Developing a Damage Assessment Process for the Perkins Township Fire Department

EXECUTIVE ANALYSIS OF FIRE SERVICE OPERATIONS IN EMERGENCY MANAGEMENT

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Certification Statement

I hereby certify that this paper constitutes my own product, that where the language of others is set forth, quotation marks so indicate, and that appropriate credit is given where I have used the language, ideas, expressions, or writings of another

Signed: __________________________________________

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Abstract

The problem is that the Perkins Township Fire Department has no damage assessment plan to deal with natural or manmade disasters. The purpose of this action research paper was to design such a rapid damage assessment plan. Research questions were: 1) What types of disasters may occur in Perkins Twp.? 2) What is meant by rapid damage assessment? 3) What are the essential elements of a rapid damage assessment plan? 4) Are damage assessment plans being used by other fire departments and private organizations, and if so what are they? Procedures included a literature review, personal interviews, and questionnaire. Results indicated a damage assessment plan would be beneficial and the PTFD should adopt the plan produced by this project.
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**Introduction**

The Perkins Township Fire Department (PTFD) is a combination fire department composed of 25 career and 29 part time firefighters, protecting the rapidly growing community of Perkins Township. Like most departments in the nation, this department is being faced with increasing call volumes; both fire and Emergency Medical Services (EMS), an aging population, decreasing sources of revenue, and increasing costs.

The problem is that the PTFD has no established damage assessment plan to deal with large scale natural or manmade disaster. With limited staffing and equipment, the department, in the time of a major disaster, will not be able to rapidly and efficiently do a damage assessment to insure that the proper resources are requested and deployed as soon as possible. At the present time, the department’s lack of a damage assessment plan would cause a delay in the efficient handling of the emergency. This inefficiency will cause an increased strain on the system which will decrease available resources, increase costs and result in fewer successful outcomes.

The purpose of this research paper is to develop a procedure for the rapid assessment and reporting of damage in large scale natural or manmade disasters in Perkins Township and neighboring communities. The goal of this plan is to allow for the PTFD to rapidly and efficiently assess and report the damage caused by such disasters, allowing for the rapid request of needed resources from other local, State, and Federal agencies handle the department’s needs.

This applied research paper will use action research methodology to design a rapid damage assessment plan for the Perkins Twp. Fire Department. The paper was written after an extensive internet and library reference search of fire and public sector damage assessment plans, State and Federal assistance requirements, a questionnaire of fire departments across the nation, and personal interviews of local EMA and government officials. The intent of this paper is to
development a rapid damage assessment plan, tailored for the needs of the PTFD. The following four questions will be addressed in this paper:

1. What types of disasters are most likely to occur in Perkins Township?
2. What is meant by the term rapid damage assessment?
3. What are the needed elements of a rapid damage assessment plan?
4. Are rapid damage assessment plans being used by fire departments and private organizations across the nation, and if so what are they?

Background and Significance

The PTFD provides the primary fire and EMS service to a suburban area covering roughly 30 square miles. The department maintains two staffed stations with three Advanced Life Support (ALS) transport squads. “The service area is composed of about 40% residential, 40% tourism and mercantile, 15% agricultural, and 5% Federal and State owned properties.” (J. Lamb, personal communication, April 25, 2006). The year round population is approximately 13,500 with a daily increase, from May through October, of between 20 and 50 thousand tourists. This increase is because of the local amusement park, Cedar Point, and the opening of several year round indoor water parks that are now located in the area.

Included in the residential make-up of the community is a large state facility, the Ohio Veterans Home (OVH), a residential institution for retired or ill veterans of the military. This facility is composed of three separate areas; 220 independent living units, 60 assisted living units and 240 nursing units. Parkvue Retirement Center, located in Perkins Twp., is a three phase senior complex composed of 90 independent living units, 40 assisted living units, and 100 nursing home beds. Concord Care facility with 50 nursing beds is also located in the township. As the budget totals remain stagnant, the township continues to experience a huge growth spurt,
with multiple new retail centers, two hotel/indoor water park complexes, three other new hotels, and multiple new residential dwellings. “In the last three years the township has issued permits for over 100 single family dwellings, 30 apartment buildings, totaling over 250 units, and more then 40 commercial buildings” (Perkins Twp. Zoning, 2007).

Within the boundaries of Perkins Township, a 6400 acre federal NASA research facility is also located. This research facility, a GM bearing plant, Seal Master an asphalt sealing plant and numerous small manufacturing plants comprise the manufacturing base for the township. Also located in the township are several large mercantile areas to serve the residents and tourists that are visiting the area, as well as multiple hotel and motel complexes.

Perkins Township, like any Midwest community is prone to a wide variety of severe weather conditions. As outlined in the *Erie County Emergency Management Plan* (Walker, 2005), past weather events and current long range forecasts indicate that this area must be prepared to handle severe thunderstorms, flooding, tornadoes, blizzards, high winds, chemical releases, radiological emergencies, fires involving highly populated structures, and acts of terrorism. The department has responded to some of these incidents in the past, with average success. However due to the limited resources and lack of preplanning and Standard Operating Guidelines (SOG), the department resources were quickly overwhelmed, causing a degree of inefficiency delaying the request for, and deployment of, outside resources.

The importance of this project to the PTFD is to create a tailored damage assessment plan for the department that will assist the department in being proactive in the rapid response and mitigation of large scale disasters that they are faced with. This rapid assessment will allow the department to quickly gather the needed information necessary to request local, state and federal resources in a timely manner.
This Applied Research Project (ARP) relates to the “Damage Assessment” unit in the National Fire Academy’s (NFA) *Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM)* course (National Fire Academy, 2006, SM 6-3 – SM 6-10). This project is also directly related to the fourth United States Fire Service operational objective, “to promote within communities a comprehensive, multihazard risk reduction plan led by the fire service organization” (National Fire Academy, 2003, II-2). A damage assessment plan for the PTFD will allow the department to handle small and large scale events consistent with established local, state, and federal hazard mitigation plans. This plan will minimize the short and long term complications caused by natural and manmade disasters.

**Literature Review**

The purpose of this literature review is to assist in the development of an efficient and effective rapid damage assessment plan for the PTFD. An extensive internet and library reference search was done, including information gathered at the Learning Research Center (LRC) located at the National Fire Academy (NFA), magazines articles, journal articles, Executive Fire Officer Applied Research Projects, personal interviews and a questionnaire. The literature review will be used to answer the four questions posed by the author for this research project, and used to develop a rapid damage assessment plan for the PTFD.

The types of disasters that could occur in the vicinity of Perkins Township are numerous, ranging from natural disasters to acts of terrorism. The most common disaster that the PTFD has been faced with in the past is weather related events. Severe weather events that have affected the area in the last fifty years have included severe thunderstorms, high winds, tornadoes, and ice and snow storms including blizzards (Erie County EMA, 2005). Manmade disasters, including major fires, have stricken the area several times in recent years. They have included fires
involve major agricultural complexes, and a fire at the local GM plant. Acts of terrorism have not yet been experienced by this community. However, using the community risk assessment and hazard identification tool listed in the Executive Analysis of Fire Service Operations in Emergency Management course material, this is a real threat for this area, and must be planned for (National Fire Academy, 2006, SM4-3 – SM4-10). In 2003, the Erie County EMA director and the local law enforcement agencies completed a risk analysis of all of the potential terrorist targets in the area. This plan not only identified the targets, but also evaluated life safety hazards, property impact, and the probability of an act on each target (Walker, 2003).

Since 1950, thirteen tornadoes have struck Erie County in North Central Ohio. The last tornado to actually touch down in this jurisdiction was in 1992, and caused over $2.5 Million in damage (National Climate, 2006). Being located in the Midwest, this area is prone to severe thunderstorms and damaging winds. Since 1950 there have 172 recorded severe thunderstorm and high wind events in Erie County, with five recorded deaths, twenty-six injuries and damage totaling over $40.528 million (National Climate, 2006). The National Severe Storms Laboratory defines a severe thunderstorm as having either produced a tornado, having wind gusts of at least 58 mph, or producing hail three-fourths inch or larger (National Severe, 2007). The last tornado that struck Perkins Township occurred on the afternoon of July 12, 1992. This funnel did extensive damage to multiple homes and struck a heavily occupied Holiday Inn. The hotel sustained heavy structural damage; however there were only a few minor injuries, total loss due to the tornado was near $10 million (Turnbell, 1992).

There have been 59 recorded floods in Erie County between 1950 and 2007 with no deaths or injuries recorded in this part of the state. However, these floods were responsible for over $32 million in damage (National Climate, 2006). The majority of this damage was limited
to residential areas in low lying areas along the Huron River and the streams and creeks that feed it. The last recorded major flood in Perkins Township occurred on June 22, 2006 and caused the evacuation and heavy damage of two residential sub-divisions in the community (LaCross, 2006). This heavy flooding caused by over five inches of rain in an eight hour period heavily damaged several homes, and left many others with standing water in their basements and ground floors. The residents were not permitted back into their homes for several days to begin the cleanup and rebuilding process (Payerchin, 2006).

Winter weather storms with ice, heavy snow, drifting snow and blizzard conditions are experienced by this area of the state on a yearly basis. There have been 22 major ice and snow events recorded in Erie County since 1993. These storms caused 71 injuries and over $205 million in damages (National Climate, 2006). The last two recorded major blizzards were two days short of one year apart, occurring on January 28, 1977 and January 26, 1978. Both of these storms crippled the township and most of northern Ohio for the better part of a week. There were at least five deaths attributed to these storms (Guy, 1978)

Based on the construction, the population and the size of several large residential institutions in the area, using the Emergency Management Agency resource guide, the risk of a major fire that could cause devastating destruction with the potential for the injury or death of large numbers of people is highly possible (Federal Emergency, 1995, II-1 – II-11). Also with the large influx of tourists due to the amusement park, Cedar Point, and the numerous indoor water parks, this area has been labeled by local law enforcement as a high risk potential for an act of terrorism. The nuclear power plant thirty miles to the west and the large NASA research facility in the township have also been listed as high target areas for potential terrorist strikes. The concern with an attack is the fallout and collateral damage to the surrounding area caused by
such an attack. In cases like this, all departments must remember that no agency is totally isolated or exempt to the effects of direct or collateral damage, and must be prepared to mitigate the events as they occur (Naum, 2003). Consideration of potential collapse hazards resulting from such attacks; often require the skills and knowledge of an engineer to assess the stability of damaged structures. First responders rarely have the knowledge, expertise, or time to wait and are forced to make decisions when to enter the structure and start search and rescue operations, increasing the potential of collateral damage to the rescue crews (Collins, 2006).

A damage assessment is defined as the “gathering of information related to the impact of an event, or series of events, on life and property within a defined area” (National Fire Academy, 2006, SM 6-3). Immediate or rapid damage assessments are completed during the early phases of a disaster. These assessments determine the amount of damage that has or will likely occur, and especially addresses the impact on life and property caused by the event before any attempt at mitigation is attempted (National Fire Academy, 2006). In simple terms, damage assessment is the size-up of an event in order to acquire the needed resources to facilitate rescue, recovery and incident stabilization. Rapid damage assessment is not an estimate of dollar loss, but rather is used to assess the nature, magnitude and scope of an event, so that situations can be prioritized and resources used most effectively (Federal Emergency, 1995). A rapid damage assessment is initiated rapidly to assess the magnitude of the disaster. These types of rapid damage assessments are also referred to initial, rapid or windshield damage assessments or surveys (McEntire, 2002).

A rapid assessment plan is a predetermined, efficient and practiced method of assessing the damage caused by some form of disaster. The plan clearly states the roles and responsibilities of the crew who will be conducting the damage assessment. The routes taken by
the assessment vehicles should be predetermined to maximize the community hazards survey, while minimizing the time taken to complete the tasks. The risks and hazards for each area to survey should be identified in advance during practice and preplans, with a risk analysis done as the target hazards are identified (Duncan, 2006).

The needed elements of a rapid damage assessment plan can be grouped into one of three categories, pre-event, immediate, and post event. In the pre-event section are listed all of the needed components that must occur prior to the disaster taking place. These elements include developing a community profile, dividing the community into assessment areas, performing a risk assessment for each assessment area, evaluating the manpower needed to complete the task versus daily staffing, developing communication procedures, and practicing, evaluating, and amending the plan as needed to meet the department’s objective (Federal Emergency, 1995, p. II 1-29).

In the pre-event phase, all major structures and geographical features, such as rivers and mountains, or any other natural geographical features that might inhibit a rapid assessment, are identified. A risk analysis is done on all of these features to identify the potential severity and probability of damage that these features would suffer in the face of a major disaster. The impact and delays that would be experienced by the community and responding agencies due to these features are also evaluated as well are all life safety hazards in the community. The infrastructure of the community is assessed, and plans to compensate for potential damages to key components of the infrastructure are made in advance. Alternative station locations are located for the possibility of equipment reassignment, if need should arise. All major transportation routes are identified and evaluated for vulnerability and alternative response and evacuation routes are
developed in case the major routes are not accessible (National Fire Academy, 2006, SM 4-1 – SM 4-23).

The division of the community into smaller pre-assigned assessment areas allows the department to plan in advance for the units that will be completing the damage assessment. This preplanning also establishes pre-assigned routes for the assessment vehicles to travel to rapidly and efficiently complete the assessment. Incorporated in this pre-incident phase is a specific communication plan that states how the information will be collected in the field, how this information will be passed to the next level of command and tabulated. This information will then be used to deploy equipment and resources needed to mitigate the emergency (Ham, 2005). Regardless of the type and size of the disaster, mitigation requires quick decision making based on reliable data. Time is critical, and to expedite the process, the Emergency Operations Center must get accurate and complete data as soon as possible (Newcombe, 2006).

The last phase of the pre-incident process is the putting into action and practicing of the plan. During this process all components of the plan are tested and evaluated. Short comings are noted and corrections to the plan are made. Damage assessment forms are evaluated as well as the chain of information flow. Again the plan is changed and tailored to allow the community to efficiently and rapidly assess the damage caused by a disaster, allowing for a rapid stabilization of the situation (McEntire & Cope J, 2004).

The immediate damage assessment occurs as close to the onset of the disaster as safety permits. This section “determines the amount of damage or probability of damage that has already occurred, including the impact on life and property in the incident area” (National Fire Academy, 2006, SM 6-3). During this phase, all of the information and planning that was completed in the pre-incident phase is put into action. The first areas that are assessed for
damage are the fire crew, stations, and equipment, followed by an assessment of the infrastructure located in each sector. Rapid damage assessments are completed using the hazard risk analysis information, pre-assigned travel routes, and the crew assignments that were established in the damage assessment plan. During this phase, the information is gathered and transmitted to the command post using the procedures and assessment tools specified in the assessment plan. This information is then used as part of the initial size-up process, to determine resource deployment and procurement. If the needs overwhelm the local community, then this information is used to request state or local aid (Eisner & Nigg, 1996).

The last section of the damage assessment plan is the post incident damage assessment, and is completed after the situation has been stabilized. During this stage, detailed information regarding amounts and types of damage to the community is gathered and reports are prepared for governmental agencies and insurance companies. These reports will be crucial for the reimbursement process available to both the public and the private sector from state and federal agencies. During this phase, the entire infrastructure of the community is evaluated for damage not detected during the immediate assessment phase. Included in this phase are reports detailing the impact of the disaster on life safety during the event and the impact that will be felt during the recovery phase. These reports are also used to evaluate the damage assessment plan and make improvements based on problems encountered during the event (National Fire Academy, 2006, SM 6-7- SM 6-9).

Rapid damage assessment plans are being used across the nation by both the public and private sector to expedite the collection of data regarding to the extent of damage done to the area by a disaster. The damage assessment plan looks at all aspects of the incident relating to the impact of the situation on life and property. The assessments are known by a number of
different names, including rapid damage assessment, windshield surveys and snapshots. The City of Dayton, Ohio calls their process a snapshot survey. Their plan calls for the monitoring of the event by command personnel during the event and the deployment of firefighters to the damaged area as soon as safe conditions are assured. In this plan the firefighters report only what they can physically observe, with no consideration given to speculation or unsubstantiated data (Dayton Fire, 1995).

The city of Yuma Fire Department, in Arizona, has a comprehensive plan; this plan stresses the need to work with the local EMA and mandates their notification prior to the start of any mitigation activities. This plan then lists the order of events that will take place prior to the event, during the event, and during the recovery period. This includes off duty personnel call ins, station preparations and plans to care for the department members family during the disaster, while the firefighters are gone. This includes both shelter and whatever necessities are needed for the families. This plan not only spells out the sectors, but specifically lists which units will complete the windshield surveys. The plan specifies that no unit performing the survey will get involved in any type of rescue or emergency activity until the damage assessments are completed and the information communicated to command. The Yuma plan has the fire department as the lead organization in their damage assessment plan (City of Yuma Fire, 2004).

After 9/11, the Federal Emergency Management Agency (FEMA) revised the former National Disaster Plan into the current National Response plan. The goal of this plan is to save lives, protect health, ensure the security of the country, prevent terrorism, restore the critical infrastructure and mitigate the event as soon as possible. Also included in this plan are provisions to handle criminal acts of terrorism, including arrests, evidence preservation, and the documentation of all damage and its causes (Barrett, 2006). This plan outlines the goal of
damage assessment procedures and outlines the proper coordination of services between the local, state and federal agencies involved (Department of, 2004).

As seen after any disaster, all of the major insurance companies have damage assessment teams ready to respond to the effected area. The goal of these mobile teams is to get an accurate measure of the damage and to issue the payments that are due to their clients as soon as possible (State Farm Insurance, 2006). This also helps to limit some of the common pitfalls associated with damage assessment, which include double counting, ignoring non market losses, damage to historical sites, and ignoring the needs of the affected individuals (Cochrane, 2004).

The PTFD does not have a department specific damage assessment plan but rather follows the lead of the Erie County Emergency Operations Plan. In this plan, the final damage assessments are completed by a joint party comprised of county officials, engineers, and the American Red Cross. However, this assessment is not started until all of the mentioned individuals have been notified and arrive on scene. The plan does mention windshield surveys, but mentions no parameters for their completion. The EMA director in the plan has also made arrangements for aerial surveys if needed. This plan uses the National Incident Management System (NIMS) as the framework to command, control, and coordinate the procurement and assignment of resources at an emergency scene (Walker, 2007).

**Procedures**

The purpose of this applied research project was to design a rapid damage assessment plan for the PTFD, after obtaining detailed research information and data from a questionnaire sent to fire department chiefs across the nation. The topic was chosen after learning the importance of rapid damage assessment plans as presented in the EAFSOEM course and then relating these plans to the problems experienced by the PTFD at major incidents. The lack of
organization experienced, and the delay in resource deployment and incident mitigation was directly related to absence of a rapid damage assessment plan by the PTFD.

Research for this applied research project began at the NFA in Emmitsburg, Maryland while attending the EAFSOEM course. Searches were conducted using several key words starting with damage assessment. After retrieving multiple Executive Fire Officer Projects, magazine articles, reports and journals, the key words were refined to include rapid damage assessment, windshield surveys, and damage assessment plans.

On return to the author’s home department, numerous hours were spent doing internet and library searches using the same key word phrases. The author utilized Hotbot and Google as search engines, because searches could be refined with the use of word filters to eliminate works with little or no relevance to the topic of this project. Local reference searches were also done to research the township specific information needed to complete this project.

To assist in answering the fourth research question, a questionnaire was sent, by email, to two hundred fire chiefs across the United States. Internet searches using Firehouse.com and state fire department links as search points were used to locate the email addresses of the fire chiefs. The searches were also filtered to only include the email addresses for career and combination departments. The answers to the questionnaire were also used as a guide in the design and development of a rapid damage assessment plan for the PTFD.

The questionnaire was designed to address a number of issues. The first area of the questionnaire was designed to accumulate agency specific demographics, including department size and type, population served, and contact information. This information was used to contact some of the responding departments to request further information about assessment tools that they used in their initial responses.
The second section addressed the subject of a formal damage assessment plan. Included in this section was what the departments had done prior to an emergency, and how they had prepared to handle a major disaster if it occurred. This area was used to determine if the departments had completed a risk analysis of their community. This section also addressed the topics of hazard analysis, and the evaluation of target areas in their community. This group of questions was also used to identify the chiefs’ perspective of the probability of a fire department response to a man-made or natural disaster in their community.

The author used questions six through nine to gain information from the departments that had damage assessment plans in place. This group of questions specifically studied how the damage assessments were done, and by whom. These questions identified written policies that were in place by these departments to address how the jurisdiction was divided for a rapid assessment and how their departments were assigned to cover the needed areas. The question of staffing in times of disasters was also touched on, with the question being whether there was adequate staffing on duty to cover the assessment areas, or was off duty or mutual aid departments needed to rapidly and efficiently complete the tasks.

The last three questions evaluated how additional 911 calls were answered during the damage assessment phase, and if this had been addressed in the written plan. Questions ten and eleven asked if the chiefs had ever had to implement their damage assessment plans, and also if the plans are practiced on a regular basis. These two questions studied the preparedness of the departments and their commitment to rapidly and efficiently mitigate any large scale disaster that they might be faced with.

There were several limitations noted in preparation of this research project starting with the population receiving the questionnaire. This was a random sampling of chiefs of career and
combination departments across the nation. The sample was limited to chiefs who had their email addresses posted on their departmental website. Searches of the internet and Firehouse.com were used to locate the web sites of these departments, and then the links were checked for the needed email addresses. A second limitation was that only departments that had web pages were included in the sample, because the author knew of no other database available to get the email addresses from. The sampling was also limited to career and combination departments since they more closely related the PTFD. The author must also assume that all of the information collected is correct and has not been altered in any way. The last limitation noted was the lack of knowledge of the departments included in the sampling.

Results

The information gathered while completing this research project, was accumulated from an extensive reference search and literature review, evaluation of the responses to a questionnaire, and personal interviews. Copies of the questionnaire, a list of departments contacted, results from the questionnaire, a draft damage assessment policy, and a copy of the developed damage assessment form can be found in the appendix. These results have provided the information needed to answer the four research questions proposed in this project.

What types of disasters are most likely to occur in Perkins Township?

Perkins Township is a suburban community located in north central Ohio. Using the Erie County Natural Hazards Mitigation Plan (2005), the history of past natural disasters, data from the National Climate Data Center (2006), and data from the National Severe Storms Laboratory (2007), it can be predicted that Perkins Township is susceptible to a number of different natural disasters including: high winds, heavy rains and flooding, tornadoes, and ice storms, heavy snow events and blizzards. History does not reflect that these events will occur yearly, but does
predict that there is a good likelihood that the community will be faced with one or more events on a regular basis.

The State Homeland Security Assessment and Strategy Plan has also listed a number of possible targets of man-made disasters. As stated earlier, the Township has not been exposed to an act of terrorism; however, due to several government installations in the community, a railroad hub and switching yard, as well as the influx of large numbers of tourists during the year, the area is a prime target for such acts (Walker, 2003). Also the possibility of an accident occurring at the government installations or the rail yard does pose a real threat to the community, but because of the safety procedures that are in place they are not listed as having a high probability in the Erie County Emergency Operations Plan (2007) or the State Homeland Security Assessment and Strategic Plan (2003) for Erie County.

**What is meant by the term rapid damage assessment?**

Rapid damage assessment is the initial damage assessment completed as soon as safety permits after the disaster has occurred. It should be completed by the fire department having jurisdiction using a plan already in place that has been practiced and perfected (Sinnott, 2006). The purpose of the damage assessment is to rapidly gather accurate data about the impact to life and property that has or will likely occur due to the disaster at hand. To expedite the assessment process, the political subdivision has been divided into several smaller areas that can be quickly assessed for the impact on life safety, property, and the infrastructure of the community. In the draft plan for the PTFD, the township was divided into four areas with each area assigned to a specific unit. Each of the two stations is responsible for two of the divisions and is knowledgeable of target hazards that are located in their survey area. The first target hazard that is to be assessed is the fire crews, stations and fire equipment. The plan also states that the units
will complete their surveys before they respond to any emergency located or 911 call received by dispatch. Off duty firefighters, paid on call firefighters, and aid from neighboring departments will be used to initially handle the disaster mitigation process. Fire crews that are assigned to damage assessment who stop and render assistance to victims rather then completing the assessment, compromise the efficiency of the damage assessment plan and limit the reliability of the information gathered which causes the inefficient deployment and summoning of resources needed to mitigate the event (Sinnott, 2006). This data is then accumulated and used to size up the event so that the needed resources can be requested and deployed in a timely and efficient manner (McEntire, 2002). In the PTFD plan, the four units will assemble and meet at a site determined by the shift incident commander to accumulate the damage assessment results. The shift incident commander will then transfer the data to the disaster incident commander who disseminates this information to the Emergency Operations Center. This damage information will then be used to determine the resources that will be required to mitigate the event. This data will also be used to determine what types of state and federal aid will be requested to aid in the mitigation process (Federal Emergency, 1995).

What are the needed elements of a rapid damage assessment plan?

The research indicated that for a rapid assessment plan to efficient and workable it must contain several key components. The first elements must be completed and in place prior to any event taking place. Included in this group is the completion of a community risk profile, dividing the community into smaller areas or sectors for the purpose of completing the damage assessment, completing a risk assessment for each sector, establishing a communication procedure to be used in the case of a disaster, evaluating the manpower needed to complete a
damage assessment versus daily staffing limits, and practicing and evaluating this plan on a regular basis (Federal Emergency, 1995).

The next element is the immediate damage assessment takes place as soon after the event as it is safely possible. During this phase the entire plan is put into action including the call in and notification of all officers and elected officials. All off duty personnel are activated as are any mutual aid departments. During this phase, the assessments are gathered and the information is communicated to the incident commander and EOC to be used as a size-up tool to request needed resources (Eisener & Nigg, 1996). After this is finished, the crews are released to assist in the mitigation of the event.

The last section of the damage assessment plan is the post incident phase which is essential for financial aid and reimbursement from governmental agencies and insurance companies. This is a complete and thorough evaluation and assessment of all damage that has incurred, especially any damage to the infrastructure of the community that might have been missed in the initial rapid damage assessment (National Fire Academy, 2006).

Are rapid damage assessment plans being used by fire departments and private organizations across the nation, and if so what are they?

The research indicated that both the public and private sectors are actively drafting and implementing damage assessment plans. The major insurance companies like State Farm and All State with their mobile damage assessment and adjustment teams are prime examples. Their goal is to get to the disaster scene as soon as possible and begin the process of assessing the damage encumbered by their clients. This assessment information is then used to provide financial adjustments to expedite the recovery process (State Farm Insurance, 2006). The literature review also identified several damage assessment plans that have been developed by
fire departments across the nation. Specifically mentioned were the Yuma Fire Department Damage Assessment Plan and the snapshot damage assessment survey used by the Dayton Fire Department. Both of these plans are designed using the federal templates and suggestions about are department and area specific. These templates were developed and published in the Rapid Assessment Planning: Workshop in Emergency Management, published by FEMA in 1995.

A questionnaire was also used to recover data to answer this research question. A questionnaire was sent by email to two-hundred fire chiefs from across the nation. The first question consisted of six parts pertaining to the demographic information of the department. This information listed the name, address, phone number, and email address of the chief completing the questionnaire. The last two parts of question one pertained to the structure of the department, physical size and the population of the communities served. There were a total of sixty-three responses to the questionnaire which is equivalent to 31.5% of the chiefs contacted. Of the responding chiefs, thirty-seven represented career departments and twenty-six represented combination departments.

Question two asked the responding chiefs to predict the probability of their departments responding to a major disaster in their community. Three chiefs felt the probability for their community was low, twenty-five felt their risk was medium, and thirty-five felt that the risk to their community was high. The next area discussed was with the risk analysis listed in question two, how many of these departments have a damage assessment plan in place, and do they use a department specific assessment form. Slightly less than half, or thirty-one, of the chiefs responded that their departments have a damage assessment plan, and eighteen use a department specific damage assessment form. The chiefs that responded that they had plans and assessment forms were contacted by email and a copy of the plans and forms were requested. Two
departments did respond and supplied the author with the requested information. These plans listed a number of different community agencies, other than the fire department, that were used to complete the damage assessments. These agencies included the local EMA, police departments, Cert Teams, building inspectors, public works staff, and other local and county department heads.

The next group of questions addressed the different elements of a damage assessment plan. Over 90% of the responding agencies stated that they had completed target hazards assessments for their community. The targets that were identified by the bulk of the responding agencies were the evaluation of schools and local infrastructure, followed closely by medical facilities, industry and hotels. This assessment was listed as a key element of any damage assessment plan and needs to be updated regularly to insure an adequate damage assessment when faced with a disaster in your community. This section also inquired if the plan dictated which crews were used to do damage assessments of specific areas of the community. Twenty-two, or 35% of the chiefs stated that their plans specifically assigned the tasks to crews by area, while forty-one, or 65% stated that this was addressed by their department. Question seven asked if the plan addressed how the community was to be divided for damage assessment when faced with a major disaster, and the answer to this question mimicked the response to the previous question.

Question number eight evaluated whether the chiefs felt that the daily staffing of their departments would meet the staffing needs to rapidly and efficiently complete a damage assessment in their community. Again only twenty-two, or 35% of the chiefs that responded felt that they had adequate staffing on duty to complete the needed task. However, twenty-nine, or 46% of the chiefs did respond that their plan addressed who was to handle additional 911 calls
while the damage assessment was being completed. Mutual aid requests, automatic aid and off duty call backs were the resources listed to accomplish these tasks.

The last two areas questioned were have you ever had to implement your plan, and how often do you practice your plan. In response, seventeen, or 27% of the responding chiefs stated that they had implemented their damage assessment plan in the past. Twenty-four stated they had not, and twenty-eight did not respond to the question, checking N/A. In response to the question of practice only three departments responded that they have practiced their plan in the last six months. Twelve departments replied that they have practiced their plan in the last seven to twelve months; while two other departments stated it has been greater then one year but less then two years since they have had a practice drill. Twenty chiefs responded that it had been over two years since their department has practiced for a major disaster in their community. Of the responding chiefs, Twenty-eight, or 44% of these chiefs responded N/A, indicating that they do not practice damage assessment for a major incident in their jurisdiction at all.

A complete summation of the questionnaire results can be found in appendix 3 of this research project.

**Discussion**

The purpose of this applied research project was to determine the need for a formal damage assessment program for the PTFD. After reviewing the EAFSOEM course material, including the class lectures, table top exercises, and large scale simulations it was obvious to this author the importance of a damage assessment plan for the PTFD. To prove the need for such a plan the author used action research, including a literature review to determine the probability and types of disasters occurring in Perkins Township, what is meant by a rapid damage assessment plan, and what are the elements of a damage assessment plan. A questionnaire of fire
chiefs, of career and combination departments, from across the nation and a search of current literature was used to evaluate whether other agencies were using rapid damage assessment plans, and if so how were the plans designed.

After reviewing the research data it was obvious to this author that the area will experience at least one major natural disaster a year. History has shown that the area will be faced with a major snow or ice storm yearly, with a major blizzard occurring about every ten years (National Severe, 2007). The research also has shown that the area will be faced with flooding in the low lying areas about every three years, and the probability of a tornado nearly every fifteen years (Erie County EMA, 2005). The data also identifies numerous target hazards in the community that are prone to some type of man-made disaster, accidental or intentional. Even though the area has not yet experienced such a disaster, the importance of being prepared for such an event is crucial (National Fire Academy, 2006).

As described in the EAFSOEM student manual (2006), damage assessment is the gathering of information pertaining to the effects of a given event on life safety and property damage in a described area. This information is crucial to rapidly assess the magnitude of the event on the area, to prioritize the mitigation plan and to allocate the needed resources to handle the event. The research has indicated that these rapid damage assessment plans have been given several different names, snapshot surveys, windshield surveys, initial damage assessments, or rapid damage assessments. But the research has indicated that whatever it is called the goal and key elements of the plans are the same. The main goal is the accurate size-up of the disaster so that the resources needed to mitigate the event, facilitate rescue, and stabilize the event are efficiently and quickly requested and deployed (Federal Emergency, 1995).
The need for such a plan was obvious to the author in reviewing the 1992 tornado strike of a residential section in Perkins Township. The lack of a damage assessment plan by the PTFD caused a delay in the tabulating the total impact of the storm on the community. The incident commander, using inaccurate and incomplete data greatly over estimated the EMS resources that were needed to handle the event. This miscalculation caused a drain on the area resources, while the requested units sat in staging. This delay also caused the request for state and federal disaster assistance to be delayed for nearly twenty-four hours. A similar delay occurred in the summer of 2006 when a low lying area along Pipe Creek flooded. During this time residents were being evacuated with the EOC receiving no damage assessment from the field initially. This delayed temporary housing being requested, and the EOC shelter opening was delayed for three hours after the evacuations had begun.

Using both the literature review, the EAFSOEM course material and the damage assessment plans received in response to the questionnaire, it became evident that a comprehensive rapid damage assessment plan was composed of several key elements: developing a community profile, sectoring the community into assessment areas, performing a hazard target risk assessment, evaluating staffing requirements, developing communication and data transfer systems, and practicing and evaluating the plan on a regular basis (Federal Emergency, 1995).

The questionnaire mimicked these elements; however, the surprising result was that slightly less than half of responding departments had a damage assessment plan of their own. And from the data received, only 23, or about 66% had a comprehensive plan that contained all of the above listed elements. The area of biggest surprise to the author was the lack of practice
drills, only 19 departments responded that they practiced their damage assessment plan at least once a year.

As described in the literature review and the results of the questionnaire, damage assessment plans exist in both the public and private sector. They have been given a wide range of names, but their purpose is to expedite the mitigation and recovery phase (State Farm Insurance, 2006). The local EMA in Erie County has taken the lead in developing a damage assessment plan for this area. However, the plan lacks any immediate damage assessment plan. The assessment in this plan will not begin until all of the agencies involved in the assessment are onsite and organized. This could delay the process of resource procurement and deployment for several hours (Walker, 2005). The author feels that this plan is effective but not efficient, and that each jurisdiction should work with the local EMA to develop a plan that best suits their community. These plans even though unique must be consistent with the master plan so that all local departments are able to respond and work together to create interoperability. This could be simplified by assigning task to automatic or requested mutual aid departments in the plan prior to the events.

**Recommendations**

The information gathered while completing this project support the implementation of a rapid damage assessment plan for the PTFD. The research clearly identifies the elements that must be included to develop an effective and efficient damage assessment plan. The PTFD plan will address all of these elements. The data recovered by the crews when a disaster occurs will be used for the procurement and deployment of resources to rapidly minimize and mitigate the results of the disaster. The purpose of this project was to develop a rapid damage assessment plan for the PTFD when faced with a natural or man-made disaster. The research that was
completed and the data accumulated from the questionnaire have enabled this author to create such a plan (Appendix D) for the PTFD.

Based on the results of the research the following recommendations are being made to the PTFD.

1. The PTFD should implement and evaluate the draft damage assessment plan as outlined in Appendix D.
2. After extensive evaluation by the PTFD, the draft should be given to the Erie County EMA and local departments for evaluation and review.
3. Based on evaluations from both internal and external sources revisions, improvements should be considered and implemented for evaluation.
4. A final draft should be formulated and adopted by the PTFD.
5. The plan should be practiced and evaluated using different scenarios on a bi-annual basis.

In conclusion the rapid damage assessment plan for the Perkins Township Fire Department should assist the EOC in the rapid procurement and deployment of the needed resources when faced with a disaster. The plan will minimize the freelancing of units by specifying the tasks that all units will complete, and the order that they are to complete them in. This will assure that a clear picture of the actual damage that has occurred will be assessed and relayed to the incident commander in a timely manner. This will ensure that the needed resources are requested and deployed to handle the situation. The data collected will also be useful to the EOC for the requesting of state and federal assistance as needed. This damage assessment data will also be crucial in the preparation of reports to the state and federal agencies for reimbursement.
References


LaCross, A. (2006, June 23). Morning flood has Searsville reeling. Sandusky Register, pp. 1 – 2


Appendix A

Damage Assessment Questionnaire

National Fire Academy

Executive Analysis of Fire Service Operations in Emergency Management

Rapid Damage Assessment Procedure Questionnaire

Dear Fire Agency Official:
I would like to thank you for taking the time to complete this questionnaire. The questionnaire pertains to the planning for and completion of a rapid damage assessment survey when a community is faced with a man-made and/or natural disaster. This questionnaire will be used to determine if fire departments use rapid damage assessment plans when faced with a disaster, to aid in resource procurement, mutual aid requests, as well as requests for state and federal assistance. The research will also look at any departmental, regional forms that have been designed to simplify and expedite the damage assessment process. I will then use these results in combination with internet and library searches to design a damage assessment tool that is appropriate for my department and community.

1. Agency Information:

   a. Department Name: ___________________________________________

   b. Contact Person: _____________________________________________

   c. Telephone / Fax Number: _______________________________ ________

   d. Email Address: _____________________________________________

   e. Population Served/ Square Miles: ________________________________

   f. Department Type: Paid _____ Combination _____ Volunteer _____

2. What is the probability that your department will respond to a man-made and/or natural disaster in your community? LOW_______ MEDIUM_______ HIGH_______

3. Does your department have a formal damage assessment plan, and damage assessment form?

   Plan: YES_____ NO_____ Form: YES_____ NO_____ 

4. Who does the damage assessment in your jurisdiction? __________________________________________

________________________________________________________
5. Has your department identified the critical target areas in your Community?
   a. Hospital/ Medical Facilities: Yes _______ No _______
   b. Schools: Yes _______ No _______
   c. Infrastructure: Yes _______ No _______
   d. Industry/Merantile Yes _______ No _______
   e. Hotels/Tourism Yes _______ No _______

6. Is there a policy in place outlining what crews survey each sector of your jurisdiction for damage when responding to a disaster? Yes _______ No _______

7. Do you have a policy identifying how your jurisdiction is divided into sectors for rapid damage assessment? Yes _______ No _______

8. Does the daily staffing of your department meet the needs of your plan to quickly and efficiently complete a rapid damage assessment? Yes _______ No _______

9. As outlined in your policy, do additional 911 calls, requests for help, or visual sightings take precedence over the rapid damage assessment, or must it be completed first before rendering aid? Yes _______ No _______

10. How often do you practice your damage assessment plan?
    0-6 months _____  7-12 months _____  13-24 months _____  > 2 yrs _____

11. If you have a policy in place, has it ever been used? Yes _______ No _______

Thank you for your assistance with this questionnaire. I would appreciate it if you returned with this completed document; any forms or policy that you feel would be useful for my research.

Keith J. Wohlever, Fire Captain
Perkins Twp. Fire Department
3003 Campbell Street
LT202@perkinfire.com
Sandusky, Ohio 44870
Phone: 419-626-1334
Facsimile: 419-621-2170
Appendix B

United States Fire Departments Contacted

<table>
<thead>
<tr>
<th>State</th>
<th>Fire Department</th>
<th>Address</th>
</tr>
</thead>
<tbody>
<tr>
<td>Alabama</td>
<td>Saraland Fire &amp; Rescue</td>
<td>716 Saraland Blvd. S Saraland, AL 36571</td>
</tr>
<tr>
<td></td>
<td>Decatur Fire &amp; Rescue</td>
<td>4119 Old Highway 31 SW Decatur, AL 35602</td>
</tr>
<tr>
<td></td>
<td>The City of Mobile Fire &amp; Rescue</td>
<td>701 St. Francis Street Mobile, Alabama 36602</td>
</tr>
<tr>
<td></td>
<td>Montgomery Fire/Rescue</td>
<td>19 Madison Avenue Montgomery, AL 36104</td>
</tr>
<tr>
<td>Arizona</td>
<td>Flagstaff Fire Department</td>
<td>211 W. Aspen Ave. Flagstaff, AZ 86001</td>
</tr>
<tr>
<td></td>
<td>Phoenix Fire Department</td>
<td>150 S. 12th St. Phoenix, AZ 85034</td>
</tr>
<tr>
<td></td>
<td>Tucson Fire Department</td>
<td>265 S. Church Avenue Tucson, Arizona 85701</td>
</tr>
<tr>
<td></td>
<td>Yuma Fire Department</td>
<td>Yuma Arizona</td>
</tr>
<tr>
<td>Arkansas</td>
<td>Maumelle Fire Department</td>
<td>100 Millwood Circle Maumelle, AR 72113</td>
</tr>
<tr>
<td></td>
<td>Fayetteville Fire Department</td>
<td>303 W. Center St Fayetteville, AR 72701</td>
</tr>
<tr>
<td></td>
<td>Wedington Fire Department</td>
<td>13496 West AR Hwy 16 Fayetteville, AR 72704</td>
</tr>
<tr>
<td></td>
<td>Rogers Fire Department</td>
<td>201 N First Street Rogers, AR 72756</td>
</tr>
<tr>
<td>California</td>
<td>San Diego Fire-Rescue</td>
<td>1010 2nd Avenue, Suite 400 San Diego, CA 92101</td>
</tr>
<tr>
<td></td>
<td>Long Beach Fire Department</td>
<td>1222 Daisy Ave Long Beach, CA 90813</td>
</tr>
<tr>
<td></td>
<td>Hollister Fire Department</td>
<td>110 Fifth Street - Station 1 Hollister, CA 95023</td>
</tr>
<tr>
<td></td>
<td>San Marcos Fire Department</td>
<td>1 Civic Center Drive San Marcos, CA 92069</td>
</tr>
<tr>
<td></td>
<td>LA County Fire Dept.</td>
<td></td>
</tr>
<tr>
<td>Colorado</td>
<td>Denver Fire Department</td>
<td>745 West Colfax Avenue Denver, Colorado 80204</td>
</tr>
<tr>
<td></td>
<td>Steamboat Springs Fire</td>
<td>PO Box 5088; Steamboat Springs, CO 80477</td>
</tr>
<tr>
<td>Alaska</td>
<td>Ketchikan Fire Department</td>
<td>319 Main Street Ketchikan, AK 99901</td>
</tr>
<tr>
<td></td>
<td>Anchorage Fire Department</td>
<td>1140 Airport Heights Rd Anchorage Co, AK 99516</td>
</tr>
<tr>
<td></td>
<td>Capital City Fire and Rescue</td>
<td>Juneau Borough Juneau, AK 99801</td>
</tr>
<tr>
<td></td>
<td>North Pole Fire Department</td>
<td>125 Snowman Ln North Pole, AK 99705</td>
</tr>
</tbody>
</table>
Colorado
3. Arvada Fire Protection District
   6503 Simms Street
   Arvada, Colorado 80004
4. Sheridan Fire Department
   4101 S. Federal Blvd.
   Sheridan, CO 80010-5399

Connecticut
1. Bridgeport Fire Department
   30 Congress Street
   Bridgeport, CT 06604
2. Norwalk Fire Department
   121 Connecticut Ave.
   Norwalk, CT 06854
3. Naugatuck Fire Department
   41 Maple Street
   Naugatuck, CT 06770
4. Hartford Fire Department
   275 Pearl Street
   Hartford CT 06103

Delaware
1. Wilmington Fire Department
   Wilmington, DE 19801

Florida
1. Coral Springs Fire Dept
   9551 West Sample Road
   Coral Springs, FL 33065
   98 S. Delaney Avenue
   Avon Park, FL 33825
3. West Palm Beach Fire
   500 North Dixie Highway
   West Palm Beach, FL 33401
4. Fort Myers Fire Rescue
   2404 Dr. Martin Luther King, Jr.
   Boulevard
   Fort Myers, Florida 33901

Georgia
1. Atlanta Fire Department
   675 Ponce de Leon Avenue, 2nd
   Atlanta, GA 30308

Illinois
1. Tuscola Fire Department
   214 N. Main,
   Tuscola, IL 61953
2. Freeport Fire Department
   230 W. Stephenson Street
   Freeport, IL 61032
3. Champaign Fire
   307 S. Randolph St.
   Champaign, IL 61820
4. Quincy Fire Department
   906 Vermont Street
   Quincy, IL 62301
5. Maywood Fire Department
   Maywood IL

Indiana
1. Wabash Twp. Fire Department
   2811 Klondike Road
   West Lafayette, IN 47906
2. Greenwood Fire Department
   155 East Main Street
   Greenwood IN 46143
Indiana
3. Franklin Fire Department  
   1701 N. Main Street  
   Franklin, IN 46131
4. West Lafayette Fire Dept  
   300 North Street  
   West Lafayette, IN 47906

Kentucky
3. Glasgow Fire Department  
   203 South Broadway St.  
   Glasgow, KY 42141
4. Alexandria Fire District  
   7951 Alexandria Pike  
   Alexandria, KY 41001

Iowa
1. Des Moines Fire Department  
   900 Mulberry Street  
   Des Moines, IA 50309
2. Cedar Rapids Fire Department  
   222 3rd Street NW  
   Cedar Rapids, IA 52405
3. Creston Fire Department  
   500 North Sumner Avenue  
   US Highway 25 @ West Howard St.  
   Creston, IA 50801-2045
4. West Des Moines Fire Dept  
   3421 Ashworth Road  
   P.O. Box 65320  
   W Des Moines, IA 50265

Louisiana
1. Baton Rouge Fire Dept  
   8011 Merle Gustafson Dr.  
   Baton Rouge, LA 70807
2. Gonzales Fire Rescue  
   120 S. Irma Blvd.  
   Gonzales, LA 70737
3. Mansfield Fire Department  
   700 Franklin Street  
   Mansfield, LA 71052
4. Livingston Fire Prot Dist #4  
   29758 South Palmetto Street  
   Walker, LA 70785

Kansas
1. Newton Fire/EMS  
   Newton, KS 67114
2. Wichita Fire Dept  
   455 North Main  
   Wichita, KS 67202
3. Manhattan Fire Dept  
   2000 Denison  
   Manhattan, KS 66502
4. Concordia Fire Dept  
   701 Washington  
   Concordia, KS 66901

Maine
1. Rumford Fire Department  
   Rumford, ME 4276
2. Waterville Fire and Rescue  
   Waterville, ME 4901
3. Portland Fire Department  
   380 Congress Street  
   Portland, ME 04101
4. Gardiner Maine  
   6 Church Street  
   Gardiner, ME 04345

Maryland
1. Anne Arundel County Fire Dept  
   Severna Park, MD 21146
2. North East Fire Company  
   210 S. Mauldin Ave  
   P.O. Box 770  
   North East, MD 21901
3. Annapolis Fire Dept.  
   1790 Forest Dr  
   Annapolis, MD 21401
Maryland
4. Fort Detrick Fire & Emergency Building 1504 Fort Detrick Frederick, MD 21702

Massachusetts
1. Boston Fire Department
115 Southampton Street
Boston, MA 02118
2. Cape Cod Fire Department
COMM Fire Department
1875 Falmouth Road
Centerville, MA 02632
3. Truro Fire Rescue
344 Route Six
Truro, MA 02666
4. Lexington Fire Dept.
45 Bedford Street
Lexington, MA 02420

Michigan
1. Northville Fire Department
215 West Main Street
Northville, MI 48167
2. Putnam Township Fire Department
131 S. Howell St.
Pinckney, MI 48169
3. Royal Oak Fire Department
215 E. Sixth St.
Royal Oak, MI 48067
4. Trenton Fire Department
200 Maple Rd
Trenton, MI 48183
5. Lapeer Fire Department
2300 West Genesee Street
Lapeer, MI 48446

Minnesota
1. Chanhassen Fire Department
7700 Market Blvd
Chanhassen MN 55317
2. Minnetonka Fire Department
14550 Minnetonka Boulevard
Minnetonka, MN 55345
3. Minneapolis Fire Department
350 S 5th St Rm 230
Minneapolis, MN 55415
4. Grand Rapids Fire Department
420 N. Pokegama Avenue
Grand Rapids, MN 55744

Mississippi
1. Diamondhead Fire Department
4440 Kalani Drive
Diamondhead, Mississippi 39525
2. Bay St Louis Fire Department
310 Old Spanish Trail
Bay St. Louis, MS 39520
3. Jackson Fire Department
Jackson, MS 39201
4. Batesville Fire Department
105 College St.
Batesville, MS. 38606

Missouri
1. Bonne Terre City Fire Department
520 N Division Street
Bonne Terre, MO 63628
2. Kansas City, Mo Fire Department
635 Woodland Ave. Suite 2100
Kansas City, MO 64106
3. Trenton Fire Department
1001 E. 17th
Trenton, MO 64683
4. Chillicothe Emergency Services
700 Second Street
Chillicothe, MO 64601

Montana
1. Missoula Fire Department
625 E. Pine St.
Missoula, MT 59802
2. Polson Fire Department
106 1st Street East
Polson Montana 59860
3. Kalispell Fire Department
Kalispell, MT 59901
4. Three Pines Fire / Rescue
121 Reservoir Road
Wilsall, MT 59086
Nebraska
1. Lincoln Fire Department
   Lincoln, NE 68508
2. Hastings Fire and Rescue
   Hastings, NE 68901
3. Beatrice Fire Department
   310 Ella Street
   Beatrice, NE 68310
4. Omaha Fire Department
   1516 Jackson St
   Omaha, NE 68102

Nevada
1. North Lake Tahoe Fire District
   Incline Vlg, NV 89451
2. Reno Fire Department
   200 Evans Ave.
   Reno, NV 89501
3. Elko Fire Department
   Elko, NV 89801
4. Henderson Fire Department
   240 Water Street
   Henderson, NV 89015

New Hampshire
1. Portsmouth Fire Station
   170 Court Street
   Portsmouth, NH 03801
2. Rochester Fire Department
   37 Wakefield Street
   Rochester, NH 03867
3. Claremont Fire Department
   100 Broad St.
   Claremont, NH 03743
4. Pittsfield Fire Department
   33 Catamount Road
   Pittsfield, NH 03263

New Jersey
1. South River Fire Department
   South River, NJ 08882
2. Hoboken Fire Department
   Hoboken New Jersey
3. Hackensack Fire Department
   665 Central Avenue
   Hackensack, NJ 07601
4. Springfield Fire Department
   Springfield, New Jersey

New Mexico
1. Albuquerque Fire Department
   11510 Sunset Gardens SW
   Albuquerque, NM 87121
2. Clovis Fire Department
   320 Mitchell St.
   Clovis, NM 88101
3. Santa Fe Fire Department
   Central Admin #14 Fire Place
   Santa Fe, NM 87505
4. Las Cruces Fire Department
   201 E. Picacho Ave.
   Las Cruces, NM 88001

New York
1. Grand Island Fire Department
   2275 Baseline Road
   Grand Island, NY 14072-1711
2. Ithaca Fire Department
   310 W Green St
   Ithaca, New York 14850-5497
3. Arlington Fire District
   11 Burnett Blvd.
   Poughkeepsie, NY 12603-2038
4. Cobleskill Fi9re Department
   PO Box 697
   Cobleskill, New York 12043

North Carolina
1. Winston-Salem Fire Department
   725 N. Cherry Street,
   Winston-Salem, NC 27101
2. Charlotte Fire Department
   Charlotte North Carolina
3. Raleigh Fire Department
   310 W. Martin St.,
   Raleigh, North Carolina 27601
4. Asheboro Fire Department
   401 South Church Street
   Asheboro, NC 27203
North Dakota
1. Fargo Fire Department
   637 Northern Pacific Avenue N
   Fargo, ND 58102
2. Minot Fire Department
   Minot North Dakota
3. Devils Lake Fire Department
   Devils Lake North Dakota
4. Bismarck Fire Department
   1020 East Central Avenue
   Bismarck, ND 58501-1936

Ohio
1. Toledo Fire Department
   545 N. Huron
   Toledo, Ohio 43604
2. Cleveland Fire Department
   1645 Superior Avenue
   Cleveland, Ohio 44114
3. Cincinnati Fire Department
   430 Central Avenue
   Cincinnati, OH 45202
4. Dayton Fire Department
   300 N. Main Street
   Dayton, OH 45402
5. Akron Fire Department
   Akron Ohio
6. Canton Fire Department
   110 Seventh Street SW
   Canton, OH 44702
7. Columbus Division of Fire
   3675 Parsons Avenue
   Columbus, Ohio 43207
8. Piqua Fire Department
   229 W. Water Street
   Piqua OH 45356
9. Mason Fire Department
   6000 Mason-Montgomery Rd.
   Mason, Ohio 45040
10. Concord Twp. Fire Department
    11600 Concord-Hambden Road
    Concord Twp, OH 44077

Oklahoma
1. Stillwater Fire Department
   1506 S. Main St,
   Stillwater, Oklahoma, 74074.
2. Enid Fire Department
   P.O. Box 1768
   Enid, Oklahoma 73702
3. Oklahoma City Fire Department
   820 NW 5
   Oklahoma City, OK 73106
4. Lawton Fire Department
   103 SW 4th St
   Lawton, OK 73501

Oregon
1. Ashland Fire Department
   455 Siskiyou Blvd
   Ashland, OR 97520
2. Salem Fire Department
   370 Trade Street SE
   Salem, Oregon 973010
3. Medford Fire Department
   200 South Ivy Lausmann Annex:
   Medford, Oregon 97501
4. Newberg Fire Department
   3100 Middlebrook Dr
   Newberg, OR. 97132

Pennsylvania
1. Greenwalds Fire Rescue
   2500 Focht Avenue
   Allentown, PA 18104
2. Pittsburg Fire Department
   200 Ross Street
   Pittsburgh, PA 15219
3. Coatesville Fire Department
   #1 City Hall Place
   Coatesville, Pa. 19320
4. Reading Fire Department
   815 Washington Street
   Reading, PA 19601-3690
Rhode Island
1. Woonsocket Fire Department
   5 Cumberland Hill Rd.
   Woonsocket RI, 02895
2. Jamestown Fire Department
   50 Narragansett Ave.
   Jamestown, Rhode Island 02835
3. Middletown Fire Department
   239 Wyatt Road
   Middletown, RI 02842
4. City of Cranston Fire Department
   301 Pontiac Ave
   Cranston RI 02910

South Carolina
1. Hilton Head Island Fire Department
   One Town Center Court
   Hilton Head Island, SC 29928
2. Georgetown Fire Department
   1405 Prince St
   Georgetown, South Carolina 29440
3. Charleston Fire Department
   46-1/2 Wentworth Street
   Charleston, SC 29401
4. Seneca Fire Department
   221 East North First Street
   Seneca SC 29679

South Dakota
1. Yankton Fire Department
   107 W. 5th
   Yankton, SD 57078
2. Pierre Fire Department
   215 West Dakota Avenue
   Pierre, South Dakota 57501
3. Madison Fire Department
   Address: 200 SE 3rd Street
   Madison SD
4. Fort Pierre Fire Department
   305 N Deadwood Ave
   Fort Pierre SD 57532

Tennessee
1. Knoxville Fire Department
   400 Main St,
   Knoxville, TN 37902
2. Memphis Fire Department
   65 South Front Street
   Memphis, TN 38103
3. Munford Fire department
   62 College Street
   Munford, TN 38058
4. Greenback Fire Department
   6889 Morganton Road
   Greenback, TN 37742

Texas
1. Austin Fire Department
   P.O. Box 1088,
   Austin, TX 78767
2. Waco Fire Department
   300 Austin Ave
   Waco, Texas 76702
3. San Antonio Fire Department
   PO Box 839966
   San Antonio, Texas 78283
4. Abilene Fire Department
   250 Grape St.
   Abilene, TX 79601

Utah
1. Hurricane Fire Department
   202 E State Street
   Hurricane Utah
2. Salt Lake City Fire
   Salt Lake City, UT 84111
3. Murray City Fire Department
   40 East 4800 South
   Murray UT 84107
4. Ogden Fire Department
   2186 Lincoln Avenue
   Ogden, Utah 84401

Vermont
1. Brattleboro Fire Department
   103 Elliot Street
   Brattleboro, VT 5301
Vermont
2. Town of Williston Fire Department
   7900 Williston Road
   Williston VT 05495
3. Barre City Fire Department
   5 Fourth Street
   Barre, VT 05641
4. St. Johnsbury Fire Department
   1187 Main Street, Suite 3
   St. Johnsbury, VT 05819

Virginia
1. Franklin Fire and Rescue
   100 South Main St.
   Franklin, VA 23851
2. Hampton Fire Department
   22 Lincoln St.
   6th Floor City Hall
   Hampton, VA 23669
3. Henrico County Division of Fire
   Parham and Hungary Springs Roads
   Richmond, VA 23273
4. Virginia Beach Fire Department
   2408 Courthouse Dr
   Municipal Center, Bldg. 21
   Virginia Beach, VA 23456

Washington
1. West Valley Fire Rescue
   10000 Zier Road
   Yakima, WA 98908
2. Marysville Fire District
   1635 Grove Street
   Marysville, WA 98270
3. Seattle Fire Department
   301 Second Avenue South
   Seattle, WA 98104
4. Aberdeen Fire Department
   700 West Market
   Aberdeen, WA 98520

West Virginia
1. City of Weirton Fire Department
   200 Municipal Plaza
   Weirton, WV 26062

West Virginia
2. Princeton City Fire Department
   100 Courthouse Road
   Princeton, WV 24740
3. Morgantown Fire Department
   Morgantown WV
4. Charlestown Fire Department
   808 Virginia Street
   Charleston, WV 25302

Wisconsin
1. City of Madison Fire Department
   Madison WI
2. Kenosha Fire Department
   Administration 625 52nd Street
   Kenosha, Wisconsin 53140
3. Oshkosh Fire Department
   101 Court Street
   Oshkosh, Wisconsin 54901
4. Green Bay Fire Department
   501 S Washington St
   Green Bay, WI 54301-4218

Wyoming
1. Sheridan Fire Department
   151 South Scott Street
   Sheridan, WY 82801
2. Cheyenne Fire Department
   Cheyenne, WY 82001
3. Laramie Fire Department
   PO Box C
   Laramie, WY 82073
4. Rawlins Fire Department
   320 W. Walnut
   Rawlins, WY 82301
Appendix C

Damage Assessment Questionnaire Results

National Fire Academy

Executive Analysis of Fire Service Operations in Emergency Management

Rapid Damage Assessment Procedure Questionnaire

1. Agency Information:
   a. Department Name: _____________________________________________
   b. Contact Person: _______________________________________________
   c. Telephone / Fax Number: _______________________________________
   d. Email Address: _______________________________________________
   e. Population Served/ Square Miles: _________________________________
   f. Department Type: Paid __37__ Combination __26__ Volunteer _____

2. What is the probability that your department will respond to a man-made and/or natural disaster in your community?  LOW__3__  MEDIUM__25__  HIGH__35__

3. Does your department have a formal damage assessment plan, and damage assessment form?
   Plan: YES __31__ NO __32__  Form: YES __18__ NO __45__


5. Has your department identified the critical target areas in your Community?
   a. Hospital/ Medical Facilities: Yes __58__  No __5__
   b. Schools: Yes __62__  No __1__
   c. Infrastructure: Yes __62__  No __1___
d. Industry/Mercantile  Yes _54____  No ___9____
e. Hotels/Tourism  Yes _52_____  No ___11____

6. Is there a policy in place outlining what crews survey each sector of your jurisdiction for damage when responding to a disaster?  Yes ___22____  No ___41____

7. Do you have a policy identifying how your jurisdiction is divided into sectors for rapid damage assessment?  Yes ___22____  No ___40____

8. Does the daily staffing of your department meet the needs of your plan to quickly and efficiently complete a rapid damage assessment?  Yes ___22____  No ___41____

9. As outlined in your policy, do additional 911 calls, requests for help, or visual sightings take precedence over the rapid damage assessment, or must it be completed first before rendering aid?  Yes ___29____  No ___34____

10. How often do you practice your damage assessment plan?

0-6 months _3____  7-12 months _12____  13-24 months _2____  > 2 yrs _20____  N/A _26____

11. If you have a policy in place, has it ever been used?

Yes _17____  No _24____  N/A _28____
Appendix D

Rapid Damage Assessment Plan

PERKINS TOWNSHIP FIRE DEPARTMENT
STANDARD OPERATING GUIDELINES

SOG 07-011
RAPID DAMAGE ASSESSMENT PLAN
Effective DRAFT
Page 1 of 2

Purpose:

The purpose of this plan is to provide a uniform guideline for conducting a rapid damage assessment after a natural or man-made disaster in Perkins Township. It is essential that the assessment be efficiently completed as rapidly as possible to insure that the needed resources are procured and deployed to effectively mitigate the event.

Responsibility:

It shall be the responsibility of the PTFD to provide the equipment, forms, resources and training needed to properly perform a rapid damage assessment. It shall be the responsibility of all department members to comply with and support all departmental guidelines. It shall be the responsibility of all PTFD supervisory personnel have a compete understanding of the plan, and to ensure the completion of all aspects of the plan.

Procedures:

Pre-Incident
1. Complete a community risk profile and target hazard risk assessment for Perkins Township.
2. Create four sectors using Columbus Ave and Strub Road as the dividing lines. Station 2 will assess sectors one and four, and Station 3 will assess sectors two and three.
3. Evaluate the PTFD communications systems and develop a system for the transfer of data from the field crews to the Shift Commander and EOC, including at least one back-up system.
4. Determine the staffing required to complete the damage assessments and to respond to 911 calls.
5. Establish mutual aid and automatic aid agreements to supplement the PTFD personnel.

Immediate
1. In the event of a disaster the shift commander will contact the Fire Chief and Assistant Chief, and call back all off duty personnel.
2. As soon as possible after the disaster the station officers shall contact the shift commander and report the status of all PTFD personnel, equipment, and facilities.
3. If not in quarters at the time of the disaster, the crews are to seek shelter until safe and then drive to their stations and assess the departmental facilities and equipment for damage.
4. The Station Officers will split their crews into two units with each unit assessing the damage in one of the two sectors assigned to each station using the proper damage assessment form (Appendix E)
5. Assessment crews will complete the assigned tasks without stopping to mitigate individual events, but rather noting any unsafe conditions or emergencies and immediately report this information to the Shift Commander.
6. All calls for service will be prioritized and dispatched by the Shift Commander using call back, mutual aid, and automatic aid personnel to initially handle these calls.
7. All assessment crews will meet at Station 2 or the north parking lot of the Erie County Fair Grounds to transfer their reports to the Shift Commander.
8. The Shift Commander will then transfer this accumulated data to the Chief and the EOC.
9. All crews will then be placed in service to handle emergency calls.

**Post Incident**

1. Assist the EOC and other agencies in completing a thorough damage assessment of the entire township.
2. Assist with the completion of all damage assessment reports as deemed necessary by the EOC.
3. Submit all required documentation for reimbursement by state, federal, and private sources.
4. Evaluate the damage assessment plan and make adjustments as needed.

**Training and Testing:**

All crews will complete bi-annually training to refresh the personnel with the required procedures, update the hazard risk analysis, and practice the assessment plan. The drills will occur in April and October and the results will be used to assess the effectiveness of the damage assessment plan and to recommend needed changes.
Appendix E
Rapid Damage Assessment Form

SECTOR 1 2 3 4

Internal assessment of personnel, equipment and stations

Personnel: No Injuries ___ Minor Injuries ___ Major Injuries ___ Dead ___

Apparatus: No damage ___ in service /w damage ___ OOS but fixable ___ OOS ___

Station: No Damage ___ Minor Damage ___ Major Damage ___ Destroyed ___

External assessment of assigned sector

Fatalities: None ___ 1-50 ___ 51-100 ___ > 100 ___

Injuries: None ___ 1-50 ___ 51-100 ___ > 100 ___

Streets: All Passable ___ % not passable ___ List not passable below and cause

______________________________________________________________________________

______________________________________________________________________________

______________________________________________________________________________

Residential: List percentage and location in each category

None or Light Damage: ___

______________________________________________________________________________

______________________________________________________________________________

Moderate Damage: ___

______________________________________________________________________________

______________________________________________________________________________

Heavy Damage: ___

______________________________________________________________________________
Commercial: list percentage and location in each category
None or Light Damage: ____

Moderate Damage: ____

Heavy Damage: ____

School: list percentage and location in each category
None or Light Damage: ____

Moderate Damage: ____

Heavy Damage: ____

Target Hazards: list percentage and location in each category
None or Light Damage: ____

Moderate Damage: ____
Heavy Damage: ____

Infrastructure: list percentage and location in each category

None or Light Damage: ____

Moderate Damage: ____

Heavy Damage: ____

Utilities: List percentage of disruption and location effected

Gas Leak ____

Electric Outage ____

Water / Sewer Leaks ____

Telephone Service Out ____

Special Concerns: