Developing a Rapid Damage Assessment Procedure for the City of York

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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.

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Abstract

The problem is that the City of York does not have a plan in place in regards to conducting an initial rapid damage assessment in the event of a man-made or natural disaster. As a result, the City of York cannot determine the immediate need for life safety and property loss. The purpose of this research is to develop a rapid damage assessment procedure for the City of York in the event of a man-made or natural disaster to ensure life safety, property conservation and timely reimbursement of funds. The research method used for this Applied Research Project was descriptive. The following four research questions were posed: 1. For disasters likely to occur in the City of York, what hazards & obstacles to damage assessment will be produced? 2. What is damage assessment and why is it important to conduct following a disaster? 3. How do other communities conduct damage assessment? 4. How can damage assessment information be rapidly and accurately acquired? Using a literature review, a survey, interviews, a review of data and internet searches, results were reached. The results showed that rapid damage assessment is critical to understand the magnitude of a disaster and what resources will be needed. The results also showed that throughout Pennsylvania, the majority of fire departments do not have a procedure in place for rapid damage assessment and have minimal training in emergency management including damage assessment. It is recommended that the general order developed be adopted by the City of York Department of Fire/Rescue Services. It is also recommended that the City of York work with the County of York to produce a more consistent regional damage assessment procedure that includes improved technology.

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Introduction

A structure fire handled by a fire department can be an extremely chaotic scene. There are many tasks that need to be accomplished. A good incident commander will complete a 360 degree assessment of the property. This gives the commander critical information that will be used to establish an incident action plan. This assessment gives the commander vital information such as; are people trapped, what is the type of construction, what is the amount of fire, what obstacles will hinder apparatus placement and what are the exposure issues.

A man-made or natural disaster is exponentially worse than a residential structure fire. A disaster is a much larger incident than a fire and a good damage assessment will allow the incident commander and decision makers to start formulating a plan to deal with the disaster. An accurate damage assessment can save lives and salvage property. A good rapid damage assessment will allow for quicker physical and financial recovery.

The problem is that the City of York does not have a plan in place in regards to conducting an initial rapid damage assessment in the event of a man-made or natural disaster. As a result, the City of York cannot determine the immediate need for life safety and property loss. The City of York also does not have the required information needed for reimbursement of funds.

The purpose of this research is to develop a rapid damage assessment procedure for the City of York in the event of a man-made or natural disaster to ensure life safety, property conservation and timely reimbursement of funds. The research method will be descriptive and will attempt to answer the following research questions;

1. For the disasters likely to occur in the City of York, what hazards & obstacles to damage assessment will be produced?

2. What is damage assessment and why is it important to conduct following a disaster?
3. How do other communities conduct damage assessment?
4. How can damage assessment information be rapidly and accurately acquired?

The research questions will be answered using a combination of data analysis, historical data, interviews and surveys.

Background and Significance

The City of York Pennsylvania is located in south-central Pennsylvania. It is a Pennsylvania third class city with a population of 43,768 and a strong Mayor form of government. The York City Department of Fire/Rescue Services (YCDFRS) is a combination fire department comprised of 59 career and 25 volunteer firefighters. Firefighters staff three engines and one ladder truck running out of four fire stations. In 2012, YCDFRS answered 2,705 calls for service.

The City of York is susceptible to natural disasters. Although Pennsylvania is not thought of a state that is prone to earthquakes, the city did feel the effects of a 5.8 magnitude Earthquake that struck the eastern United States in August of 2011. Also, from 2008-2009, the area of Dillsburg York County suffered a swarm of earthquakes. York City, which is 20 miles away from Dillsburg, did not feel any seismic activity.

In April of 2011, a F1 tornado touched down in a residential portion of the city. No injuries were reported but property was damaged. In September of 2011, Tropical Storm Lee caused devastating flooding to York. This was the worst flooding since the 1972 storm Agnes.

Pennsylvania is known to be susceptible to major snow and ice storms. These storms have the potential to cause building collapse and long term power outages. There also is potential for flooding if a large snowfall melts quickly.

With Pennsylvania being a Commonwealth, the emergency management responsibilities are placed at the local level. In York County Pennsylvania, there are 72 municipalities each having their own emergency management coordinator. These coordinators would then report to the County EMA Director. This system does not provide the best use of resources in a wide scale disaster that spans several municipalities.

During recently declared disasters, the City of York has had difficulty getting expenses and damages reimbursed by The Pennsylvania Emergency Management Agency (PEMA) and the Federal Emergency Management Agency (FEMA). This difficulty was the result of not having adequate damage assessment information. During Tropical Storm Lee in 2011, city facilities including fire stations and the waste water treatment plant received damage that was reimbursable due to it being a declared disaster.

A rapid damage assessment can also be critical in obtaining the information needed to declare a disaster. A disaster properly declared can assist residents with financial and quality of life needs.

This applied research project will assist the City of York Department of Fire/Rescue Services in accomplishing two of the five of the United States Fire Administration (USFA) objectives: (a) to promote within communities a comprehensive, multi-hazard risk-reduction plan led by the fire service organization and (b) to respond appropriately in a timely manner to emerging issues (Executive fire officer, 2008).

Literature Review

Natural and man-made disasters have the potential to happen anywhere in our country. Wild fires, floods, hurricanes, earthquakes, tornados, blizzards and other disasters can be devastating to the country's population. According to the Federal Emergency Management Agency (FEMA) there were 47 major disaster declarations in 2012. There were 99 declared disasters in 2011 and 81declared disasters in 2010 (Disaster declarations by).

Emergency management agencies such as FEMA and the Pennsylvania Emergency Management Agency (PEMA) advocate disaster preparedness. In some instances, where a warning is possible, such as blizzards or hurricanes, agencies will offer advice leading up to the event. Citizens who take responsibility and prepare for a potential disaster make the rescue and recovery operational periods less hectic. Although there are some disasters that occur with little or no warning, a citizen who has thought out a plan will likely recover quicker. PEMA advocates being informed on potential disasters that may affect citizens of Pennsylvania. They also offer advice on how to make a plan and how to build an emergency kit that can be used following a disaster (Pennsylvania emergency management, 2013).

With the use of smart phones and tablets in use today, mobile apps are being developed for emergency preparedness. The Virginia Department of Emergency Management (VDEM) has launched a mobile app that can be used in the event of a disaster. The app is able to provide up to date location specific weather information. The app also offers tips on preparing for a disaster (Heaton, 2013).

Although agencies such as FEMA and PEMA take preparedness serious, there will still most likely be chaos once a disaster occurs. Recovery from a major disaster can take years. The recovery process for Hurricane Katrina is still taking place. According to the 2010 census,

which was conducted five years after the hurricane, 25 percent of New Orleans residential addresses were vacant (Jonsson, 2012).

Although preparedness for a disaster will assist in the recovery process, there are obstacles that can prolong recovery. The concept of Maslow's Hierarchy of Needs can be applied after a disaster. In Maslow's work, a person's needs are viewed as a pyramid. The basic needs are at the bottom level and include food, water, and sleep. The basic needs must be met before other needs such as social, security and self-actualizing can be met (Cherry, 2013).

In today's society, we find ourselves connected to technology. It is not uncommon to see people using smart phones. More people now own a smart phone over a regular cell phone (Gross, 2012). In the year 2000, there were 500 million mobile subscriptions globally and 250 million internet users. By 2011, 5 billion people worldwide are mobile users and 2 billion subscribed to the internet (Number of internet, 2011). A loss of this technology service will have an effect on daily life and work.

In 2012 Hurricane Sandy struck the east coast of the Unite States. High winds, storm surges and flooding took a toll on wireless and internet service. Residents in New York City complained that AT&T service was interrupted. AT&T representatives acknowledged the interruption in the areas heavily impacted by the storm. They monitored the situation and sent technicians to assess the damage and make repairs (Reardon, 2012).

The City of York values its history. As one of the original thirteen colonies, Pennsylvania played an important role in the formation of our country. Philadelphia is the home of Independence Hall, the place where the Declaration of Independence was signed. As our founding fathers fled Philadelphia from the British, they arrived in York, Pennsylvania. It was in York that the Articles of Confederation were signed (York city 250, 1991). The City of York

attempts to preserve the history and historical buildings. The City of York has the oldest continuously operating fire station in the country. (History, 1976). Historical buildings can be an obstacle in quickly recovering from a disaster. Plans should be in place to deal with historical buildings. The national park service takes damage assessment seriously and has a plan in place.

Damage assessment to the Washington Monument after the east coast earthquake in 2011 posed a challenge. Workers had to assess the 555' monument to be sure of the exact damage. Workers using ropes rappelled over the sides of the monument to examine the structure block by block. The assessment took engineers five days to complete (Ruane, 2011). The monument had to be closed to the public due to potential dangers. The estimate to make the repairs from the 5.8 magnitude earthquake was 15 million dollars (Bello, 2012).

The EAFSOEM student manual (2012) defines damage assessment as "a gathering of information related to the impact of an event, or series of events, on life and property within a defined area" (p. 4-5). The manual further defines immediate damage assessment as a "rapid estimate of damage at a specific incident site or within an incident area". The information obtained during the immediate damage assessment is used for a variety of reasons during the active phase of an event or incident (EAFOSEM, 2012).

Earthquakes can cause dozens, hundreds or even thousands of major emergencies at the same time. Each one of these emergencies individually would normally require multi-alarm responses. Put them all together and resources are quickly depleted. The United States Department of Homeland Security (DHS), lists critical response actions initially expected at an earthquake. Those actions are; 1) gain situational awareness, 2) assess the situation, 3) activate and mobilize resources, people, and capabilities, 4) coordinate response actions (Good, 2012).

Fire officers are often taught how to size up a fire scene and the importance of a good size up. Many officers are still studying the Layman's practices of size up which dates to the 1940's. In his work, Layman teaches, figure out how big the problem is and where it's heading. Identify your current resources, immediate and anticipated needs and the availability of additional resource (Good, 2012).

Current disaster management literature follows Layman's principles. Initial damage assessment or windshield survey should be used to develop situational awareness. Information from the assessment can be used to determine resources, prioritize mitigation efforts and determine if an event meets minimum thresholds for FEMA assistance. It is the first responder who typically is responsible for conducting the initial damage assessment (Good, 2012).

The initial damage assessment collects information that will be used by various agencies. The damage assessment process should be looked at as a continuum with the initial damage report providing the first description of the type and scope of damages. Information submitted to York County will be forwarded to PEMA for evaluation (York county, 2012).

Damage assessment is generally conducted within the first 24 hours after the disaster. The windshield survey is a quick visual. Its purpose is to determine what happened, determine where it happened and determine the extent of damage by viewing as much of the affected area as possible. Categories used to describe damage are; minor, major or destroyed (York county, 2012).

According to the York County Local Emergency Management Coordinator's Handbook, preliminary damage assessment is a "joint assessment used to determine the magnitude and impact of an event's damage. A FEMA/state team will usually visit local applicants and view the damage firsthand to assess the scope of damage and estimate repair costs. The state uses the

results of the PDA to determine if the situation is beyond the combined capabilities of the state and local resources and to verify the need for supplemental federal assistance. The PDA also identifies any unmet needs that may require immediate attention" (P. 17-8).

The goal of a rapid damage assessment plan is to obtain information quickly on the disaster. Ultimately the information will be used to effectively recover and return the municipality to normal. The National Response Framework (Framework) replaces the National Response Plan (NRP). The Framework presents the guiding principles that allow all response agencies to prepare for and provide a unified national response to disasters and emergencies. The Framework can be used from a small incident to a large catastrophe. The Framework establishes a comprehensive, national, all-hazards approach to domestic incident response and enables first responders, decision makers, and supporting entities to provide a unified national response (National response framework, 2008).

The Framework is structured to list the specific roles and responsibilities of those in emergency management. Roles and responsibilities start at the local level. The local emergency manage has the responsibility and authority for overseeing the day to day emergency management programs and activities. The emergency manager coordinates all components of the local emergency management program to include damage assessment (National response framework, 2008).

Broward County is located in south Florida. The Broward County EMA is familiar with preparing and dealing with natural disasters especially hurricanes. The Broward County Emergency Management Division (BEMD) has developed a rapid impact assessment (RIA) for municipalities within the county including Boca Raton and Ft. Lauderdale. The RIA is a quick drive by or windshield survey conducted by municipal representative to identify the impact of an

event in a designated area. The results are then forwarded to BEMD and information is populated on a map. The RIA is a quick indicator of observed damage to geographical areas. The county is divided into ¼ mile grids. There are approximately 1,700 grids in the county. The RIA requires that all grid information be collected by the municipalities and provided to the county within 4-6 hours after an event (Broward county, 2009).

The primary method for reporting damage is through an internet based grid map. Secondary forms include; phone, fax and radio. Damage is reported by using categories. The categories are, no damage, minor damage, moderate damage, severe damage or catastrophic (Broward county, 2009).

The City of Springfield, Oregon's Emergency Management Plan annex for damage assessment Section 10.2.1 states "a planned damage assessment and reporting procedure is essential for effective response and recovery operations. Damage assessment procedures are critical to the cost recovery process initiated during presidentially declared disasters" (p. 10-2).

Damage assessment in Springfield Oregon falls under the responsibility of the planning section. The planning chief may appoint a damage assessment manager to coordinate all phases of damage assessment. The four phases are; rapid damage assessment or windshield survey, initial damage assessment, preliminary damage assessment and secondary damage assessment (Damage assessment, 2007).

The rapid damage assessment or windshield survey is conducted immediately after an event occurs and should be completed within 24 hours of the event. This first phase is coordinated by the fire department using station companies. This phase focuses on immediate life threatening situations. Companies will also check on occupancies on a priority list in case of an earthquake. Information collected also includes facilities critical to government response

and recovery. Facilities such as police stations, fire stations, 911 center, public works buildings and hospitals (Damage assessment, 2007).

Kitsap County Washington, located 13 miles west of Seattle, has procedures in place for rapid damage assessment. The procedures are used during the initial phase of an event to determine the extent of life safety and damage to critical facilities. The procedures and forms used are critical to a systematic survey. Rapid damage assessment is divided into two periods. The first is conducted within 30 minutes of an event. The second period is conducted within three hours of the event (Preliminary damage assessment, 2008).

During the first period, assessment units are deployed. These units are composed of both fire and police units. Assessments units survey life safety events, critical response agencies/facilities, and transportation routes. Fire/EMS does not dispatch resources until priorities are established. Information collected is forwarded to the established EOC (Preliminary damage assessment, 2008).

During the second period, response agencies report on pre-identified priority two facilities such as schools, institutional occupancies, medical facilities, assembly and high risk occupancies, and utilities (Preliminary damage assessment, 2008).

It is important for damage assessment data to be collected as quickly and accurately as possible. The collected information will be used to set priorities and start the process for recovery. In order to carry out an effective and efficient damage assessment, it is necessary to plan and train with those who will be responsible for this function (McEntire, 2002).

Training with all agencies involved in damage assessment is a way to improve damage assessment collection. Another is use of technology. Wireless handheld computing is evolving as a way to obtain real time intelligence from the field. Emergency managers agree that too

much time is spent manually logging information into databases. Affordable and effective wireless technologies and applications allow the incident commander and field personnel to capture and communicate information to EOC's in near real time (Morrow, 2002).

Franklin County, Ohio struggled with a way to collect and summarize disaster damage information from forty three jurisdictions and sixteen school districts. Information would then need to be submitted to the State EMA. The struggles lead to the development of the Franklin County Emergency Management Agency's Damage Assessment Program (Poe, 2002).

The concept was to develop a computer-based program to record and summarize data collected. Although computer based, it also had to be usable in manual or handwritten form for small jurisdictions that may not have access to computers. A Microsoft Excel workbook was developed for each jurisdiction and school district in the county. Summary information is then forwarded to the county. The county can make an accurate assessment of damage county wide and forward to the State EMA (Poe, 202).

Future plans call for linking the damage information to the county GIS system so damages can be quickly and efficiently mapped. The GIS system can then produce maps for use by local, state and federal officials. Additional plans call for developing links to police helicopters and GIS maps. Helicopters could fly over a damaged area and quickly mark the boundaries of damaged areas on maps (Poe, 2002).

It is crucial that disaster managers, disaster survivors and those interested in preparedness are able to get information via the internet as quickly and easily as possible. FEMA understands this and has made usability part of the agencies culture. In 2009, FEMA started with a "lunch and learn" session for those who create disaster related web sites. The idea grew into a two day workshop covering eight topics. The workshop provides an overview of how to create sites that

are both usable and accessible to disaster managers, disaster survivors and the general public (Lebson, 2011).

Plans are already under way to expand on the workshops. Mobile phone applications will be integrated into the program to retrieve bits of information critical to the preparedness, survival and recovery of an area struck by disaster (Lebson, 2011).

One way to speed up the collection of damage assessment after a disaster is to complete a hazard and vulnerability analysis before the disaster. This is a great tool for understanding the unique hazards and risks that are specific to a community. The hazard and vulnerability analysis is also a way to plan for the natural and technological events that have the potential to impact a community. These analyses will give an understanding of what potential damage can occur from an event (Moore, 2002).

In the last five years, social media has played an increasing role in emergencies and disasters. According to Bruce Lindsey, in an article for the *Congressional Research Service*, social media is the fourth most popular source to access emergency information. Social media is also "commonly used by individuals and communities to warn others of unsafe areas or situations, inform friends and family that someone is safe, and raise funds for disaster relief" (p. 1).

Social media is not only used for disseminating information but can be used to receive valuable information. Social media is a way to receive victim requests, monitor user's activities to obtain situational awareness and receive damage assessment (Lindsay, 2011).

Social media is still a relatively new concept in disaster management. Scholarly studies on the use of social media in disaster management have identified several lessons learned. Identify target audiences for the applications such as civilians, government organizations and

volunteers. Determine appropriate types of information to release. Identify any negative consequences such as the potential spread of false information (Lindsay, 2011).

Procedures

The topic for this ARP began while attending the third year class of the Executive Fire Officer Program, Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM). During the class, the topic and importance of rapid damage assessment was covered. This author realized that the York City Department of Fire/Rescue Services was lacking in a rapid damage assessment procedure. General conversation and brainstorming began with members of the class. The topic was then discussed with class instructors and administrators of the EFO program. Positive feedback was received and the decision on the topic was finalized.

The research for this paper started at the National Fire Academy's Learning Resource Center (LRC). The author reviewed collected material including journals, research projects, reference books, internet sources and numerous written sources dealing with rapid damage assessment. The on-line card catalog system was used to search items in the LRC that supported this research. Keyword terms that were searched included, but were not limited to "rapid damage assessment", "emergency management", "windshield assessment", and "emergency preparedness".

A search for periodicals continued at the Martin Memorial Library in York, PA. A librarian at the library assisted this researcher with the use of the card catalog system. The librarian was also helpful in getting books through inter-library loan. The author spent time narrowing the information collected from both the LRC and Martin Memorial Library.

A review of the emergency management plans and documents for the City of York was conducted. A review of emergency plans and documents was also made of the County of York through their website.

An interview was conducted with Mike Fetrow on January 31st 2013 in his office located at the York County Department of Emergency Services building located at 120 Davies Drive York, PA. Mike Fetrow is the Director of Emergency Management for York County. Mr. Fetrow has over thirteen years in the emergency management field. As the director for York County, he oversees the emergency management coordinators in seventy two municipalities located within York County. Questions asked of Mr. Fetrow included but were not limited to; 1. Is there a county wide rapid damage assessment procedure? 2. Is each municipality within the county responsible for conducting their own rapid damage assessment? 3. Are you the collection point for rapid damage assessments conducted throughout the county? 4. Can the state offer any rapid damage assessment assistance? 5. Are you aware of any technology that could increase the speed and accuracy of rapid damage assessments? 6. What obstacles do you see that could impede the ability of collecting data from a rapid damage assessment?

A survey was used to poll Pennsylvania Career Fire Chiefs and York County Fire Chiefs on various aspects of rapid damage assessment. This researcher used SurveyMonkey.com to create the survey and record the results. The link to the survey was e-mailed to all members of the Pennsylvania Career Fire Chiefs Association. The link was also sent to all e-mail addresses on the York County Fire Chiefs Association roster (Appendix A). The author estimates the survey was distributed to approximately 150 individuals representing 100 fire departments. The survey received 48 responses.

On February 7, 2013, an interview took place with Mike Shanabrook. Mr. Shanabrook is the Emergency Management Coordinator for the City of York. Mr. Shanabrook has an extensive history in planning. He has been employed by the City of York for 36 years. He started his career in municipal planning. Mr. Shanabrook's current job title is Emergency Planner. Besides serving as Emergency Management Coordinator, he also handles GIS and mapping duties and coordinates all Sara Title III reporting for the city. Mr. Shanabrook's appointment as the Emergency Management Coordinator was confirmed by the Governor of the Commonwealth of Pennsylvania. He is certified in Emergency Management. This certification is maintained through continuing education. Questions asked of Mr. Shanabrook included but were not limited to; 1. What are your duties as Emergency Management Coordinator? 2. What are the procedures for the City of York in conducting rapid damage assessment? 3. Has the City of York used recent available technology to conduct rapid damage assessment? 4. What obstacles would the City of York face in conducting rapid damage assessment? 5. Who would conduct rapid damage assessment in the City of York?

Results

Through descriptive research which utilized a survey, interviews with subject matter experts, data analysis and reviews and literature review, the author was able to establish sufficient information to answer the research questions.

A survey was conducted, as part of the research, using SurveyMonkey.com (Appendix B). The first question on the ten question survey asked how many members are in the department. 2.1% of those that responded had 1-10 members. 64.6% responding had 11-50 members. 16.7% of those responding had 51-100 members and 16.7% responding had more than 101 members.

The second survey question asked for the population of the municipality. 12.5% of those responding had a population under 5,000. 16.7% responded that they had a population of 5,001-10,000. 43.8% fell into the 10,001-30,000 range for population. 18.8% responded they were in the 30,001-60,000 range and 8.3% had a population greater than 60,000.

Question three asked who in the municipality was responsible for emergency management. 22.9% responded that the fire chief was responsible for emergency management. 2.1% responded that the police chief was responsible for emergency management. 62.5% responded that an emergency management coordinator who was not a police or fire chief was responsible for emergency management. 2.1% responded that an elected official serves as the person responsible for emergency management. 10.4% responded that someone other than the choices listed served as the person responsible for emergency management.

Question four asked if a rapid damage assessment or windshield damage assessment was conducted in the past 10 years following a disaster. 43.8% responded yes while 56.3% responded no.

Question five asked if the municipality had a procedure in place for conducting a rapid damage assessment following a major disaster. 43.8% answered they did have a procedure in place while 56.3% answered they had no procedure in place.

Question six asked who was responsible for conducting the rapid damage assessment in the municipality. 36.2% responded that the fire department was responsible. 2.1% listed the police department as the responsible agency. 6.4% said it was public works who was responsible. 12.8% listed the building code official. 10.6% responded that elected officials were responsible. 0% used CERT teams as the responsible party. 31.9% responded someone other than those listed were responsible.

Question seven of the survey asked if using fire/EMS vehicles and personnel to conduct a rapid damage assessment would interfere with response duties after a disaster. 43.8% felt it would interfere with emergency response. 21.7% responded that it would not interfere with emergency response. The remaining 29.25 said it would not interfere if a plan was in place.

Question eight asked if members of the department received training in emergency management or rapid damage assessment. 27.1% responded that department members did receive training. 72.9% responded that their members did not receive training in emergency management or rapid damage assessment.

Question nine of the survey asked how information collected on a rapid damage assessment would be communicated. 66.7% responded information would be transmitted via radio. 68.8% responded the preferred method would be cell phone. 70.8% answered they would communicate data face to face. 62.5% would use written forms turned into others. 45.8% responded they would e-mail data collected from a rapid damage assessment. 20.8% responded information would be transmitted via computer program. 4.25 would use some other means of communication.

The final question on the survey asked what obstacles would be anticipated in collecting rapid damage assessment information. 84.5% believed downed trees would be an obstacle. 85.4% responded downed power lines would be an obstacle. 85.4% responded blocked streets would be an obstacle in collecting information. Loss of wireless service was listed by 41.7%. Lack of personnel was listed by 62.5% of participants. 27.1% responded that a high number of causalities would be an obstacle. 45.8% felt a lack of training could affect the ability to collect data. 14.6% responded that historical buildings would be an obstacle. 8.3% responded there would be other obstacles not listed.

The first research question asked, for the disasters likely to occur in the City of York, what hazards & obstacles to damage assessment will be produced? A hazard and vulnerability assessment for the City of York shows that there is the potential for several types of disasters (Appendix G). Recent events also confirm different types of disasters have struck York at different levels of severity.

Although agencies such as FEMA and PEMA spread the disaster preparedness message, a disaster will still be a chaotic situation. Emergency managers will want to get a feel for what they are dealing with as soon as possible after the event. A good rapid damage assessment will set the tone for the start of the recovery. It is likely there will be hazards and obstacles present when conducting the rapid damage assessment.

The survey asked the question what obstacles one would anticipate in conducting a rapid damage assessment. Answers included; downed trees, downed power lines, blocked streets, loss of wireless service, shortage of personnel, historical buildings and lack of training.

There was a survey question that asked the survey participants if they had a procedure in place for conducting rapid damage assessment. 43.8% responded they had no procedure in place. This would be an obstacle in performing a rapid damage assessment. Another survey question asked if members of their department received training in emergency management or rapid damage assessment. 72.9% responded they do not receive training. This is another obstacle in the event a damage assessment is needed after a disaster. And finally, a survey question asked whether a rapid damage assessment had been conducted by the participant's municipality in the last ten years. Over half, 56.3%, answered no, they did not have to complete a rapid damage assessment in the past ten years. The fact that rapid damage assessment is not a common practice presents a challenge when it has to actually be performed in a true disaster.

Mike Fetrow, the Emergency Management director for York County, advised of several obstacles and hazards during an interview. Mr. Fetrow stated that Pennsylvania Title 35 is the law that established emergency management procedures and structure. Pennsylvania is a Commonwealth which puts emergency management at the local level. As a result, each municipality in York County is responsible for their own emergency management including rapid damage assessment. This makes it difficult for Mr. Fetrow at the county level due to varying levels of participation from local emergency management coordinators.

Mike Shanabrook, the Emergency Management Coordinator with the City of York spoke of hazards and obstacles during an interview. Mr. Shanabrook believed that the history of the city and its buildings could pose an obstacle during the damage assessment procedure. The historical significance of certain building may not be fully understood by those conducting the survey. This could lead to inaccurate information that may delay funding in rebuilding. Mr. Shanabrook also believed the age and construction of city buildings could be an obstacle. The city has a high proportion of older buildings (Appendix F). With these buildings, it may take special engineering talents to fully understand damage. In addition, the city has a high proportion of row homes. These homes are often attached with common structural components. It would be possible to have damage that may not be completely visible.

Research question two asked what is damage assessment and why is it important to conduct following a disaster? The EAFSOEM student manual (2012) defines damage assessment as “a gathering of information related to the impact of an event, or series of events, on life and property within a defined area” (p. 4-5). The manual further defines immediate damage assessment as a rapid estimate of damage at a specific incident site or within an incident area.

The information obtained during the immediate damage assessment is used for a variety of reasons during the active phase of an event or incident (EAFOSEM, 2012).

Mike Fetrow, the Emergency Management Coordinator for York County, was asked what he thought damage assessment was and why it is important during an interview. Mr. Fetrow believed that damage assessment was the first step in understanding the true scope of a disaster. A rapid damage assessment will give the emergency managers the information and data they need to get the proper resources to handle the disaster. Mr. Fetrow further explained that the information collected on the rapid damage assessment is the first step to recovery. Data submitted up through the chain is often what is used to declare local, state and federal states of emergencies. This is critical to obtain the necessary funding for such things as personnel, equipment, debris removal and loans for citizens to start to rebuild and recover from a disaster.

Michael Shanabrook, the emergency management coordinator for the City of York was asked what he thought damage assessment was and why it was important. Mr. Shanabrook told of the importance of getting damage assessment quickly to get a clear picture of what is happening in the community following a disaster. Mr. Shanabrook told of how accurate damage assessment was used to assist the National Weather Service in determining a tornado struck York City in 2011. Structural damage from a strong storm was marked on a map as it was called into the EOC. Once viewing the damage on a map, it was clear that direction the storm took. The National Weather Service used that map to help determine that a tornado did strike. (Appendix E).

Research question three asked how other communities conduct damage assessment. The survey asked several questions to understand what other communities are doing as it pertains to damage assessment. There was a question that asked who was responsible for emergency

management in the community. The majority, 62.5%, answered an emergency management coordinator who is not fire or police was responsible. 22.9% answered the fire chief was responsible. Police chief and elected officials each received a response from 2.1% of those responding. 10.4% responded that someone other than the choices listed were responsible for emergency management.

Another question asked if the department or municipality had a plan or procedure in place for conducting a rapid damage assessment. 43.8% responded they did have a plan or procedure in place. The remaining 56.3% of those responding did not have a plan or procedure in place.

The survey also asked who in the municipality is responsible for conducting a rapid damage assessment. The majority, 36.2% responded that the fire department was responsible. 12.8% responded that the building code official has the responsibility. 6.4% said Public Works would be responsible and 2.1% said the police. 10.6% responded with elected officials and the remaining 31.9% responded that someone other than the choices listed would have the responsibility for conducting a rapid damage assessment.

A question asked those participating how information collected during rapid damage assessment would be communicated. 70.8% said face to face would be the preferred method. 66.7% use a radio. 68.8% would call the assessment information in by cell phone. 62.5% would writ the information on forms and turn them in later. 45.8% would e-mail the information. 20.8% would use some type of computer program. 4.2% would use another means of communicating the rapid damage assessment information.

Mike Fetrow, the York County EMA director advised during an interview that he would like to keep rapid damage assessment consistent throughout York County. He makes a standard

form available to all emergency coordinators in the county. He also has attempted to make required forms available on the county website.

In Kitsap County, Washington, which is outside of Seattle, A comprehensive damage assessment plan is in place. This area of the country is prone to earthquakes. After a disaster event occurs, police and fire are responsible for the initial rapid damage assessment. They report on their personnel, facilities and apparatus before conducting windshield surveys in a pre-determined geographical area. Personnel will not respond to emergency 911 calls until all damage information is collected and relayed to the EOC. The first phase will take about 30 minutes to complete (Damage assessment procedure, 2008).

The final research question asked how damage assessment information can be rapidly and accurately acquired. Accurate information collected from a damage assessment following a disaster can set the tone for the emergency response and recovery process. It is extremely important for emergency managers to have a clear picture of the event and respond appropriately.

Today's technology continues to improve. The advances in technology can be used as a way to quickly and accurately obtain information following a disaster. The survey asked how information is communicated to others following a rapid damage assessment. Although face to face received the majority of responses at 70.8%, technology is playing a role in communicating information. A computer program received 20.8% of the responses as a way to communicate valuable information. 45.8% responded they would use e-mail and 68.8% would use cell phones including smart phones.

Mike Fetrow, the director of York County EMA explained of advances being used by the county to quickly and accurately collect rapid damage assessment information. One

advancement is the use of the county website for civilians to report damage directly to the county. Information collected is submitted via the website. That information is then immediately populated into a data base. That information can then quickly sent onto Pennsylvania Emergency Management Agency (PEMA). The information can also be populated onto a map to show areas of damage. This information can also be used to coordinate emergency response and acquire the appropriate resources.

Another advancement is the use of social media. Mr. Fetrow stated that York County understands the role social media, including Twitter, can play in a disaster. Social media is both a way to distribute information quickly to the community and a way to receive disaster related information from the community. In the last five years, social media has played an increasing role in emergencies and disasters. According to Bruce Lindsey, in an article for the *Congressional Research Service*, social media is the fourth most popular source to access emergency information. Social media is also "commonly used by individuals and communities to warn others of unsafe areas or situations, inform friends and family that someone is safe, and raise funds for disaster relief" (p. 1).

The Department of Homeland Security (DHS) is conducting testing on a mobile app that it hopes will aid first responders and emergency manages in particular to quickly identify and detail disaster-related damage. The app provides a form driven data collection process to ensure consistent and detailed damage reporting. It integrates device cameras and GPS technology, allowing responders to photograph and precisely map damage locations (Kimery, 2012).

Discussions

The third year class of the National Fire Academy's EFO program pertained to emergency management. The class made this researcher aware of the role and importance of

emergency management. This ARP was a way for this author to become more familiar with emergency management functions in the City of York. Although the topic of this ARP was narrowed specifically to rapid damage assessment, this author did get a better understanding of the emergency management procedures and policies for the City and County of York.

A function of government that can often go unrecognized, especially at the local level, is emergency management. Thankfully, major disasters are not common for the City of York. As a result of disasters being uncommon, it is easy to reduce EMA budgets in this time of financial uncertainty. Reduced budgets can have an impact on disaster preparedness and response.

Pennsylvania does set the standards for emergency management responsibilities in Title 35. This established law puts the emergency management responsibility at the local level. Title 35 lists the requirements to appoint an emergency management coordinator for municipality and the roles and responsibilities they will have (Pennsylvania laws relating, 2011).

Interviews conducted with the York City emergency management coordinator and the York County EMA directors gave this author a better understanding of what Title 35 actually means and how it relates to emergency management in York County. In order to obtain consistent damage assessment information and data, the York County EMA has developed a handbook for all emergency management coordinators in the county. The handbook covers all aspects of emergency management in a local municipality. It includes a system for conducting rapid damage assessment and forms to use (York county local, 2012).

The survey conducted through SurveyMonkey.com was sent to members of the Pennsylvania Career Fire Chiefs Association and the York County Fire Chiefs Association. The survey results were used to compare the City of York with other municipalities throughout the commonwealth. The City of York is consistent with the survey findings. An emergency

management coordinator, not fire or police, is responsible for emergency management in the City of York. This is how the majority responded in the survey. The City of York also has no set plan or procedure in place for rapid damage assessment. Again, the majority answered the same by 56.3%.

Although the survey was limited to career departments in Pennsylvania and departments within York County, the research did show others throughout the country have rapid damage assessment procedures in place or are trying to make improvements.

In Anchorage, Alaska, emergency management plans include a section on damage assessment following a disaster. The plan states that damage assessment following a disaster is critical to ensure that the incident commander and mayor can adequately perform several functions including; to determine the overall impact of a disaster on the municipality, evaluate what resources are necessary and prioritize resource assignments for response requirements (Anchorage, 2007). During the initial damage assessment phase, the fire department will report the status of their facilities, personnel and equipment to the EOC in the first 30 minutes of an event that can reasonably have been expected to have caused significant damage. The fire department as well as the police department will then conduct the windshield surveys in pre-determined areas and report data to the EOC (Anchorage, 2007).

Broward County in south Florida, which has experience in emergency management due to hurricanes, has a comprehensive emergency plan in place. Part of that plan addresses the need for rapid damage assessment. Rapid damage assessment is started as soon as life safety issues and weather conditions are permitting. Rapid damage assessment is conducted by pre-determined geographical grids (Broward county, 2009). In Franklin County, Ohio, emergency management officials realized the need to improve the rapid damage assessment procedure. A

computer based program was developed to improve the damage assessment procedure. Franklin County now gets assessment information in a consistent and structured format (Poe, 2002).

It can be difficult for rapid damage assessment to be conducted solely by the fire department. In time of disaster, firefighters will be extremely busy answering emergency calls. Firefighters are trained for their jobs and the public has come to expect that they respond quickly. Firefighters themselves prepare to answer calls for help. Firefighters who are assigned rapid damage assessment before responding to calls for help may find it to be against their purpose. Firefighters often have no training in this duty and are asked to perform damage assessment infrequently. The research from the survey found that in the majority of responses, the fire department is responsible for damage assessment. The majority also responded they have not done a rapid damage assessment in the past 10 years and do not train in emergency management or rapid damage assessment.

Current economic times are finding many fire department with shrinking budgets and less personnel. This is a difficulty with the fire department being solely responsible for damage assessment. In San Jose, California, rising cost of firefighter's wages and benefits forced the city to lay off 49 firefighters (Walters, 2011). It is not uncommon to find fire departments that are browning out companies. A brown out is when a municipality chooses to close a company instead of paying to staff the apparatus. In Cincinnati, Ohio, financial struggles have forced the fire department to brown out companies. Some days there are as many as four companies that are closed. This is in addition to four companies that have been permanently closed (Malaska, 2010). When a company is browned out, it is often debated how it affects fire response. One thing that is not commonly discussed is how less personnel and apparatus could affect rapid damage assessment that primarily falls to the fire department.

Technology is playing an increased role in rapid damage assessment. The use of social media, smart phones, GIS and the internet are being used to improve the speed and efficiency of rapid damage assessment.

Social media has become a tool used for disaster preparedness. Local, state and federal agencies can get disaster preparedness messages out to thousands of people by posting on a social media site such as Facebook or Twitter. This is especially useful in disasters that have a warning such as hurricanes and blizzards. Citizens will have advanced knowledge of where they can go for aid and shelter. A study commissioned by the American Red Cross found that social media is the fourth most popular source to access emergency information (Lindsay, 2011).

Social media has also been used to receive damage assessment. Modern technology allows a user to send a picture and locate exactly where they are with GPs features in smart phones. Although there are many benefits to social media before, during and after a disaster, there are still limitations. It is common after a disaster to lose power for an extended period of time. The average battery life of a smart phone or tablet is twelve hours. Malicious use of social media during a disaster is also a concern. Some individuals or organizations may intentionally provide inaccurate information to confuse, disrupt, or otherwise thwart response efforts. Studies have found that outdated, inaccurate or false information has been disseminated via social media during disasters. During the 2011 Japanese earthquake and tsunami, tweets for assistance were "retweeted" after victims had been rescued (Lindsay, 2011).

It was realized by this author that the City of York is in need of a rapid damage assessment plan. Conducting a rapid damage assessment is not a common occurrence in the City of York. As a result, it is easy to forget about it until a disaster has struck. Emergency management training is minimal and with shrinking training budgets, emergency management

training is often the first line item cut. Having a procedure in place will assist incident command with understanding the scope of the disaster. It will also allow the city to begin the recovery process and assist with getting the necessary funds.

Recommendations

This research has produced several recommendations to be presented to City of York administrators for consideration.

There currently is no set procedure in place for the City of York to use when conducting a rapid damage assessment. It is recommended that the general order on rapid damage assessment (Appendix H) be adopted by the fire department. It is also further recommended that the York County EMA director be consulted on the general order. The general order should closely mimic the procedure the county has in place. Similar, if not the same forms should be used for collecting damage assessment data. This will not only be better for the city but also the county in submitting data and beginning the recovery process. Although the county is broken into 72 separate municipalities, a disaster knows no borders. Consistent damage assessment throughout the county will help all the municipalities in the path of a disaster.

It is also recommend that the City of York become a proponent of regionalized emergency management. The City of York should back changes to Title 35, the law that establishes EMA duties and structures in the Commonwealth of Pennsylvania. A county wide EMA would be logical. Under the current Title 35, if a disaster would happen to affect the entire county, there would be 72 different EOC's in operation. It would seem more appropriate to staff an EOC with the proper positions and staff needed.

It is further recommended that all York City employees attended at least one EMA training session per year. The HR department schedules various mandatory trainings throughout

the year. It would be best to have them schedule a topic pertaining to rapid damage assessment. In addition, the department's training officer should develop a training program for all members of the department on rapid damage assessment. It would be beneficial if the training program included a practical session on rapid damage assessment. Members of the department should also be allowed to attend emergency management trainings hosted through the York County EMA. Fire department officers should be mandated to attend drills sponsored by York County EMA.

The City of York should consider using agencies or employees other than the fire department to conduct rapid damage assessment. The fire department has been drastically cut in recent years. Department personnel have been reduced by 14% in the past three years. An engine company was placed out of service two years ago. The department has eight firefighters on duty at a time. The City of York should consider using dedicated damage assessment teams to conduct rapid damage assessment. The City of York has provided Community Emergency Response Team (CERT) training to civilians. This program is typically offered once a year. A roster is maintained of all citizens who are CERT certified. CERT members are always willing to offer assistance and they may be ideal for conducting rapid damage assessment.

And finally, the City of York should consider improving technology that would aid in rapid damage assessment. A start would be to introduce smartphones and tablets to emergency responders. These devices would improve data collection and would allow responders to send the information to emergency manages immediately. The emergency management coordinator should also consider working with the director of information services to improve GIS and mapping capabilities. This would allow information coming into the EOC to be plotted on a

map. The maps can them be used by incident commanders to better understand what resources will be needed and where they should be deployed.

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Appendix A

Survey Request

David Michaels

From: David Michaels
Sent: Friday, February 22, 2013 10:24 AM
To: scheirer@allentowncity.org; kudlak@allentowncity.org; kskeravag@allentowncity.org; laubach@allentowncity.org; thileman@altoonapa.gov; mtofano@altoona.gov; bf_fire@verizon.net; qbarkanic@bethlehem-pa.gov; rnovalac@bethlehem-pa.us; chiefangel@bradfordcityfire.com; georgesan@zoominternet.net; christy@pur.ortwp.org; wfitzgerald@chambersburgfire.com; wdubbs@comcast.net; johnson@chestercity.com; jgrasch11@aol.com; brotherlh@yahoo.com; rkd56@adelphia.net; jbast@easton-pa.gov; jprice@easton-pa.gov; apol@erie.pa.us; jwetzel@franklinpa.gov; gvlfire@svol.net; wepfire@aol.com; rallori@cityofhbg.com; GNEFF@cityofhbg.com; c229@ptd.net; ftd079@ptd.net; brian85lfd@hotmail.com; skovacic@cojrwn.com; tgregg@cityoflancasterpa.com; ahaubert@cityoflancasterpa.com; swarchola@cityoflancasterpa.com; lhedrick@cityofmeadville.org; rkane@manheimtownship.org; nfdfirechief@verizon.net; nsfchief@newcastlepa.org; shinds@olcity.org; crom@netrex.net; darryl.jones@city.pittsburgh.pa.us; cityfire54@aol.com; buddherene@msn.com; james.conrad@readingpa.org; a.ucas@scrantonpa.gov; twhalen@cityofsharon.net; firechief@titusvillepa.com; firedept@cityofwarrenpa.gov; rbrookman@comcast.net; jdelaney@WilkesBarrepa.us; jsharkshas@wilkes-barre.pa.us; omcafee@wilkinsburgpa.gov; firechief@cityofwilliamsport.org; deafirechief@cityofwilliamsport.org; Lloyd.Ayers@phila.gov; david.hollinger@readingpa.org; assistfirechief@cityofwilliamsport.org; firechief@wilsonboro.gn.org; David Michaels; emann@state.pa.us; gstapleton@pa.gov; chkonkle@gmail.com; johnsenfc@comcast.net; Jim Lilleman
Subject: Request for data

To All:

I'm currently in my 3rd year of the EFO program at the National Fire Academy. I am asking for your assistance in collecting data for my Applied Research Project. My topic pertains to rapid damage assessment following a disaster. I would appreciate if you could take a few minutes to complete the attached survey.

http://www.surveymonkey.com/s/T7SQB77

Thanks.

Working with you for a better York.

David P. Michaels, Acting Chief
Department of Fire/Rescue Services
City of York, Pennsylvania
717-854-3921 – Office
717-843-0464 – Fax

David Michaels

From: David Michaels
Sent: Friday, February 22, 2013 10:34 AM
To: 'association@yofs.us'
Subject: request for project

To All:

I'm currently in my 3rd year of the EFO program at the National Fire Academy. I am asking for your assistance in collecting data for my Applied Research Project. My topic pertains to rapid damage assessment following a disaster. I would appreciate if you could take a few minutes to complete the attached survey

http://www.surveymonkey.com/s/T7SCJJ7

Thanks.

Working with you for a better York.

David P. Michaels, Acting Chief
Department of Fire/Rescue Services
City of York, Pennsylvania
717-854-3921 – Office
717-843-0464 – Fax
717-324-6551 – Cell
dpmichael@yorkcity.org

Appendix B

Survey Questions and Results

1. How Many Members in Your Department?

	Response percent	Response Count
1-10	2.1%	1
11-50	64.6%	31
51-100	16.7%	8
101 or more	16.7%	8

2. What is the population of your community?

	Response percent	Response Count
Under 5,000	12.5%	6
5,001-10,000	16.7%	8
10,001-30,000	43.8%	21
30,001-60,000	18.8%	9
More than 60,000	8.3%	4

3. Who is responsible for Emergency Management in your municipality?

	Response percent	Response Count
Fire Chief	22.9%	11
Police Chief	2.1%	1
Emergency Management Coordinator (not fire or police)	62.5%	30
Elected official	2.1%	1
Other	10.4%	5

4. In the past 10 years, has your department or municipality conducted a rapid damage assessment or windshield damage assessment following a disaster?

	Response percent	Response Count
Yes	43.8%	21
No	56.3%	27

5. Does your department or municipality have a procedure in place for conducting a rapid damage assessment following a disaster?

	Response percent	Response Count
Yes	43.8%	21
No	56.3%	27

6. Who is responsible for conducting a rapid damage assessment in your municipality?

	Response percent	Response Count
Fire	36.2%	17
Police	2.1%	1
Public Works	6.4%	3
Building Code Official	12.8%	6
Elected Officials	10.6%	5
Cert Team	0.0%	0
Other	31.9%	15

7. Would using Fire/EMS vehicles and personnel to conduct a rapid damage assessment interfere with your response duties after a disaster?

	Response percent	Response Count
Yes	43.8%	21
No	27.1%	13
No (If a plan is in place)	29.2%	14

8. Do members of your department receive training in emergency management or rapid damage assessment?

	Response percent	Response Count
Yes	27.1%	13
No	72.9%	35

9. How would you communicate information collected on a rapid damage assessment? (select all that apply)

	Response percent	Response Count
Radio	66.7%	32
Cell phone	68.8%	33
Face to face	70.8%	34
Written forms turned into others	62.5%	30
E-mail	45.8%	22
Computer program	20.8%	10
Other	4.2%	2

10. What obstacles do you anticipate in collecting rapid damage assessment information? (select all that apply)

	Response percent	Response Count
Downed trees	85.4%	41
Downed power lines	85.4%	41
Blocked streets	85.4%	41
Loss of wireless service	41.7%	20
Lack of personnel	62.5%	30
High number of causalities	27.1%	13
Lack of training	45.8%	22
Historical buildings	14.6%	7
Other	8.3%	4

Appendix C

Initial Damage Report Worksheet

Name of Event: **Date:**

County: _____ **Municipality:** _____ **Time of Report:** _____

Disaster Declared: Yes/No Date & Time: _____ **EOC Activated: Full/Partial/None Time:** _____

Person Completing This Report: _____ **Phone No:** _____

Casualties

Fatalities	_____
Major Injuries	_____
Minor Injuries	_____
Missing	_____

Human Impact

Hospitals	_____
No. Evacuated	_____
No. Sheltered	_____
No. Hospitalized	_____

Comments:

_____
_____
_____
_____
_____
_____
_____
_____
_____
_____
_____

Damages

IA	*Destroyed*	*Major*	*Minor*	*Affected*	*Inaccessible*
Single Family					
Multi-Family					
Mobile Homes					
Businesses					

PA	*Destroyed*	*Major*	*Minor*
Bridges & Culverts			
Debris Removal			
Emergency Protective Measures			
Fire/EMS Facility			
Hospital			
Nursing Home			
Other			
Park			
Power Supply			
Public Building			
Roads			
Sanitary Sewer			
School			
Sewer treatment			
Storm Sewer			
Water Control Facility			
Water Supply			
Water Treatment			

(Map attached – and/or Addresses and/or GIS Coordinates)

Disaster Damage Assessment
(Infrastructure Damage – Public Property)

COUNTY: _____ MUNICIPALITY_____

NAME: _____

STREET ADDRESS (Location): _____

CITY: _____, PA, ZIP _____, MUNICIPAL CODE: _____

Damaged Infrastructure

Bridge/Culvert	☐	Public Building	☐
Fire/EMS Facility	☐	Road	☐
Hospital	☐	Sanitary Sewer	☐
Nursing Home	☐	School	☐
Park/Recreational Area	☐	Sewer Treatment	☐
Utility (Type)		Storm Sewer	☐
Telephone	☐	Water Control Facility	☐
Electric	☐	Water Supply	☐
Gas	☐	Water Treatment	☐
Water	☐	Other_____	☐
Sewer	☐	Other _____	☐

Damage Category (Check one box only)		**Estimated Repair Cost**
Not Functional, Not Repairable (Destroyed)	☐	
Not Functional, But Repairable (Major Damage)	☐	$ _____
Functional with Light Damage (Minor Damage)	☐	

Detailed Information

Describe the damage: _____

_____

_____

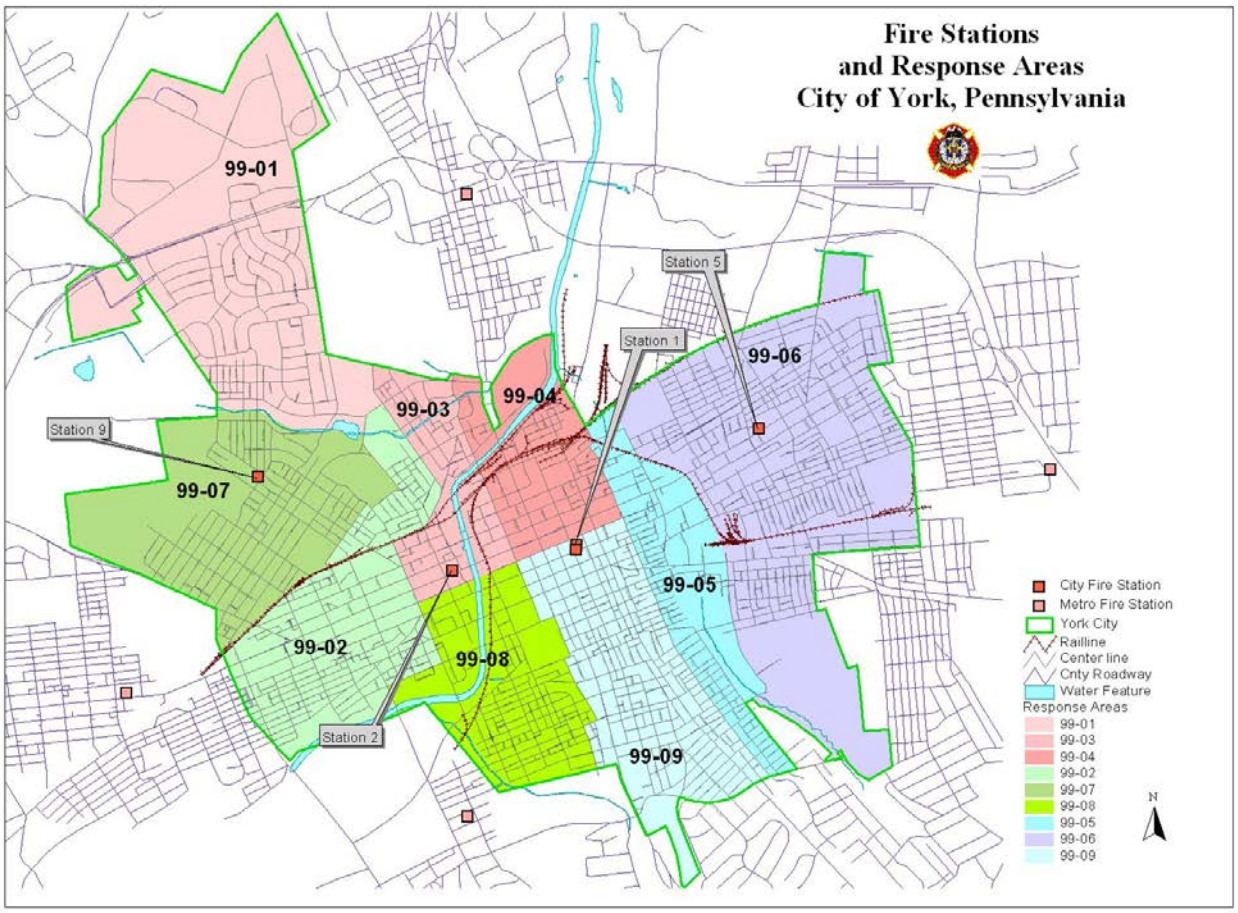
Describe adverse impact on essential facilities and services: _____

_____

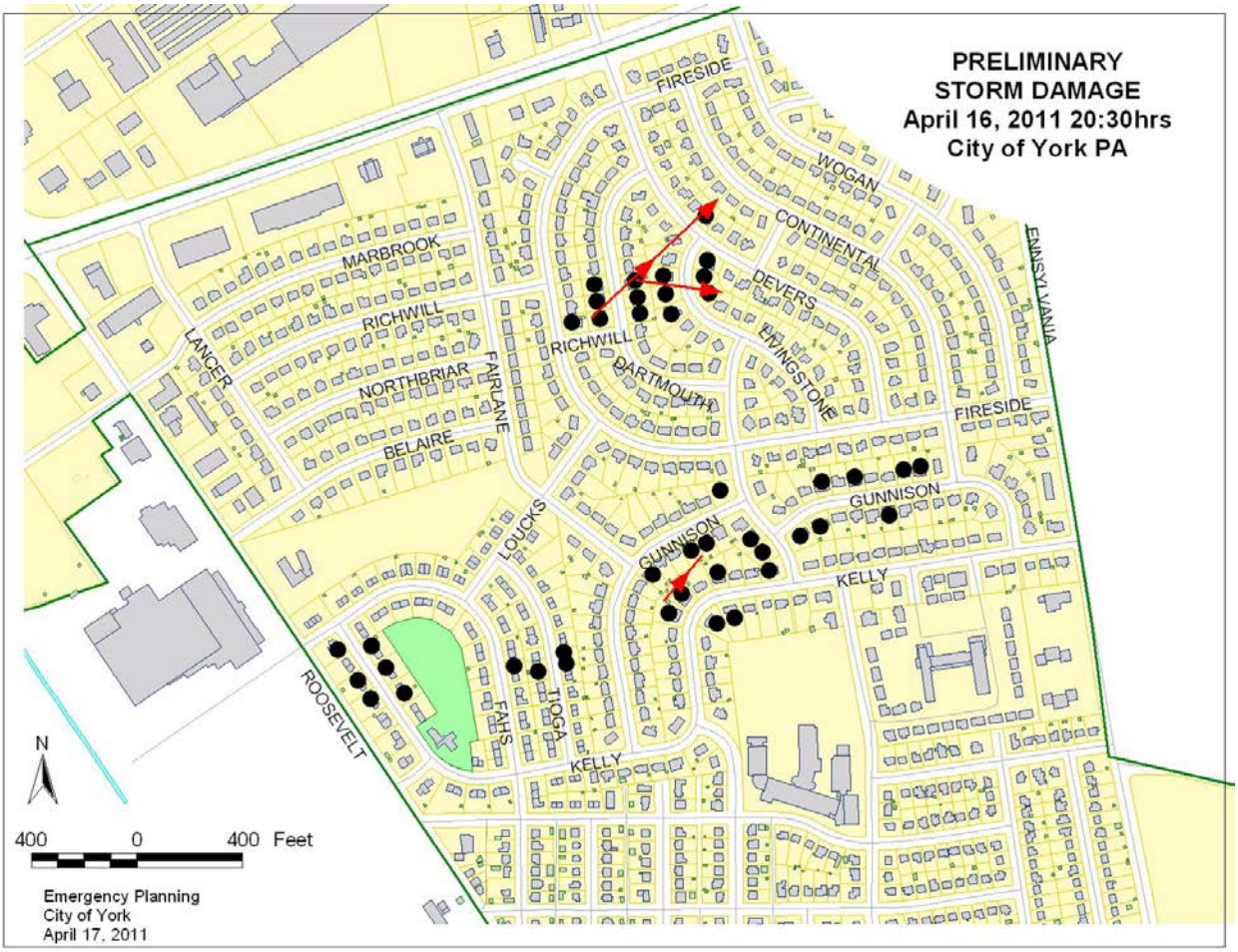
_____

Name of Assessor: _____ Date: _____

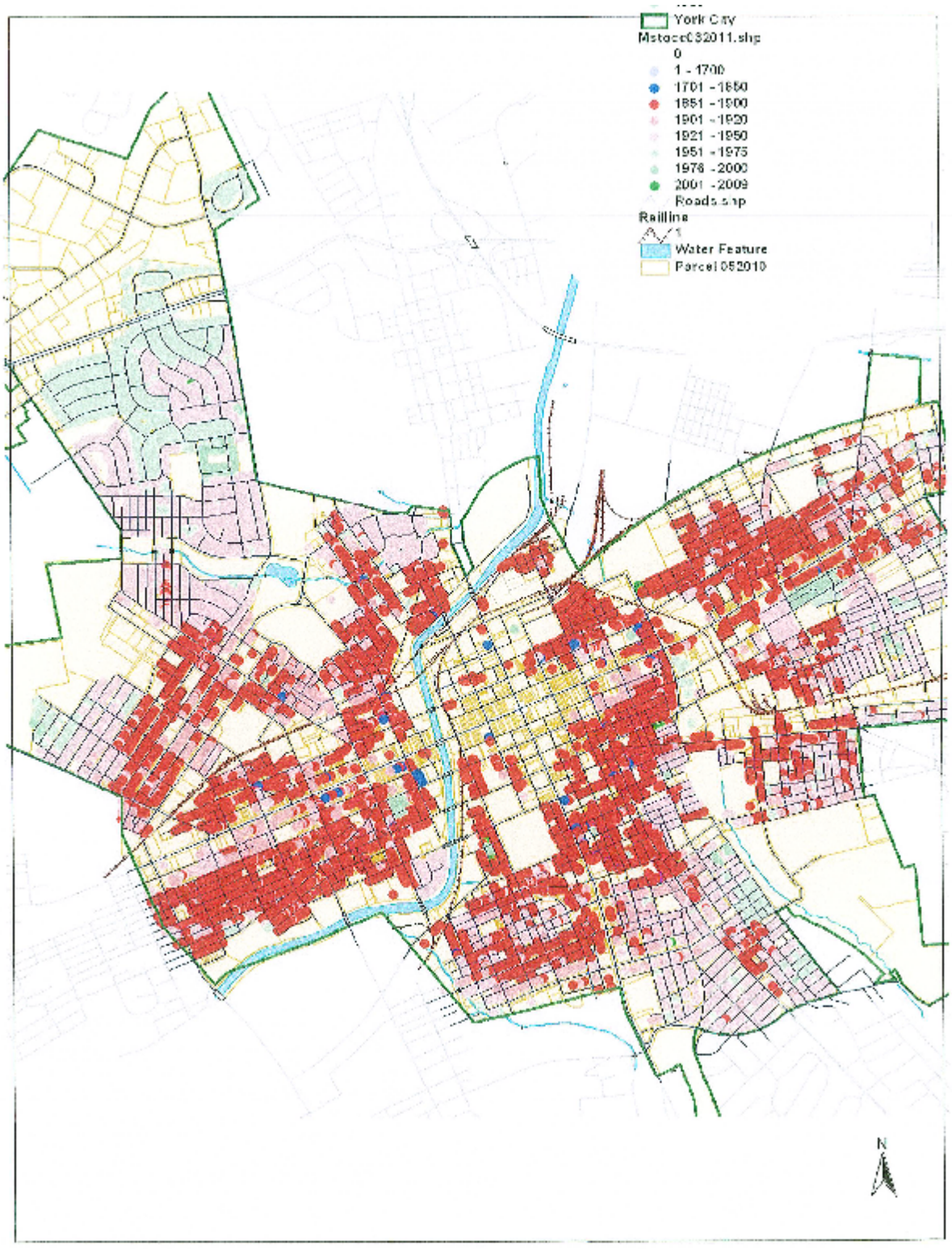
Appendix D


Fire Stations
and Response Areas
City of York, Pennsylvania
99-01
99-03
99-04
99-06
99-07
99-02
99-08
99-05
99-09
Station 1
Station 2
Station 5
Station 9
City Fire Station
Metro Fire Station
York City
Railline
Center line
Cnty Roadway
Water Feature
Response Areas
99-01
99-03
99-04
99-02
99-07
99-08
99-05
99-06
99-09
N

Appendix E


PRELIMINARY
STORM DAMAGE
April 16, 2011 20:30hrs
City of York PA
FIRESIDE
WOGAN
CONTINENTAL
PENNSYLVANIA
MARBROOK
RICHWILL
LANCER
NORTHBRIAR
BELAIRE
FAIRLANE
RICHWILL
DARTMOUTH
DEVERS
LIVINGSTONE
FIRESIDE
GUNNISON
GUNNISON
KELLY
LOUCKS
ROOSEVELT
FAHS
TIOGA
KELLY
N
400 0 400 Feet
Emergency Planning
City of York
April 17, 2011

Appendix F


York City
Mstocc032011.shp
0
1 - 1700
1701 - 1850
1851 - 1900
1901 - 1920
1921 - 1950
1951 - 1975
1976 - 2000
2001 - 2009
Roads.shp
Railline
Water Feature
Parcel 052010
N

Appendix G

HAZARD AND VULNERABILITY ASSESSMENT
City of York, Pennsylvania

EVENT: Natural / Technological / Manmade	PROBABILITY: Likelihood this Will occur.	SEVERITY: HUMAN IMPACT	PROPERTY IMPACT	BUSINESS IMPACT	PREPARED-NESS	INTERNAL RESPONSE	EXTERNAL RESPONSE	RISK
SCORE	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High	0 = N/A 1 = Low or none 2 = Moderate 3 = High	0 = N/A 1 = Low or none 2 = Moderate 3 = High	0 = N/A 1 = Low or none 2 = Moderate 3 = High	0 = N/A 1 = Low 2 = Moderate 3 = High
Hurricane	1	3	3	3	2	3	2	1
Tornado	1	3	3	2	2	3	3	1
Earthquake	1	2	2	2	1	1	3	1
Flood	2	2	3	3	3	3	2	2
Blizzard	2	3	2	2	3	3	2	2
Temperature Extreme	2	2	1	1	1	1	1	2
Ice Storms	2	2	2	2	3	2	2	3
Epidemic	2	3	1	3	2	3	3	1
Severe Thunderstorm	3	1	2	1	1	1	1	2
Snow Fall	3	2	2	2	3	2	1	3
Electrical Failure	2	1	1	2	2	1	3	2
Natural Gas Failure	1	3	2	3	1	1	3	1
Water Failure	1	3	1	3	1	1	3	1
Sanitary Sewer Failure	1	3	1	3	3	3	0	1
General Technology Failure	1	3	3	3	1	1	3	1
Hazardous Materials Incident	2	3	3	3	2	3	3	3
Mass Casualty Incident >=5 victims	1	3	1	1	2	1	3	2
Terrorism – Chemical	1	3	2	3	1	1	3	1
Terrorism – Radiologic	1	3	3	3	1	2	3	1
Terrorism – Explosive	1	3	3	3	1	2	3	2
Terrorism - Biological	1	3	2	3	1	2	3	1

June 11, 2010
Revised October 13, 2010
Revision September 18, 2012

Appendix H

DEPARTMENT OF FIRE/RESCUE SERVICES

CITY OF YORK, PENNSYLVANIA

GENERAL ORDER

O 13-005

ISSUE DATE: 06 March 2013

SUBJECT: Rapid Damage Assessment

EFFECTIVE DATE: 06 March 2013

Purpose: Accurate damage assessment information following a disaster is critical to ensure that the incident commander, emergency management coordinator and elected officials can adequately perform the following functions:

- Determine the overall impact of a disaster on the city
- Prioritize resource assignments for response requirements
- Establish objectives for current and future operations periods
- Began the recovery from the disaster

Situation: Disaster events have the potential for causing death, injury and extensive damage to public and private property. A planned damage assessment and reporting procedure is essential

for effective response and recovery operations. The city will use a systematic approach to conduct a rapid damage assessment and reporting appropriate information. The city will use the already designed alarm box areas as geographical boundaries.

A disaster event such as an earthquake or bomb blast may occur instantaneously, or a disaster event such as a flood or snowstorm may be slow-building. Disaster events may be localized or have regional impacts. The nature of the event will require that damage assessment procedures be flexible and dynamic.

Assumptions:

- Immediate assessment of public infrastructure will be critical following a disaster event. Assessment of facilities such as fire stations, city government buildings, public works facilities, police station etc…

- Transportation and communications systems may be severely disrupted or inoperable. Immediate and comprehensive damage assessment may be impacted by the condition of these systems.

- Adequate personnel, equipment, and facilities will be assigned to manage the damage assessment function.

- The ability of damage assessment staff to begin work immediately may depend on their personal condition, as well as the condition of their families and homes.

Concept of Operations:

When a rapid damage assessment is ordered due to a disaster, the following procedure will take place. Personnel working at department facilities will immediately report to the EOC the following information:

- Any injuries to personnel
- Damage to facilities
- Damage to apparatus

Using he York County Damage assessment forms, personnel will then conduct a windshield rapid damage assessment of the nine geographical areas of the city. These areas have been established as part of the emergency response box alarms. Personnel on the following apparatus will be responsible for conducting windshield surveys on the listed box areas;

Unit	**Box Area**
Engine 99-1	Box 99-07, Box 99-01
Engine 99-2	Box 99-02, Box 99-08, Box 99-09
Engine 99-3	Box 99-06, Box 99-05
Truck 99-1	Box 99-03, Box 99-04

Information should be recorded on the forms but also radioed to the EOC on the York City EOM talkgroup.

Personnel will not respond to 911 emergency calls until directed by the IC.

Secondary Assessment:

Emergency response personnel will not be responsible for secondary assessments. That responsibility will fall under the emergency management coordinator. The Emergency Management Coordinator will assemble the required teams need to collect appropriate data.