMMENDATION: Additionally, voice amplifiers are recommended to be included in the purchase of all new masks. They significantly improve the user's ability to communicate in fire ground conditions, and thus increase firefighter safety and the efficiency of fire ground operations.*

### PERSONNEL INFORMATION

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After a discussion with the Fire Chief, it was indicated that the department is moving towards entering all data and records into the computer system. A sample of computerized personnel information was provided. Some of the information included on the personnel form are things such as name and address, date of birth, staff number, hire date, rank, driver's license information, and status. The print out provided was well organized and easy to read. No indication was given as to when the records were last updated, but they appeared to be current. Hard copies of all records are maintained in a file cabinet in the chief's office. The Township Clerk maintains personnel employment records related to payroll, insurance, and training certifications. Medical information is confidential and access is restricted only to others as permitted by law. This information includes medical physicals, injury information and treatment, Employee Assistance Program consultations as well as drug testing.

*RECOMMENDATION: Personnel records need to be regularly updated and copies placed in the employees file.*

*RECOMMENDATION: Hard copies should be locked in a secure location.*

*RECOMMENDATION: A security system needs to be in place to protect personal information (data) located in the computerized personnel files.*

## **RULES AND REGULATIONS**

In general, the Rules and Regulations of a fire department are promulgated to instill discipline, to promote harmony, and to assure efficiency within the organization. Their function is to provide the citizenry with a sense of security and effective delivery of Fire and EMS services.

Since it is not possible to anticipate every situation that may arise, or to prescribe the specific action required for each case, the items covered usually consist of the most common elements of daily operation. Consequently, the exercise of good judgment and the application of sound common sense by those entrusted with enforcement of their provisions must be relied upon to make implementation fair and equitable.

Rules and Regulations address general conduct expectations as well as station rules and define the expectations of the firefighting staff. In the Employee Manual, some rules and regulations were found mixed in with policies and procedures.

A manual was provided for review, as well as a new manual that is currently being put together. Once it has completed and approved by the Trustees it will be copied and dispersed to all members of the department. Currently the only manual is kept in the chief's office and normally reviewed in the winter months as a training topic to refresh members of the contents. (See Appendix D)

## BERLIN TOWNSHIP FIRE DEPARTMENT

*RECOMMENDATION: If Rules and Regulations are in the same manual as Standard Operating Guides, they should be separated and clearly labeled for personnel knowledge and reading.*

It was indicated that once the new manual is completed copies would be distributed to each member of the department.

*RECOMMENDATION: A high priority should be placed on the completion of the new Employee Manual.*

*RECOMMENDATION: All members need to be provided a copy of the new manual.*

*RECOMMENDATION: Personnel must be accountable for their actions and comply with the Rules and Regulations.*

### **POLICIES AND PROCEDURES**

The policies and procedures used by a fire department to assure readiness for an emergency and/or to provide safe and effective operation at incidents are usually found in a Standard Operating Guidelines (SOG) Manual. These guidelines provide a policy statement, an accountability definition, a fundamental objective, and a procedural outline for a given subject matter. While subjects to be covered by the SOG Manual are common to all fire departments, each department must create its own manual to deal with the unique character and history of the organization. It would be ludicrous to adopt the SOG's of the New York Fire Department, or the Columbus Fire Department. Berlin Township does not have the subways or waterfront of New York, or the High Rise structure concentration of Columbus. Berlin Township also lacks the staffing and response capability of those departments. Consequently, it must look at its potential problems and construct guidelines that reflect its fire department's ability to deal with them.

The Standard Operating Guidelines are in a continual up-dating mode. As changes occur in the department SOG's, need to be modified. All personnel must be trained on the SOG's to ensure compliance.

Current up-to-date SOG's are vital to an organization to inform the membership what is expected of them how they will be dealt with when Rules or SOG's are not followed and how to accomplish the department's goals and objectives.

The manual contains a mission statement, job descriptions, and SOG's (Standard Operating Guidelines). SOG's in the current manual were few in number but by reviewing the proposed manual many additions were present. A Disciplinary Policy was present and clearly defined as well as a Last Chance Agreement Form.

Some of the SOG's (standard operating guidelines) in the current manual include:

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- a) Equipment Driving
- b) Equipment Backing
- c) Equipment Manning
- d) Incident Command
- e) Training
- f) Emergency Evacuation
- g) Protective Clothing
- h) Rapid Intervention Crew
- i) Alarms
- j) Infectious Disease Control

Some of the SOG's (standard operating guidelines) included in the new manual are:

- 1) Sexual Harassment
- 2) Hazardous Material Incidents
- 3) Apparatus and Vehicle Driving
- 4) Natural Gas and LPG Emergencies
- 5) Water/Ice Rescue
- 6) Vehicle Fires and Extrication
- 7) Dumpster Fires
- 8) Co Responses
- 9) Incident Rehab
- 10) Uniforms
- 11) Training
- 12) Mass Casualty

### **HIRING**

The Fire Chief provided a copy of an ad that is used to advertise for new volunteer firefighters. It explained all the qualifications required as well as the process utilized to hire a firefighter. When an application is received, the Fire Chief and Board of Trustees interview the applicant. Background checks are completed and after successful completion of a physical and drug test, the Board of Trustees hires the applicant. A valid Ohio Drivers License and High School diploma, or equivalent, are required. Fire and EMS training is provided by the department.

***RECOMMENDATION:** Establish a written policy for hiring including probationary period and method and reasons for removal. Include the policy in the new Employee Manual. The promotional policy needs to be clearly written and defined.*

The department must take advantage of any opportunities to inform the residents of the Township about the need for additional members. Some of these opportunities could be created with a fire department open house. At that event, residents are enticed to the fire station with customer service

## BERLIN TOWNSHIP FIRE DEPARTMENT

programs such as a presentation on fire safety in the home, blood pressure checks, and free smoke detectors.

***RECOMMENDATION:** Visit businesses in the jurisdiction in an attempt to reach any local residents that may work there as well as the possibility of a program where workers trained in fire and EMS could be allowed to leave work to assist with large emergencies.*

*This program could be promoted by the Township and business as a public relations tool for the business. Talks to civic groups and other organizations will provide an opportunity to help get the word out.*

***RECOMMENDATION:** Once people are recruited, the department needs to continue to pique the interest of the new recruits through in house training as well as networking by conducting joint training exercises with other departments or outside sources. As was recommended, a retention / award program should be developed to maintain volunteer staffing members.*

***RECOMMENDATION:** The department itself may need to expand its services to be able to provide the necessary interest to retain personnel. Adding services, such as higher or advanced levels of EMS, to the department's duties, could accomplish this. Even with Delaware County EMS transporting patients, a higher level of EMS can be provided by the fire department.*

It could also mean that the area has reached the period where interest of people to volunteer has ended. Today people are busy and just do not have the time. It should not be considered a failure when volunteers cannot be recruited. It is due to people being busy and the attitude that someone else will do it, which continues the problem. Even though the number of members on today's roster is few, it is quite apparent that the current membership is a very dedicated group of firefighters. Nevertheless, people still expect the fire department services.

As many departments have done and after all ideas of recruiting are exhausted it may be time to change the staffing structure of the department and think about part-time, full-time or a combination to assist the volunteers.

After all ideas of recruiting are exhausted, it may be time to change the staffing structure (as many departments have done) and think about part-time, full-time, or a combination thereof, assist the volunteers.

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### PROMOTION PROCEDURES

The promotional process appears to be a simple process. Once a notice is posted by the Fire Chief of an officer's vacancy, interested firefighters submit a letter of intent along with a resume to the Fire Chief. The qualifications for the position of Lieutenant are included in the posted notice. They include: a) State Board of Education certification of satisfactory completion of the 36 hour firefighter training program, b) certification of successful completion of the Hazardous Materials Operations class, c) have experience and be knowledgeable of the up-to-date methods in fire suppression, rescue, haz-mat, incident command and emergency medical services, d) be a current member of the Berlin Township Fire department. The Fire Chief recommends his choice to the Board of Trustees and the Board promotes the individual.

*RECOMMENDATION: The promotional policy needs to be clearly written and defined.*

*RECOMMENDATION: The policy needs to be included in the new Employee Manual.*

*Minimum requirements for each rank needs to be consistent with the levels found in NFPA 1021 (Officers Standards)*

*RECOMMENDATION: Officer Candidates should be evaluated by means of an assessment center to test their skills and abilities for the position before being promoted.*

*RECOMMENDATION: Officers need to be provided leadership and management training as well as current fire suppression techniques.*

### ORGANIZATIONAL STRUCTURE

The organizational structure for the department is a pyramid structure typical of most departments this size. It consists of one Fire Chief and three Lieutenants. Each Lieutenant has a specific duty or responsibility such as vehicle maintenance issues, building maintenance issues and EMS issues. This simple form of organizational structure leaves no doubt as to who is in charge of an incident or emergency scene.

This type organization permits the ready exercise of authority at all levels of the organization and maximizes effectiveness in the accomplishment of the work. The structure of

the organization determines the role of each officer. The officer is an integral part of the chain of command, and as such transmits authority to the next lower level of the organization. Members are to

## BERLIN TOWNSHIP FIRE DEPARTMENT

use the chain of command upward, downward and laterally in conducting routine department business and during emergencies.

This traditional approach requires several considerations to make the process work correctly. First, officers are selected and promoted based on objective criteria that allow the candidate to demonstrate the necessary skills and abilities of the position. The process should assure that the best-qualified candidate, as determined by objective testing, is promoted through a process approved and supported by the Board of Trustees.

Secondly, the officers must receive proper training in their areas of responsibilities. This should not only include emergencies, but also leadership skills, motivating employees, evaluations, discipline, team building, and program management and supervision.

Lastly, the span of control, which is the number of people an officer is to supervise, has to be of recognized standards. The command structure should provide a 1 to 5-person span of control. A sufficient number of officers must be available to manage the emergency scene or fire station environment.

***RECOMMENDATION:** Officers need to be assigned management duties. These positions should have defined roles, and be accountable for their assigned responsibilities.*

***RECOMMENDATION:** Develop an officers training program to meet the needs of today's fire service.*

***RECOMMENDATION:** Due to the size of the department, it appears the number of officers is adequate. The duties assigned to each officer seem to be that expected, with the exception of any management duties. An evaluation of each officer's job performance was not conducted. Evaluating a potential officer candidate needs to be part of the promotional process, accomplished through the use of an assessment center to evaluate each candidate's skills and abilities for the position.*

***RECOMMENDATION:** Looking at the run activity over the past few years it appears the volume has been constant from year to year. Since the information provided indicates a small increase in population over the next several years the department may be able to continue evening and nighttime staffing with volunteers. This is providing that recruiting improves, and personnel can be added to the department to handle the possible increase in activity.*

BERLIN TOWNSHIP FIRE DEPARTMENT

*RECOMMENDATION: If the recruiting program fails to produce sufficient numbers of members needed, the township will be forced to look at providing personnel in another manner such as part-time or full time staffing. In many departments where growth or needed manpower forces the governing body to look at staffing with part-time or full-time personnel the first and most important step is to look at a full time Fire Chief to manage and supervise the firefighters. Since full-time personnel are the most costly due to benefit packages, it would be recommended to look at some part-time personnel to assist the volunteer ranks.*

*RECOMMENDATION: it appears a full time Fire Chief, and a few part-time members could handle the run activity over the next few years until population, and activity warrants additional resources.*

Routine duties for part-time or full-time personnel include, maintenance of vehicles and facilities, cleaning of vehicles and facilities, training, building inspections, providing customer service programs to businesses and schools, building tours, hose testing, checking water hydrants and assisting the chief with maintaining up to date records.

**TRAINING**

**Fire Training (general)**

The fire department currently consists of twelve members whose fire certifications are as follows; ten firefighters are trained to the FF II level and two firefighters are trained to the FF I level. All firefighters must obtain a Level I firefighter’s certification within one year after appointment. All certifications are obtained through third party organizations, including the Ohio State Fire Academy, the Delaware County JVS or through other partnerships such as the Delaware County EMA, who provide for hazardous materials training and certifications.

The department will pay for certification courses after successful completion of the course. All attendees are then required to remain active for at least four months after receiving this training. Failure to do so will result in forfeiture of the training funds. It is not documented that this has ever occurred. There are currently no state certified fire instructors on the staff of the Berlin Twp. Fire Department.

*RECOMMENDATION: Train at least one member of the department as a State certified fire instructor in accordance with NFPA 1041.*

Fire training is provided by the department through bi-weekly fire training sessions. The drills are held on the first and third Mondays of the month, beginning at 1900 hours. These training sessions

## BERLIN TOWNSHIP FIRE DEPARTMENT

last for approximately two hours and are usually comprised of discussion and practical evolutions or drills. Department members serve as instructors and topics are usually chosen at random, or in accordance with seasonal, or weather related operations. Training records for these drills consist of sign-in sheets. An in-service training form was provided for further documentation. The records are maintained by the Chief and are available for viewing. Personnel training records are very basic and consist of hanging folders, with copies of personnel certifications loosely deposited.

***RECOMMENDATION:** Develop detailed lesson plans for each training evolution that identify teaching goals and performance objectives. This documentation should be maintained on file so that these training sessions may be duplicated and modified as needed. Included in this documentation, should be attendance sheets that document completion and competence of the participants. (NFPA 1201 and 1041)*

***RECOMMENDATION:** A more formal record keeping system should be developed for personnel training records that can identify certifications and accompanying expiration dates. Personnel files should also be maintained in a way that would eliminate all personnel records from being maintained in a single folder. (NFPA 1201)*

According to the Chief, training with mutual aid departments occurs approximately three times per year. There is no documentation, however, that can be used to verify this training.

***RECOMMENDATION:** Training with mutual aid departments should be conducted at least quarterly and training records of these sessions should be maintained. (NFPA 1201 and 1500)*

Skill competency sheets are being developed for use with newer recruits, however this program does not seem to be active at this time.

***RECOMMENDATION:** Since the department has deemed that these competencies are important, the competency sheets may be used as a source of training and competency verification for all employees. (NFPA 1201 and 1001)*

Critiques of all fires are conducted with the members, however these critiques are informal, and no documentation exists to verify that they occurred.

***RECOMMENDATION:** Develop a formal process by which all fire incidents may be critiqued. Included would be recommendations as to future operations and documentation of all participants as a training session. (NFPA 1500)*

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The fire department is a member of the Delaware County Hazardous Materials Team and is responsible for decontamination support and foam operations. All twelve members have been trained to the thirty-six hour, hazardous materials technician level. This training was sponsored by the Delaware County Emergency Management Agency (EMA) and was conducted on site at Berlin Township.

The recommended training regime as outlined by the ISO and NFPA is contained in the following chart.

Various Training Requirements (Hours Per Month)										
Month	ISO	ISO	ISO	ISO	ISO	ISO	NFPA	NFPA	OSHA	OHIO EMS
	Individual Training	Drive Company Training	Company	Multi-comp any	Night Drill	Radio tion	Office r	Struct ural	Non-Struct ural	Infection Control BB Pat hog ens and TB
1	20	1	2	1	1/4	1	2	3/4		CP R n Con trol BB Pat hog ens and TB
2	20	1	2	1	1/4	1	2	3/4		Res pira tory Prot ecti on (SC BA)
3	20	1	2	1	1/4	1	2	3/4		Con 2 fine Hou d rs SpaCon ce tinui Res ng





# BERLIN TOWNSHIP FIRE DEPARTMENT



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Figure 6

## **EMS Training**

The Berlin Township Fire Department provides EMS support (first responders as necessary) with the use of nine EMT-Basics, 2 EMT-Paramedics and 1 member who is currently certified in cardiopulmonary resuscitation (CPR).

EMS continuing education and run reviews are conducted by the Delaware County Medical Director, Dr. Ramey. These run reviews are conducted on a quarterly basis and are held at Grady Memorial Hospital, Delaware County. Run reviews are based on the Doctor's choice; however, they include all non-typical runs, including runs utilizing a helicopter. Only Berlin Township Fire Department runs fitting these categories are reviewed.

Members are paid to attend continuing education courses but are not compensated for attending the initial certification courses. All members are required to attain EMT-Basic certification within two years of appointment. These certification courses are provided through third parties such as Delaware County JVS.

## **Training (Other)**

There are four officer positions within the Fire department, one Chief and three Lieutenants. There are no formal supervisory training criteria or certifications required for these positions and no formal supervisory training program exists. Some members of the department have attended incident command training, however not all current members have been instructed as to the incident command system.

Officer meetings are conducted on a monthly to bi-monthly basis; however, attendance does not seem to be consistent, even though minutes of the meetings are maintained. The meetings seem to be more business oriented, however there are occasions where operational and personnel issues are discussed.

**RECOMMENDATION:** *All officers should be required to attend Officer Development courses (I, II, III) as provided through the Ohio or National Fire Academies in accordance with NFPA 1021*

**RECOMMENDATION:** *All officer meetings should be documented and include operational issues as recognized by ISO.*

## **FIRE INSPECTION / PREVENTION / CODE ENFORCEMENT**

Fire inspection and code enforcement is a very important responsibility of the Fire Department. The Fire Chief accomplishes fire inspections as necessary.

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The Chief of the department is the only State Certified Fire Safety Inspector (SCFSI) on staff. The Chief does provide fire safety inspections to approximately ten businesses, one school, and three churches. There is no established frequency of inspections with the exception of the local school, which is inspected yearly. Life Safety inspections and occupancy inspections may also be performed on an as needed, or requested basis.

The department currently enforces the Ohio Fire Code as adopted by the Ohio State Fire Marshal. All enforcement issues are also processed through the State Fire Marshal's Office. Fire Inspection records can be maintained on the Firehouse 5.0 software utilized by the department.

Zoning issues are handled through the Township with a part-time zoning official. Plan reviews are conducted through Delaware County.

New commercial occupancies have no record of fire inspection however; it is assumed that the building department and inspectors insure that new buildings meet current fire code standards. Good fire code application, during early planning, construction and development phases, will later prove to be a major advantage in providing quality, cost effective fire protection in the future. Good annual and bi-annual fire inspection programs of current occupancies in the community help to insure that businesses in the area maintain a high fire safety environment for citizens and consumers. Proper fire inspection programs reduce fire loss and the resulting economic impact from a catastrophic loss in a major fire incident.

### **FIRE INVESTIGATIONS**

There are two members trained as fire investigators within the department. One member, the Chief, is certified through the National Association of Fire Investigators (NAFI) as a fire investigator, in accordance with the National Fire Protection Association (NFPA). Fire investigations are conducted on all large loss fires, those fires not presenting with an immediate cause, and on all other fires deemed suspicious.

These investigations may utilize members of the Delaware County Arson Task Force, other local investigators or the State Fire Marshal's Office. All samples and evidence are processed through the State Fire Marshal's Arson Crime Lab.

The department investigates approximately ten fires per year, including vehicles. All records are maintained and stored at the fire department in a designated file drawer.

***RECOMMENDATION:*** *Establish a formal Fire Safety Inspection Program to inspect and document fire safety violations in all commercial, educational, and public assembly properties. (NFPA 1031)*

### **PUBLIC EDUCATION**

## BERLIN TOWNSHIP FIRE DEPARTMENT

The overall physiology of today's fire service is making a dramatic shift from being a reactionary force to a proactive organization. Today, a well-informed citizenry expects, even demands, that their fire department provide a broad scope of public educational opportunities to prevent fires and provide medical self-help.

The fire department must provide a variety of public education opportunities including fire safety education through the local schools, CPR, and fire extinguisher demonstrations. These programs should be conducted periodically during the year, and be offered to various segments of the community. Records should be maintained of the presentations made and the number of citizens participating.

The scope of programs offered should be sufficiently broad so that the greatest number of citizens can be reached. Diverse groups such as, senior citizens, apartment families, latch key parents/children, physically challenged, baby-sitters, should be included and programs developed to address the specific needs of each business/industrial facility. Full-time or part-time employees can provide this public education program.

### **CUSTOMER SERVICE**

The functions within the fire service have become multi-faceted. No longer, does the fire department respond to fires only; they are now an "all risk" department. Anytime an event or situation occurs that goes beyond the span of control of an individual citizen (resident or customer), the fire department is called upon to render assistance. This includes events such as terrorist attacks, flooding and blizzard conditions to hazardous materials spills, fires, and physical assaults, shootings, and stabbings.

The fire department of today also answers less 'dramatic' calls for assistance. These may involve carbon monoxide detector activation, animal control, help to the elderly in the community, and events resulting in structural damage to buildings.

With the multitude of tasks involved in providing these types of assistance, the bottom line for the local fire service has become focused on "customer service." Many departments across the country have adopted a positive and proactive approach to customer service. In reality, whom else can the citizen call upon for such a wide variety of support, assistance, and service, and in which they have traditionally placed an abundance of trust and confidence?

Each time the fire department responds to a call for service, it provides an opportunity to interact with the public. That interaction must be a positive experience for the citizen. Although the fire department cannot solve every problem, its members must make an honest, good faith attempt, utilizing all available resources, to render assistance to that citizen in a responsible and professional manner.

In most cases, the fire department is only minutes away from any citizen within its service area. This places the department in a unique position. It should be viewed as the principle safety net for the citizens of that community. The fire department's primary focus must be to deliver the best possible service to their customers (citizens).

It is the responsibility of each member of the department, from the Chief to the youngest rookie, to support change and remain flexible to the needs and desires of the community. Long gone are the

## BERLIN TOWNSHIP FIRE DEPARTMENT

days of sitting around waiting for a fire or event to occur. The modern fire department must be actively involved in the community to develop a working relationship, establishing professionalism, quality services, and trust.

Competition for available tax dollars has become fierce within each community and across every state. The ability of the fire department to keep up with technological advances, maintain adequate protection and provide quality, timely service to the citizens of the community in a cost effective and efficient manner, ultimately depends on being able to relate, in a positive and professional manner to those it serves.

### **CUSTOMER SERVICE/PUBLIC EDUCATION**

The Berlin Township Fire Department provides services to approximately 4,645 residents (projection), residing in approximately 25 square miles. There is no formal marketing plan. Individual trustees provide most communications to the citizens through the township newsletter on a random basis. No process is in place, such as surveys or questionnaires that provide an evaluative tool for services provided.

***RECOMMENDATION:** Develop a formal process that identifies customer service concerns and allows for feedback by the residents. Use the Township Newsletter with a questionnaire for concerns or ideas. Follow-up with those residents who use the services of the department. Solicit civic groups or associations within the township for their ideas or questions.*

The department does sponsor special events such as a Halloween party and open house at the fire station. Fire extinguisher demonstrations are provided on these occasions. Other station tours and site visits are provided on a request basis. There are fire safety activities taught at the local school during Fire Prevention Week, and the department does have a “Sparky” character that can make special appearances during these events.

The department provides no formal training program to the public; however, a CPR instruction program is in the early stages of development. The County Health Department does provide for some safety related training such as Baby Sitting Safety, however there are no formal agreements between agencies to provide for these services.

The Chief of the Department is certified to instruct Juvenile Fire Setter programs to those offenders that have been referred by the proper authorities.

### **COMMUNICATION / DISPATCHING**

All emergency service requests are routed to the Delaware County 9-1-1 Center located at the Delaware County Sheriff’s Office. It is staffed on a 24 x 7 basis with a minimum of two personnel.

## BERLIN TOWNSHIP FIRE DEPARTMENT

Thus, the Berlin Township Fire Department is alerted and dispatched through the Delaware County 9-1-1 Center. Incident information is gathered at this Communications Center and the fire call is then dispatched to Berlin Township Fire Department personnel via pager. Personnel respond to the fire station for apparatus.

A variety of communications frequencies are available for primary dispatching and for fire-ground operations. Frequencies are also available for mutual aid communication for larger incidents. Frequencies currently being used are in the 154 MHz range. Portables and mobiles have multi-channel capability and are available in each apparatus.

### **COMPUTERS / OFFICE AUTOMATION**

Office automation is in place to accommodate a variety of reporting and record-keeping requirements and tasks. Most department record keeping is accomplished using a Dell® Dimension stand-alone computer system. It operates under the most recent version of the Microsoft® operating system,

A variety of commercial-off-the-shelf software packages are utilized most notably is the Firehouse® (ver: 5.0) software for fire reporting requirements. This includes reporting of incidents to the Ohio Fire Marshal's office as mandated by Ohio Revised Code. Additionally, this software package is utilized by the department to maintain records pertaining to Personnel, Training, Apparatus Maintenance; Personnel files; and Business/Facility Inspection records. Windows XP, and the Microsoft® Office 2000 Suite of programs are used for a variety of other applications. Excel, for example, is used for tracking Hydrant records related to maintenance. There is a second standalone computer system utilized by the Chief for general administrative purposes. The system is a Gateway® computer running the Windows® 3.1 operating system and the Microsoft® Office 97/98 suite of programs.

***RECOMMENDATION:** Develop a formal process that identifies key personnel and grants restricted access to the software programs pertaining to the user's area of responsibility. The information stored in the computer system should not be restricted solely to one individual, as was indicated on the day of our visit.*

***RECOMMENDATION:** Develop a policy for regular daily or weekly back-up of critical data stored in the computer system. The backup tape/disk, etc should be stored in another location (off site) to prevent total loss of information should the facility be struck by an unforeseen mishap or catastrophic power failure.*

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*RECOMMENDATION: Upgrade or replace the computer in the Chief's office to provide a second source of data input and report generation. Consider a simple network for sharing of data without having to duplicate files.*

BERLIN TOWNSHIP FIRE DEPARTMENT

**APPENDIX A**

2004 BUDGET & 5-YEAR CAPITAL IMPROVEMENT PLAN

BERLIN TOWNSHIP FIRE DEPARTMENT

**APPENDIX B**

DELAWARE COUNTY DEMOGRAPHIC PROJECTIONS

**APPENDIX C**

**FULL-TIME VERSUS PART-TIME**

(Assuming \$10.00 / Hour Wage)

**FULL-TIME PERSONNEL COST**

40 hours X \$10.00

Provide Health Care, Drug, Disability, Vacation & Sick leave

Required to contribute 24.9% of salary to State Police & Fire Retirement Fund.

Costs for retirement and benefits can be 30-40% of salary for full-time positions. This person cannot volunteer when off-duty, overtime pay of 1.5 X wage is required.

Total Cost: \$20,800 + Retirement (\$5,179.20) + Insurance Program (\$7,200.00) = \$33,179.00

Per Full-time employee @ \$10.00/hour and cover 8 hours per day M-F (8am-4pm) total hours 2,040/year.

**PART-TIME PERSONNEL COST**

Township part-time employees permitted to work 1,000 hours per year. If work above that level, township may have to provide health insurance and other benefits.

Part-time coverage from 7am – 5 pm = 10 hours

10 hours X \$10.00/Hr = \$100 X 5 days = \$500.00/week

52 weeks X \$500.00 = \$26,000.00

20% more coverage at 80% of the cost

Total of 2,600 hours

This would require 2.6 part-time employees

**APPENDIX D**

**RULES & REGULATIONS**

(Generally Included)

Mission Statement

Position Description(s)

General Code of Conduct

Department Personnel Procedures

General Policies

Disciplinary Procedures

Rules & Regulations Governing Fire Station Personnel

Records & Reports

Employment

Sexual Harassment

Training

Purchasing Procedures

Grievance Procedure

Alcohol & Drug Abuse

**POLICIES & PROCEDURES**

These guidelines provide a policy statement, an accountability definition, a fundamental objective, and a procedural outline for an emergency subject matter.

**APPENDIX E**

**ACRONYMS**

ACLS	Advanced Cardiac Life Support
AED	Automatic External Defibrillator
AHA	American Heart Association
ALS	Advanced Life Support
BLS	Basic Life Support
CPR	Cardiopulmonary Resuscitation
DCRPC	Delaware County Regional Planning Commission
EMA	Emergency Management Agency
EMS	Emergency Medical System
EMT	Emergency Medical Technician
EMT-B	Emergency Medical Technician-Basic
EMT-I	Emergency Medical Technician-Intermediate
EMT-P	Emergency Medical Technician-Paramedic
GPM	Gallons per Minute
HazMat	Hazardous Materials
ISO	Insurance Services Office
NAFI	National Association of Fire Investigators
NFPA	National Fire Protection Association
NIFRS	National Fire Incident Reporting System
ODoT	Ohio Department of Transportation
OFIRS	Ohio Fire Incident Report System
OSHA	Occupational Safety & Health Act
SCBA	Self Contained Breathing Apparatus
SCFSI	State Certified Fire Safety Inspector
SOG	Standard Operating Guideline
SOP	Standard Operating Procedure