Development of a Rapid Windshield Damage Assessment

Standard Operating Guideline for the

Bedford, NH Fire Department

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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, quotations 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 was that the Bedford Fire Department (BFD) did not have a Standard Operating Guideline (SOG) that addressed how and when, fire and ems companies conducted a rapid windshield damage assessment to evaluate the destruction to the town and residential infrastructure, caused by a disaster. Fire and ems companies were being dispatched throughout the community during a disaster, without knowing the details of the damages which other crews may have recognized but did not have a method in which to pass along the information. Additional resources were also delayed due to the lack of a timely reporting system.

The purpose of this applied research project was to research, develop and implement a Rapid Windshield Damage Assessment (RWDA) Standard Operating Guideline (SOG). Research was utilized to examine current practices from fire departments and private businesses around the country and determine how their standard of operation may be applied to Bedford. An action research model was utilized to answer the following research questions: What is a disaster to a community? What is a damage assessment? Why is it important to conduct a damage assessment? How do other fire departments conduct damage assessments? What information is documented and used to record the damage assessment? Finally, what type of training do Bedford fire personnel need to be provided, in order to accurately conduct a RWDA?

The procedures utilized in the research included a review of literature, applied research projects, journal articles, internet websites, state and federal documents, personal interviews and questionnaire surveys. The results indicated that man-made and natural disasters impacted the Town of Bedford, and that there was a need for a process to quickly gather information to determine the initial needs of the community.

The recommendation is to develop, implement a rapid windshield damage assessment SOG for BFD.

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Introduction

The problem is that the Bedford Fire Department (BFD) does not use any type of organized, rapid damage assessment process or Standard Operating Guideline (SOG) for assessing damage caused by a major weather event or disaster. While disasters are occurring, Bedford Fire and EMS companies are being dispatched to fire and medical emergencies, along with “calls for service”, without knowing the extent of infrastructure damage within the town. Life safety hazards and infrastructure damage may have already been identified by previous crews yet there exists no quick and efficient method to identify, report, track and follow up on damage caused by a disaster. This creates a possibility of injury or death to its firefighters and citizens.

By failing to rapidly identify hazards and the emergent needs of the community during and after a major weather event or disaster, the Town of Bedford (TOB) is not able to determine the proper local and state resources necessary to effectively mitigate any life-threatening situations or immediate hazards.

The purpose of this applied research project is to develop an SOG which will include rapid windshield damage assessment (RWDA) forms for the Bedford Fire Department. This SOG will address how to conduct a RWDA for engine and EMS companies during and after a major weather event or disaster within the department’s response districts.

In an effort to determine the details within an RWDA SOG, the following research questions were answered: What is a disaster to a community? What is a damage assessment? Why is it important to conduct a damage assessment? How do other fire departments conduct damage assessments? What information is documented and used to record the damage

assessment? Finally, what type of training do Bedford fire personnel need to be provided, in order to accurately conduct a RWDA?

An action research model was used to complete this ARP with the goal of implementing the policy and having personnel utilize the RWDA form.

Background and Significance

> The Town of Bedford is located within Hillsborough County and covers 32.8 square miles. Bedford has a residential population of 21,146 (2007 US census) and a daily business, commuter population of 80,000. Bedford is a highly developed, suburban community located just west of the largest city in the State, Manchester, NH. Bedford is bound on the east by the Merrimack River (which separates Bedford from Manchester), by the Town of Merrimack to the south, by the towns of Amherst and New Boston to the west, and the Town of Goffstown and the City of Manchester to the north. Bedford is 54 miles north of Boston, Massachusetts. (Municipal Resource Incorporated [MRI] December (2005, p.10)

In October of 2005, southwestern and south central New Hampshire (NH) experienced extensive flooding that severely impacted the southwestern part of the state, especially the town of Alstead. Alstead, NH was one of the hardest communities hit. Seven people were killed, and 36 homes were destroyed. In thirty hours, 12 inches of rain fell, making it the wettest month in NH weather history to date, with 14.5 inches total rainfall in the month. Experts called the flood a “once-in-100-years event.” (URSG 2008)

Then, in May of 2006, seven months later, New Hampshire, particularly south central and southeastern portions of the state, experienced rainfalls that have not been seen or recorded in over 70 years. Most communities in Southern NH were devastated by the flooding of yet another

“once-in-100-year storm”. In April of 2007, only 11 months later, south central and southeastern New Hampshire was devastated by floods after enduring heavy rainfall amounts. New Hampshire suffered a third “100-year storm” in only 19 months. (URSG 2008) Flooding, not only in Bedford but in surrounding communities, displaced citizens, damaged homes, damaged or destroyed infrastructure, disrupted transportation, hindered emergency responses and caused severe economic impact to the communities with damages estimated in the millions. Both the May 2006 and April 2007 weather events lead to presidential declared disasters ("FEMA: DR-1643," 2011 and "FEMA: DR-1695," 2011).

In August 2008, the Lakes Region of NH experienced a very rare but powerful tornado. The tornado traveled 52 miles through several communities and five different counties. One civilian death was caused by the tornado. Governor Lynch asked President Bush to declare a presidential declaration ("FEMA: DR-1782," 2011).

Weather conditions during the evening of December 11th and into the early hours of December 12th, 2008, brought the start of one of the most significant disasters experienced by the State of New Hampshire in its history. An initial snow storm that eventually changed into a significant ice storm, totaling two inches of ice in some areas, impacted the public and utility infrastructure causing power outages in 211 of the 234 municipalities and land grants within the state. At its peak, over 400,000 customers (over two-thirds of the population of NH) were without power and/or communications. The incident, which extended for over three weeks, saw freezing temperatures with below zero wind-chills, two significant snowfalls, power and communication outages lasting for weeks, and tragically, the loss of four lives (New Hampshire Department of Safety Homeland Security & Emergency Management [NHHSEM], 2009).

In February/March 2010 a major Nor'easter Windstorm came across New England causing significant damage. Wind gusts throughout NH crested near or above 60 miles per hour, bringing down thousands of trees that blocked roadways and caused extensive damage to power lines and equipment. Flooding also occurred in some areas. Although the February/March 2010 wind storm was similar in intensity to other wind storms that have hit New Hampshire in recent years, it varied in one important way: it struck hardest in the most densely populated areas of the state (PSNH 2010).

It was during this storm that a BFD engine crew experienced a near miss incident. The crew was responding to a fire alarm activation. En route, they encountered a blocked road due to fallen trees. As the engine company stopped the vehicle, a second tree fell to the rear thus trapping the vehicle. The senior officer called back to dispatch for assistance and while waiting for help, another tree fell onto the apparatus, nearly missing the occupants who had only moments earlier, evacuated the vehicle. At this time, BFD did not have any method to report details of damage caused by a disaster. Had there been some process in place, this crew may have had prior knowledge of the road closures due to trees that had fallen.

In August of 2011, Tropical Storm Irene hit New Hampshire once again, causing flooding and power outages to the southern portion of the state. Governor Lynch asked President Obama for a pre-landfall declaration as he (Lynch) felt that the hurricane would hit New Hampshire and overwhelm the resources of the state and local municipalities. Lynch's prior experience with disasters lead him to believe that Federal Assistance was going to be necessary to save lives and property (Lynch, 2011).

Throughout all of the above mentioned disasters, the BFD did not have a damage identification and assessment SOG, nor did it provide training for its personnel in the area of

determining the criteria for a disaster as well as calculating damage assessments. At this time, damage assessments are conducted by the Bedford Fire Chief, with little to no input from the line personnel who are responding to emergencies during and after the severe weather conditions. After each significant weather event since 2005, the Bedford Fire Chief traveled throughout the community in his command vehicle to assess the damage. Though comprehensive, this method of gathering information was generally done after the storm had passed. Any information gathered by the Chief, was often not sufficiently passed along to the crews who were responding to emergencies while the weather event was happening. This created instances where the responding crew had been put in dangerous, yet avoidable situations created by life hazards.

With the implementation of the proposed SOG, the Bedford Fire Department has an opportunity to change the way the organization responds to these types of major weather events/incidents. By developing a Rapid Windshield Damage Assessment Standard Operating Guideline and training the appropriate personnel to implement it, the BFD will be better prepared to respond to emergency incidents during and after significant local weather situations. With properly trained personnel, the Bedford Fire Department will be able to obtain timely, pertinent damage information, and provide significant damage data to the TOB Emergency Operations Center (EOC). Disaster damage assessments are vital to helping fire, rescue and ems crews to avoid life hazard areas that have been identified. They are also valuable in assisting the Governor of NH in requesting federal assistance under the Robert T. Strafford Disaster Relief and Emergency Assistance Act. This resource allows local communities to receive federal assistance in response to a executive disaster declaration.

This Applied Research Project (ARP) is related to Unit 4: Damage Assessment in the National Fire Academy's (NFA) *Executive Analysis of Fire Service Operations in Emergency*

Management (EAFSOEM) Student Manual. This ARP also relates and supports two of the United States Fire Administration (USFA) strategic goals: Improve local planning and preparedness, and improve the fire and emergency services' capability for response to and recovery from all hazards ("EFOP Operational Policies," 2011, p. II-2). A Rapid Windshield Damage Assessment SOG would help to achieve this goal for BFD.

Literature Review

The literature review revealed a common understanding of what defines a disaster and highlighted some significant details of a damage assessment that should be understood and practiced. The fact sheets, professional journals, print sources, applied research projects (ARP) and internet websites helped to answer the following research questions: What is a disaster to a community? What is a damage assessment? Why is it important to conduct a damage assessment? How do other fire departments conduct damage assessments? What information is documented and used to record the damage assessment? Finally, what type of training do Bedford fire personnel need to be provided, in order to accurately conduct a RWDA? How private businesses handled disasters was also examined in an effort to gain further insight into damage assessment outside of the fire service.

> A disaster is a natural or man-made hazard that has come to fruition, resulting in an event of substantial extent causing significant physical damage or destruction, loss of life, or drastic change to the environment. A disaster can be ostensively defined as any tragic event with great loss stemming from events such as earthquake, floods, catastrophic accident, fires, or explosions ("Wikipedia 2011," 2011).

The International Federation of Red Cross and Red Crescent Societies defines a disaster to be a sudden, calamitous event that seriously disrupts the functioning of a community or

society and causes human, material, and economic or environmental losses that exceed the community's or society's ability to cope using its own resources. Though often caused by nature, disasters can have human origins ("IFRCRCS," 2011).

In the private sector, Wallace and Webber (2004) identified a disaster for a business as the loss of a critical piece of equipment due to a natural disaster (fire, tornado, blizzard) destroying an entire facility. Every business should have a "business continuity plan", so a company can quickly recover when a disaster strikes. Wells, Walker and Walker (2007) identified a disaster for a business as ranging from a failure to a piece of equipment (mailing machine, computer system/server, or phone system) to a total destruction of a building through natural and or man-made disasters. Business or organizations must have a disaster plan in place for continuity of business.

According to Dosi (2001) disasters can be divided into two groups: natural disasters and man-made disasters. Natural disasters are those which are related to meteorological, geo-tectonic and biological events. Man-made disasters include violent occurrences, which are not natural in origin.

The second research question; what is a damage assessment? The EAFSOEM student manual defines a 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." There are two types of damage assessments: initial and preliminary." (*EAFSOEM*, 2011, p. SM 4-5) FEMA uses a Preliminary Damage Assessment (PDA) which is "a joint assessment used to determine the magnitude and impact of an event's damage" ("FEMA: PDA," 2010). Businessdictionary.com defines a damage assessment as a "Preliminary but fairly accurate onsite of damage or loss caused by an accident or natural event before filing a formal claim or disaster declaration.

Damage assessment records extent of damage, including what can be replaced, restored, or salvaged, and time required their execution" ("Business," n.d.). The TOB Emergency Operations Plan defines damage assessment as the conduct of an on scene survey following any disaster to determine the amount of loss or damage caused by the incident. (Town of Bedford, NH [TOBNH], 2010)

"An immediate damage assessment is a rapid estimate of damage at a specific incident site or within an incident area. The immediate damage assessment is made on the initial arrival at the incident site or area. The information obtained during the immediate damage assessment is used for a variety of purposes during the active phase of the incident or event" (*EAFSOEM*, 2011, p. SM 4-5). The National Fire Protection Association [NFPA] Standard 1600, Disaster/Emergency Management and Business Continuity Programs (2010), defines damage assessment as "an appraisal or determination of the effects of the disaster on human, physical, economic and natural resources."

The third research question: Why is it important to conduct a damage assessment? When a disaster strikes a community, the local level response is to provide assistance to the best of its ability using the available resources. Once the local fire and ems services are overwhelmed by the extent of damages, the community can then turn to the state for assistance. The state can then seek federal assistance available under the Robert T. Strafford Disaster Relief and Emergency Assistance Act (FEMA 322, 2007). McCormick (2010) stated that Damage Assessments (DA) assist in ordering resources, identifying life safety issues and imminent hazards and set the foundation for recovery phase.

The information recorded from damage assessments, whether they're called windshield, rapid, or immediate assessment, is analyzed by emergency management personnel to: (a) identify

incident objectives (b) develop strategies and tactics (c) request supplemental assistance and or resources (d) deploy resources and (e) relay the information to the EOC. (*EAFSOEM*, 2011, p. 4-7)

Pitman (2011) explains that DAs conducted in Mid-Atlantic and New England States after Hurricane and Tropical Storm Irene, estimated damages to be over seven billion dollars. FEMA needed to divert relief money from funds allocated to rebuilding damage from previous disasters to Immediate Needs Funding (INF) for the states affected by Irene.

Richard Russell from the Noblesville Fire Department refers to a rapid damage assessment as a windshield damage assessment (WDA) He stated that one of the benefits of a WDA is to see how badly a city/town has been damaged and determine which parts are going to need the most immediate emergency resources. He added that a WDA quickly gives that detailed information to those in charge of determining how resources should be allocated. For the information to be beneficial, those individuals need to be able to comprehend that information accurately (Russell, 2010).

"An immediate damage assessment enables local officials (fire and police chiefs, emergency managers, town & city elected officials) to determine the severity and magnitude of the event. The immediate damage assessment quantifies homes and businesses impacted by the disaster. It is necessary to determine whether local resources will be sufficient to effectively respond and recover from the event" (*EAFSOEM*, 2011). Damage assessments must be rapid, detailed and accurate. Data collected will be analyzed to determine if supplemental assistance will be needed from the state and/or federal agencies. Delay in completing the damage assessment may delay supplemental disaster assistance (*Ohio PDA*, n.d.).

Siems (2010) stated that when an effective damage assessment is completed in a timely manner, resources are better managed, leading to more lives saved and better situational awareness for those leading the rescue efforts.

The information recorded in the damage assessment report is necessary for several purposes:

1. Identify incident objectives
2. Develop strategies and tactics
3. Request additional resources
4. Deploying resources and
5. Relaying the information to the EOC.

Incomplete or delayed damage assessments can cause inappropriate responses and have a negative effect on emergencies. A delay in completing the assessment may delay assistance to those most in need. An assessment assures that resources are appropriate to meet the need (*EAFSOEM*, 2011, p. 4-7).

The fourth research question asked: how do other fire departments conduct damage assessments? Russell states, the SCEMD (South Carolina Emergency Management Division) jurisdiction uses a team concept when performing disaster assessments. Police, Fire and other city officials are assigned areas by the Emergency Management Agency (EMA) staff. By using a group of people functioning as a team, they summarize and report the damage assessment quicker to the EMA, than an individual could. The goal is to decrease the time it takes to assess an effected area, which in turns, speeds up the mitigation process (Russell, 2010, p.13).

The State of Virginia Department of Emergency Management refers to their disaster assessment as a Rapid Needs Assessment (RNA). They state that an RNA needs to happen within the first 24-hours of a disaster. RNAs can be completed by the first responding emergency vehicle. This method of assessment is also referred to as a windshield assessment. In Virginia, RNAs happen during the response phase of the disaster activity. As fire and ems crews respond to an emergency, they observe, record and report any infrastructure damage to the town,

residential, or private business. RNA results are submitted to the Virginia Emergency Operations Center (EOC) in a situation report (*Virginia Damage Assessment*, n.d.).

The Fairfax County Fire and Rescue Department refers to their rapid assessment as a Rapid Survey Damage Assessment (RSDA). They compare their RSDA to a "primary search" in a fire situation where the initial assessment is intended to be done rapidly and in a triage manner, allowing personnel to intervene only when the damage is an immediate life threat or there is a need to mitigate a significant hazard. The initial survey is completed by fire crews known as "assessment teams." These teams travel in pre-established routes where they record and report conditions. The initial damage phase includes finding and recording the more serious concerns such as street access, flooding, structural damage, infrastructure and/or related hazards. Once the pre-established route has been assessed, the damage, which has been recorded on their department's Initial Damage Assessment Form, is compiled from all assessment teams and the information is communicated to the Damage Assessment Group Supervisor via radio, cell phone, Nextel direct and fax. (Fairfax County Fire and Rescue Department [FCFRD], 2004)

Wilson (2010) identified that in order for companies to complete the initial damage assessments in a timely manner, they may need to bypass fires, structural collapse or other related emergencies. Companies implementing this "triage" concept will require self-discipline and firm leadership.

Russell identified the benefits of a rapid damage assessment to be the quick identification and prioritization of those areas in need of emergency resources. This rapid damage assessment, referred to as a windshield damage assessment (WDA) also allows the local emergency management team to see how badly Noblesville has been damaged (Russell, 2010).

Garcia (2010) stated in his Executive Fire Officer [EFO] Applied Research Project that the City of Porterville, CA Fire Department was not prepared to conduct DAs. Garcia's recommendation for their WDA plan was to involve the community stakeholders including other city departments, hospitals, the Tulare County Fire Department and non-profit groups to have input on whom to conduct DAs.

To avoid a duplication of efforts, the Santa Rosa Fire Department organized and divided the community into geographical areas. These areas were assigned as specific response zones and each fire station had a responsibility to complete DAs within their assigned jurisdiction (McCormick, 2010).

Wilson (2010) determined in his ARP, that the Sioux City Fire Department fire suppression personnel could conduct DAs in their response districts. The placement of fully staffed fire stations within Sioux City makes a RDA program a reasonable expectation.

Mazza (2009) stated in his ARP, that communities which successfully utilize damage assessment plans have commonalities such as; specific pre-assigned responsibilities for conducting DAs, specific time frames to complete the DAs, pre-designated damage assessments, survey areas or zones, specific desired elements of damage information, effective communications, and initial and recurrent training.

Though it is obviously advantageous to learn what other fire and rescue services use for RWDA, there are also procedures and processes within the private sector which can be applied to help create a comprehensive Fire Department RWDA SOG. Wallace and Webber (2004) explained that private organizations must have a Business Continuity Plan (BCP) in place to protect against the negative impacts of a disaster. A survey conducted revealed that almost 50% of all businesses that suffered damages from a disaster and did not have a DRP in place, never

reopened for business. They advised that businesses develop a Disaster Recovery Plan (DRP) before a disaster occurs.

An often time, the executive of a private business or organization who identifies when a BCP is needed, is usually referred to as a "sponsor". The sponsor selects a "Contingency Planning Coordinator" (CPC). The CPC then selects his or her BCP team. The BCP team identifies and assigns task, estimates task durations, and then sequences the activities the plan. Once the BCP is developed, training guidelines are created and the plan is tested (Wallace and Webber 2004). Wells, Walker and Walker (2007) also identified that disaster recovery and a BCP are a necessity in all organizations regardless of size. The company's ability to remain profitable and viable through a disaster is critical. This organizational flow chart is helpful and useful when applied to the fire service.

The fifth research question: what documentation information is utilized to record the damage assessments? FEMA requires that the state impacted by the disaster must first complete a Preliminary Damage Assessment (PDA) of the affected area or jurisdiction to verify damage and estimate the amount of supplemental assistance that will be needed (*FEMA 322*, 2007, p. 2) A state's criteria for requesting FEMA assistance includes a minimum of 25 homes and or businesses with 49% uninsured damages. Structures with either "destroyed" or "major" damage will meet the 40% uninsured damages criteria (*EAFSOEM*, 2011, p. 4-6). There are four categories used to assess damages:

Destroyed: Structures is greater than 50% destroyed. The structure is not feasible to repair, has major failure of structural components or is in imminent danger of destruction.

Major (damage): 25% - 50% destroyed. The are major structural damages (walls, roof, water damage)

Minor (damage): Less than 50% damage to structure. Building is usable with temporary repairs.

Affected: Minimal damage. Building is useable. May have water damage, landscape damage, and limited access to property.

The difficulty of conducting an effective DA will vary with size and complexity of the event or incident (*EAFSOEM*, 2011, p. 4-7).

Fairfax County Fire and Rescue uses a Damage Assessment Plan recording four categories with a 3-point system within each category (FCFRD, 2004).

Street Access: Clear (0), Minor Blockage (1), Major Blockage (2)

Flooding: Limited (1), Moderate (2), Major (3)

Structure Damage: Minimum (1), Significant (2), Destroyed/Uninhabitable (3)

Infrastructure: Limited Area: (1), Moderate Area (2), Widespread Damage (3)

New Hampshire, Georgia and Ohio Emergency Management Agencies also use the national scope of the four categories of damage; destroyed, major, minor and affected. There are other types of programs that use a classification system including the Federal Department of Homeland Security program known as the Community Emergency Response Teams (CERT). They use slight/light damage, moderate damage and heavy damage to classify their findings of their search and rescue size up. After or in conjunction with the search and rescue size up, a damage assessment is also performed. CERT personnel must consider estimated amounts of damage based on the type and age of the construction (Human Technology, Inc. [HTI], 2003).

Vernon Poe of Franklin County, Ohio was faced with the challenge of efficiently collecting and summarizing disaster damage information for 43 separate municipal jurisdictions and 16 separate school districts within the county. Ultimately, they developed their own

computer based damage assessment program. The county used Microsoft Excel ® as the preferred program, due to its ease of use, wide spread accessibility in all municipal jurisdictions and school districts, and flexibility in designing customized worksheets. Each jurisdiction and school district had a related worksheet that they completed during and after a disaster. The damage assessment information collected by the separate jurisdictions was then linked to the countywide summary worksheet. The countywide summary worksheet provided a quick overall picture of how much damage occurred in the county (Poe, 2002).

The Town of Bedford is not financially prepared to purchase a computer based documentation system. At the time of this research paper, Bedford collects information on an 8.5" x 11" piece of paper. That information is either verbally submitted via phone or faxed to the state EOC in Concord.

The sixth research question: what extent of training will the members of the Bedford Fire Department need to conduct RWDAs? All members of the Santa Rosa FD receive annual training on the SRFD damage assessment policy (McCormick, 2010). Jeffrey Siems from the Edina, Minnesota Fire Department recommended that a PDA policy or guideline needs to be simple so that a fire officer will be able to collect data with minimal training and without a manual in the field. (Siems, 2010)

Szakacs (2009) explained that there must be clear, identifiable elements in an RWDA plan. He states that a clear and concise RWDA plan will enable firefighters to perform their duties more efficiently. Russell (2010) stated that fire personnel need to know and understand what the categories of damages are in a DA. He also advised departments that are developing a RWDA policy/procedure to use the FEMA criteria for estimating damage. This will allow for ease and consistency for FEMA.

Armstrong (2009) identified that fire department members should conduct an annual tabletop exercise to review and evaluate the damage assessment policy/procedure.

Armstrong (2009), McCormick (2010), Siems (2010), and Szakacs (2009) all advised that fire and ems companies need to be familiar with conducting RWDAs in their assigned districts. Each of the Bedford Fire Department lieutenants is currently responsible for one of the four predetermined districts. Because the Lieutenants are responsible for conducting life-safety fire inspections within these areas for a period of two years, they are familiar with the properties and infrastructures within each area. This inspection district assignment information can be added to the RWDA procedure for the Bedford Fire Department. This will reduce the time needed to train the officers on the specifics and concerns of the properties and infrastructures within the town.

The Town of Bedford has also been assigned a field representative from the NH Bureau of Emergency Management who is very familiar with DAs and RNAs and they have offered to provide an in-service training on how to conduct an RWDA. Based on the findings of the previously mentioned fire service personnel, training for implementation of an RWDA should be short, specific, organized and consistent.

Procedures

This project initially began at the National Fire Academy (NFA) and the NFA Learning Resource Center (LRC) while this researcher attended the Executive Analysis of Fire Service Operations in Emergency Management (EAFSOEM) course in March/April 2011. This action research project was designed with the intention to gather and analyze information from subject matter experts within New Hampshire and from around the country. The goal of this project is to develop a draft of a rapid windshield damage assessment standard operating guideline. The researcher selected the subject of damage assessment after attending the EAFSOEM course and

realizing the value of creating and adopting a local RWDA guideline. Due to the quantity and intensity of the natural disasters within the researcher's community, having an RWDA Standard Operating Guideline would allow for timely reports of destruction allowing for safer responses for fire and ems crews as well as simplifying the process of collecting and reporting data for state and federal resources. .

Information was gathered through research conducted at NFA LRC, World Wide Web (www.), FEMA documents and articles, as well as various books and periodicals. Established damage assessment policies and procedures from various federal, state and local emergency management agencies were also researched, Additional information was gathered from Applied Research Projects (APR) as well as personal interviews. This ARP was formatted using the sixth edition of the American Psychological Association (APA).

The action methodology was utilized to answer the following questions: What is a disaster to a community? What is a damage assessment? Why is it important to conduct a damage assessment? How do other fire departments conduct damage assessments? What information is documented and used to record the damage assessment? What type of training do Bedford fire personnel need to be provided, in order to accurately conduct a RWDA?

A survey medium was developed utilizing Survey Monkey® (www.surveymonkey.com) to gather and analyze the survey data. The researcher sent the email survey to current EFO students (with whom the researcher attended class) who are currently working at fire departments in various geographic locations within the United States. These previous classmates live in diverse locations and have experienced a wide array of disaster events. The disasters that these survey participants experienced include, but are not limited too; hurricanes, floods,

tornados, ice storms, earth quakes, and wildland fires. This information was ascertained prior to the distribution of surveys, through conversations with classmates during attendance at the NFA.

A letter to survey participants explaining the research was emailed in September 2011. (Appendix A) The survey was emailed in September 1, 2011 (Out of State Fire Departments Appendix C). The researcher also sent the survey to New Hampshire Fire Departments participants in October 2011 (Appendix B). The survey was linked to a participant's specific email address. Upon the expiration of the NH fire departments survey, a total of seventeen surveys were completed out of twenty-seven requested participants. "Out of State Fire Department" surveys yielded a total of twenty-two completed surveys out of forty-one participants.

The researcher also conducted personal interviews with local fire service personnel and Emergency Management officials. Open-ended interview questions were asked in an effort to allow for elaboration by the interviewee. Not all interviewees were affiliated with the fire service and their experiences were vast and varied. The results of the initial literature review provided the researcher questions and general reference ideas that were a necessity when meeting with the subject matter experts.

The researcher conducted a personal interview with NH Homeland Security and Emergency Management (NHHSEM) Senior Field Representative (SFR) Jack Moorhouse (personal communications August 24, 2011) at the Bedford Safety Complex. SFR Moorhouse is the assigned NHHSEM SFR for the Bedford Fire Department in Hillsborough County. SFR Moorhouse is very well versed in disaster response, communications and documentation. He understands the documentation process that is needed for the local municipalities and

communities as they seek to recover from and be financially reimbursed due to the damages caused by disasters.

Mr. Moorhouse stated that the information received by first responders during and immediately after a major weather event, is vital for the state EOC. He also stated that damage assessment information received from the first responders to the EOC helps NH Emergency Management (NH EM) start the documentation process for the governor requesting federal assistance under the Strafford Act. Mr. Moorhouse advised against creating a new RWDA form and recommended using the document forms that already exist as they have been proven to work efficiently. The NH EM has forms already in place for damage assessments. He encouraged the researcher to utilize the categories on the form as the information is consistent with state and federal DA forms.

A personal interview was conducted with Chief Richard O'Brien from the Goffstown, NH Fire Department (GFD) (personal communications September 13, 2011) after the researcher was informed that GFD has the Town of Goffstown Community Emergency Response Team (CERT) conducts PDAs for the community. Chief O'Brien stated after the 2008 ice storm and 2009 wind storm disasters, the GFD emergency response staffing was at an absolute minimum. This was due to the fact that most of his firefighters living outside of the community could not respond for station coverage. In 2009, the Town of Goffstown decided that the CERT team would be better suited to conduct DAs as its team members are town residents and are not as likely to have road hazards to impede them from responding to the station during a disaster. Chief O'Brien also stated that he has since trained his firefighters in damage assessment as a back-up resource to the CERT team.

Chief Dan MacDonald of the New Boston Fire Department (NBFD) stated that he had the NH Emergency Management conduct a four hour class on DAs for his department back in 2010 (personal communications September 22, 2011). Chief MacDonald stated that with all the disasters including the flooding, ice storm, and the wind storms, he needed to educate his members on damage assessment so they could collect the information needed for the EOC. The researcher asked Chief MacDonald if the NBFD had a SOP or SOG on conducting windshield damage assessments. Chief stated at this time there is no SOG but would be interested in the researcher's draft policy.

The results of this applied research had some limitations. There is adequate amount of literature on damage assessment, but the majority of the DA information/data was from other agencies outside of New Hampshire. The researcher intentionally utilized a specific group of recipients/departments to participate in the survey. The survey web site was specific to a participant's email address. Limitation of the external survey was that the contact information used was that which was gathered during the EFO classes of 2009 and 2011. Of the 41 surveys sent, only 22 completed the survey. This may have been a result of outdated contact information.

Another limitation not known to the researcher was: did the actual recipients have cable or dial up internet access in order to receive the survey? The researcher assumed that in this modern day and time that an individual in a fire management position would have internet access. It was the assumed that because all of the requested survey participants were senior fire officers, that they would have prior knowledge and experience with damage assessment.

The results of this survey were limited because they were conducted anonymously and therefore, demographics were not a part of the survey. This survey process did not allow for

review of individual survey results. They were only available as a quantified collection of returned data so the researcher was unable to determine how much experience a participant had.

Results

The results of this ARP were obtained from literature review, survey results and personal communications. The results of the survey can be reviewed in Appendix B and C. The surveys were emailed to 27 NH fire department participants and 41 out of state fire department participants.

The first research question; what is a disaster to a community? “A disaster is a natural or man-made hazard that has come to fruition, resulting in an event of substantial extent causing significant physical damage or destruction, loss of life, or drastic change to the environment. A disaster can be ostensibly defined as any tragic event with great loss stemming from events such as earthquake, floods, catastrophic accident, fires, or explosions” (Wikipedia, 2011).

A disaster is a sudden, calamitous event that seriously disrupts the functioning of a community or society and causes human, material, and economic or environmental losses that exceed the community’s or society’s ability to cope using its own resources. Though often caused by nature, disasters can have human origins (IFRCRCS, 2011).

In the private sector, Wallace and Webber (2004) classified a disaster for a business as the loss of a critical piece of equipment due to a natural disaster (fire, tornado, and blizzard) which could negatively impact a facility. Every business should have a Business Continuity Plan, so that a company can quickly recover from whatever type of disaster may strike. Wells, Walker and Walker (2007) also identified a disaster for a business as being anything from a small malfunction of a piece of vital equipment (mailing machine, computer system/server, or phone system) to a total destruction of a building.

The second question asked; what is a damage assessment? “Damage assessment is a gathering of information related to the impact of an event, or series of events, on life and property within a defined area. There are two types of damage assessments: initial and preliminary.” (*EAFSOEM*, 2011, p. SM 4-5) FEMA’s definition is the following: The Preliminary Damage Assessment (PDA) is a joint assessment used to determine the magnitude and impact of an event's damage (FEMA: PDA, 2010). An immediate damage assessment is a rapid estimate of damage at a specific site within an incident area. The immediate damage assessment is made on the initial arrival at the incident site or area. The information obtained during the immediate damage assessment is used for a variety of purposes during the active phase of the incident or event (*EAFSOEM*, 2011, p. SM 4-5). The survey response from 41% of the NH fire departments state that their company officers know what a damage assessment is compared to 45.5 % of out-of-state departments officers who don’t know what a DA is.

The third research question; why is it important to conduct a rapid damage assessment? An immediate damage assessment enables local officials (fire and police chiefs, emergency managers, town & city elected officials) to determine the severity and magnitude of the event. The DA quantifies homes and businesses impacted by the disaster (*EAFSOEM*, 2011). DA determines whether local resources will be sufficient to effectively respond and recover from the event. Damage Assessments must be rapid, detailed and accurate. Data collected will be analyzed to determine if supplemental assistance will be needed from the state and/or federal agencies. Delay in completing the DA may interrupt supplemental disaster assistance. (*Ohio PDA*, n.d.)

Regardless of the scope of a disaster, the affected communities and or state, they often need the assistance of the federal government. This assistance is available under the Robert T.

Strafford Disaster Relief and Emergency Assistance Act (FEMA 322, 2007). Mr. Jack Moorhouse, NHEM Senior field rep (personal interview, 2011) stated that the information received by first responders during and immediately after a major weather event is vital for the state EOC. He also stated that damage assessment information received from the first responders to the EOC helps NH Emergency Management (NH EM) start the documentation process for the governor to request federal assistance under the Strafford Act.

The fourth research question: how do other fire departments conduct rapid damage assessments? Russell (2010) states, that the SCEMD jurisdiction in Indiana uses a team concept when performing DAs. Police, Fire and other city officials are assigned areas by the Emergency Management Agency (EMA) staff. By using a group of people functioning as a team they summarize and report the DA quicker to the EMA, than an individual could. The goal is to decrease the time it takes to assess an affected area, which in turn, speeds up the mitigation process. Fairfax County uses a similar team concept. Following the guidelines of the Incident Command System (ICS), a Damage Assessment Group Supervisor is pre-appointed. The Damage Assessment Team is comprised of units not affected by the event. These units are then assigned to impacted areas to begin DAs. (FRD-416) (FCFRD, 2004)

Garcia (2010) identified that the City of Porterville, CA Fire Department was not prepared to conduct DAs. Garcia's recommendation for their WDA plan was to get the community stakeholders involved through public education programs. This community action will bring awareness and preparedness to the citizens of Poterville therefore reducing complacency.

McCormick (2010) noted that the Santa Rosa Fire Department divided the community into geographical areas to accommodate the division of labor. Wilson (2010) recommended that

the Sioux City Fire Department fire suppression personnel conduct DAs in their response districts. The placement of fully staffed fire stations within Sioux City makes a RDA program a reasonable expectation.

Mazza (2009) stated in his ARP, that communities which utilize damage assessment plans have commonalities such as; specific pre-assigned responsibilities for conducting DAs, specific times frames to complete them, pre-designated damage assessments survey areas or zones, specific desired elements of damage information, effective communications, and finally initial and recurrent training.

Survey results indicated the 76.5 % of NH fire departments used a rapid windshield damage assessment process without having a recognized RWDA procedure. Only 40.9% of out-of-state departments used an RWDA system without having a formal guideline or procedure. Surveys indicated that 81.3% of NH departments using fire and EMS companies to conduct RWDAs responded that it was beneficial to have designated districts. The survey responses from out-of-state departments indicated that 66% favored the use of fire and ems companies to conduct RWDAs due to the rapid information gathering.

The fifth research question asked: What documentation is utilized to record the damage assessment? The state that is affected by the disaster must first complete a Preliminary Damage Assessment of the affected area or jurisdiction to verify damage and estimate the amount of supplemental assistance that will be needed (*FEMA 322*, 2007, p. 2) In order to request assistance from FEMA, a state must have a minimum of 25 homes and/or businesses with 49% uninsured damages. Structures with either “destroyed” or “major” damage will meet the 40% uninsured damages criteria (*EAFSOEM*, 2011, p. 4-6). There are four categories used to assess damages:

Destroyed: Structures is greater than 50% destroyed. The structure is not feasible to repair, has major failure of structural components or is in imminent danger of destruction.

Major (damage): 25% - 50% destroyed. The are major structural damages (walls, roof, water damage)

Minor (damage): Less than 50% damage to structure. Building is usable with temporary repairs.

Affected: Minimal damage. Building is useable. May have water damage, landscape damage, and limited access to property.

The difficulty of conducting an effective DA will vary with size and complexity of the event or incident (*EAFSOEM*, 2011, p. 4-7)

FCFRD (2004) Damage Assessment Plan uses four categories with a 3-point system within each category:

Street Access: Clear (0), Minor Blockage (1), Major Blockage (2)

Flooding: Limited (1), Moderate (2), Major (3)

Structure Damage: Minimum (1), Significant (2), Destroyed/Uninhabitable (3)

Infrastructure: Limited Area: Limited Area (1), Moderate Area (2), Widespread Damage (3)

NH Homeland Security and NH Bureau of Emergency Management use two PDA forms for documentation and data collection. The two forms are the Preliminary Damage Assessment for Individual Assistance (Appendix E) and the Damage Assessment for Public Assistance Form (Appendix F).

The NH Homeland Security & EM: Preliminary Assessment for Individual Assistance (Appendix E). The purpose of this form is to collect the necessary data to conduct State/FEMA

Preliminary Damage Assessment. The information collected is based on property damage for homeowners and renters, this form has six damage categories:

A. Affected

B. Minor

C. Major

D. Destroyed

E. Inaccessible

F. Small Business Administration

The NH Homeland Security & EM: Preliminary Assessment for Public Assistance (Appendix F). There are six categories that need a brief description with a dollar amount.

A. Debris Clearance

B. Protective Measures

C. Road System

D. Water Control Facilities

E. Buildings and Equipment

Public Utility Systems

Mr. Moorhouse advised against creating a new RWDA form and recommended using the document forms that already exist as they have been proven to work efficiently. The NHBEM has forms already in place for damage assessments. He encouraged the researcher to utilize the categories on the form as the information is consistent with state and federal DA forms. The NH department survey indicated that 75% of the departments acknowledge the importance of having a RWDA program for company officers. Similarly, 76% of the out-of-state responses claimed that having an RWDA program in place for company officers is important.

The final research question: What type of training do Bedford fire personnel need to be provided to conduct a rapid and accurate windshield damage assessment? Of those survey participants from NH, 58% indicated that a four hour in-service session on conducting RWDAs would be sufficient to train a company officer. Of those surveys completed from the out-of-state participants, 61.1% indicated that four hours of RWDA training would be sufficient to train company officers. Given this survey results, Bedford Fire personnel would be instructed on performing RWDAs in a four hour training program.

Upon review of past applied research projects, it appears that this training session would be most effective if it included information and instruction on how to collect and classify data according to the FEMA damage assessment categories. This training would include a table top exercise utilizing the FEMA websites, pictures from previous weather related disasters, along with instruction on how to complete the specific forms for the NH Homeland Security & Emergency Management Preliminary Damage Assessment for Individual and Public Assistance. It should be simple, consistent and thorough. This RWDA training could be conducted annually with an opportunity to review, evaluate and revise the implemented Standard Operating Guideline.

This would be a collaborative training between the Bedford Fire Department and the NH Bureau of Emergency Management. The general instructions for the RWDA SOG would be provided by the BFD training division with supplemental instruction provided by the NH Bureau of Emergency Management assigned field representative.

Discussion

In reviewing the abundance of DA information from the EAFSOEM class, internet sources, Learning Resource Center (LRC) material, surveys and personal interviews, it is clear

that there is a need for the Bedford Fire Department to create and adopt a written RWDA SOG . The sources all agreed that regardless of what it is formally titled, a standard operating guideline which mandates a detailed and consistent practice is an important tool for those assigned with carrying out the task of performing damage assessments.

An RWDA is an information gathering tool for first responders. Armstrong (2009), McCormick (2010), Siems (2010), and Szakacs (2009) all recommended in their ARPs that fire and ems companies need to be familiar with conducting RWDAs in their assigned districts.

McCormick (2010) and Wilson (2010) both explained the organizational benefits of dividing the entire area in need of a rapid windshield disaster assessment, into smaller and more manageable divisions. Bedford Fire Department responds to emergencies from one central station. Bedford's fire officers already know that the town is divided into four inspection districts and each lieutenant is responsible for conducting fire life safety inspection one of those four districts.

Recovery and outside assistance depends on the quality of the RWDA. Having an RWDA SOG in place is instrumental to the overall success of the operations. Regardless of the scope of a disaster, the affected communities and/or state, often need the assistance of the Federal government. This assistance is available under the Robert T. Strafford Disaster Relief and Emergency Assistance Act (FEMA 322, 2007). Mr. Jack Moorhouse, NHEM Senior field rep (personal interview, 2011) stated that the damage assessment information collected by first responders during and immediately after a major event is vital for the state. Which, also helps NH Emergency Management (NH EM) start the documentation process for the governor to request federal assistance under the Strafford Act.

Mr. Moorhouse recommended using the New Hampshire Homeland Security & NH Emergency Management documentation forms that already exist, as they have been proven to work effectively and efficiently in past disasters. The NHBEM has forms already in place for damage assessments. He encouraged the researcher to utilize the categories on the form as the information is consistent with state and federal DA forms.

Similar to 76.5% of NH survey participants and 40.9% of out-of-state participants, Bedford currently conducts RWDAs without a standard guideline. With 81.3% of NH survey participants currently conducting RWDAs using specifically assigned smaller districts within their community, the Bedford Fire Department will find the concept of district responsibility a familiar one. Having already delineated inspection districts to each lieutenant, this would easily allow Bedford Fire personnel to transition into a jurisdictional type of operation when conducting RWDAs.

After reviewing the form for the NH Emergency Management Damage Assessment for Public Assistance as well as the form for the NH Homeland Security & Emergency Management Preliminary Assessment for Individual Assistance, the researcher concurs with Mr. Moorhouse that using existing forms will benefit the Bedford Fire Department and make implementation of the RWDA SOG consistent and thorough. This uniformed process of reporting, recording and documentation between the Bedford Fire Department and the NH Emergency Management, will allow for training between the departments to be easier.

Based upon the information reviewed, the research conducted and personal interviews, it would be beneficial for Bedford Fire Department to create, adopt and implement a RWDA SOG. The standard operating guideline should be a detailed document which is accessible for all fire personnel. This SOG should be reviewed periodically for training purposes and allow for

evaluation and revision. The Bedford Fire Department should adopt the damage reporting forms currently used by the NH Homeland Security and Emergency Management. All fire department personnel will train on how to fill them out appropriately. These forms will then be stored on all of the emergency vehicles so they will be readily available. Training on the SOG and the use of the forms should be conducted at least annually through classroom instruction and table-top scenario based exercises.

Currently, BFD does not conduct RWDAs in a consistent and effective manner. A method to define a disaster and then subsequently and efficiently identify and report any destruction, does not exist in the BFD. Upon adoption and implementation of the recommendations created by this ARP, Bedford will be more effective in responding and mitigating the effects of the disaster. The implications of the results of this research undoubtedly will have a great impact on the Bedford Fire Department today and well into the future.

Recommendations

The research indicates that the Bedford Fire Department needs to develop and implement a Rapid Windshield Damage Assessment SOG (Appendix D) in order for BFD personnel to effectively conduct DAs. The components of the SOG need to address the process determining the roles and responsibility for personnel, establish which apparatus will be used to conduct the RWDA, ascertain which documentation will be used throughout the process, clarify how and where the documentation will be processed upon completion.

Once the Bedford Fire Chief approves the RWDA SOG, the initial training of personnel will be conducted under the direction of the Bedford Fire Department Deputy Chief of Operations and Training.

The first recommendation is to develop a draft of an RWDA SOG (Appendix D). This will include the events needed to be completed during, as well as following, the occurrence of a disaster. Once adopted, the SOG should be placed into the Bedford Fire Department Standard Operating Guideline and Procedure manual. All personnel will have access to the SOG for periodical review and reference. The implementation of the SOG is expected to provide guidance for the Bedford Fire personnel to follow and will provide clear expectations on how this process will be done quickly, efficiently and uniformly within the department.

The second recommendation is that the BFD adopt the NH Homeland Security and Emergency Management damage assessment forms. (Appendix E & F) and attach them to the SOG. These two documents are those onto which the RWDA data will be recorded. These forms will allow response personnel to know exactly which damage assessment information the State of NH EOC is seeking. Using these documents allows for consistency with state and federal agencies, throughout the process. These forms should be readily available on all department apparatus and in the dayroom file cabinet with all of the other important and current department forms.

The third recommendation is to have the Bedford Fire Chief present the RWDA SOG to the Bedford Town Council and seek approval from the council for adoption of the SOG as an Appendix to the Town of Bedford Emergency Operations Plan and the All Hazards Mitigation Plan. This approval will allow for other town agencies to understand how RWDAs are conducted within the town.

The fourth and final recommendation is that the Bedford Fire Department, in a collaborative effort with the NH Department of Homeland Security and Emergency Management, develop and conduct a damage assessment training program for all department

personnel. Personnel will be trained to understand and correctly practice the methods and proper procedures for conducting a damage assessment. Personnel will also be taught the proper utilization of the required documentation provided by the NH Homeland Security and Emergency Management. Classroom training shall be conducted annually for all personnel under the discretion of the Bedford Deputy Chief of Operations and Training. Furthermore, scenario-based tabletop exercises will be conducted with the EM Field representative each year. This SOG will be assessed and revised as needed during the yearly training.

There exists great potential for natural and man-made disasters to occur in Bedford, NH many communities throughout the United States will be able to draw parallels to the problems/issues identified in this ARP. Therefore, future readers and researchers of the Executive Fire Officer program can benefit from conducting research in their own departments regarding the current guideline/procedures for conducting damage assessments.

References

2010 New Hampshire Wind Storm. (2010). Retrieved from http://www.psnhnews.com//pdfs/2010_WindStormReport_final.pdf

Armstrong, J. A. (2009). *Development of a rapid damage assessment for the Roanoke Fire-EMS Department engine companies*. Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Business dictionary: Damage assessment. (n.d.). Retrieved from http://www.businessdictionary.com/definition/damage-assessment.html

Disaster damage assessment (PowerPoint Slides). (n.d.). Retrieved from Virginia.gov: http://portal.virginia.gov/information_links/VIADisasterDamageAssessmentPart1=051407.pdf

Dosi, C. (2001). *Environmental values, valuation methods, and natural disaster damage assessment*. Santiago, Chile: United Nations Publication.

EMA Preliminary damage assessment Field guide (PowerPoint Slides). (n.d.). Retrieved from Ohio.gov: http://ema.ohio.gov/documents/drb/PDAFieldguide.pdf

Executive analysis of fire service operations in emergency management student manual. (2011). Retrieved from National Fire Academy, Emmitsburg, MD

Executive fire officer program, Operational policies and procedures, Applied research guidelines. (2011). In *Executive fire officer program Operational policies and procedures Applied research guidelines* (p. II-2). Emmitsburg, MD: National Fire Academy

FEMA: New Hampshire State Disaster History. (2011). Retrieved from http://www.fema.gov/news/event.fema?id=10388

FEMA: New Hampshire State Disaster History. (2011). Retrieved from http://www.fema.gov/news/event.fema?id=6266

FEMA: New Hampshire State Disaster History. (2011). Retrieved from http://www.fema.gov/news/event.fema?id=7906

FEMA: Preliminary damage assessment. (2010). Retrieved from http://www.fema.gov/government/grant/pa/pr_pda.shtm

Fairfax County Fire and Rescue Department. (2004). *Fairfax County fire and rescue department operations Emergency operations plan Damage assessment plan* (Plan). Emmitsburg, MD: United States Fire Administration, National Fire Academy.

Garcia, M. G. (2010). *Is a downstream damage assessment appropriate for the community of Porterville?* (Applied Research Paper). Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Governor Lynch Declares State of Emergency. (2011). Retrieved from http://www.governor.nh.gov/media/news/2011/082611-state-of-emergency.htm

Human Technology, Inc. (2003). *Community emergency response team: Student manual*. McLean, VA: DHS: USFA, EMI.

International Federation of Red Cross and Red Crescent Societies: What is a disaster? (2011). Retrieved from http://www.ifrc.org/en/what-we-do/disaster-management/about-disasters/what-is-a-disaster/

Mazza, S. L. (2009). *Initial damage assessment criteria and procedures for the City of Monterey, California*. Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

McCormick, M. (2010). *Development of a rapid damage assessment procedure for the City of Santa Rosa Fire Department.* Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

New Hampshire Department of Safety: Homeland Security & Emergency Management . (2009). *December 11-12 2008 Ice storm state response after action report.* Retrieved from New Hampshire Department of Safety Homeland Security & Emergency Management Website: http://www.nh.gov/safety/divisions/hsem/documents/dec08_icestorm_after_action_report.pdf

Pittman, E. (Ed.). (2011, September/October). Irene's Wrath. *EMERGENCY MANAGEMENT, Volume 6* (Issue 5), 56.

Poe, V. E. (2002, May). Many jurisdictions: Making damage assessment come together [IAEM Bulletin]. *International Association of Emergency Managers*, 8, 12.

Public assistance Public assistance guide FEMA 322. (2007). Washington, DC: FEMA.

Russell, IV, R. J. (2010). *Windshield damage assessment procedures* (Applied Research Paper). Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Siems, J. W. (2010). *Development of a rapid damage assessment guideline for the Edina Fire Department* (Applied Research Paper). Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Szakacs, T. C. (2009). *Establishing damage assessment criteria for the Holland Fire Department* (Applied Research Paper). Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Town of Bedford, NH. (2010). *Town of Bedford; Emergency operations plan* (Operations Plan). Town of Bedford, NH: Town of Bedford.

URS Group, Inc. (2008, July). *Independent evaluation of recent flooding in New Hampshire. Contract No. HSFEHQ-06-D-0162* (FEMA). Washington, DC: FEMA.

Wallace, M., & Webber, L. (2004). *The disaster recovery handbook A step-by-step-plan to ensure business continuity and protect vital operations, facilities and assets.* New York, NY: AMACOM.

Wells, A. J., Walker, C., & Walker, T. (2007). *Disaster recovery Principles and practices*. Upper Saddle River, NJ: Pearson Education.

Wikipedia: Disaster. (2011). Retrieved from http://en.wikipedia.org/wiki/Disaster

Wilson, R. S. (2010). *Developing a damage assessment process for the Sioux City Fire Department* (Applied Research Paper). Retrieved from FEMA: National Fire Academy, Learning Resource Center: http://www.lrc.fema.gov/efop.html

Appendix A: Letter to Survey Participants

September 1, 2011

EFO Program Students
ED September/October 2009 class
EAFSOEM March/April 2011 class

Ref: Rapid Windshield Damage Assessment for Engine/Ambulance Companies

Hello,

The Bedford Fire Department is interested in implementing a rapid (windshield) damage assessment SOG. The guideline would include a damage assessment survey form to be filled out by company officers and or senior firefighters. I am conducting this survey to learn what experiences emergency responders have with natural or man-made disasters, the Damage Assessment (DA) process, and your prospective on the ways the DA process can be optimized.

You're being asked to participate because you are a first responder and have a likely history of preparing for or engaging in disaster response.

Please complete this anonymous survey, should take no longer than 15 minutes to complete. Surveymonkey has linked the windshield damage assessment survey to your email address. If you would like to receive a copy of my survey results, please send me an email.

Your answers will help the Bedford Fire Department (BFD) in the development of a Rapid Windshield Damage Assessment SOG. This will also increase the knowledge and expertise for BFD members responding to areas damaged by a natural or man-made disaster.

If you have any questions regarding this survey or my ARP project, please feel free to contact me. My contact information is below.

Here is a link to the survey:
https://www.surveymonkey.com/s.aspx?sm=dXMfbU4jCm07n_2fSeWewr0Q_3d_3d

Thank you for participating in this survey.

Sincerely,

Mark E. Klose,
Deputy Chief of Operations and Training
Bedford Fire Department
Bedford, NH 03110
603-792-1372
mklose@bedfordnh.org

Appendix B: New Hampshire Fire Department Survey Results

Windshield Damage Assessment for Engine/Ambulance Companies

SurveyMonkey

1. What is the current makeup of your department?

	Response Percent	Response Count
A. Volunteer	5.9%	1
B. Career	29.4%	5
C. Paid-on-Call	5.9%	1
D. Combination	**58.8%**	**10**
Other (please specify)	0.0%	0
	answered question	**17**
	skipped question	**0**

2. How many members do you have in your department?

	Response Percent	Response Count
A. 0-10	0.0%	0
B. 11-50	**52.9%**	**9**
C. 51-100	29.4%	5
D. Over 100	17.6%	3
E. Over 200	0.0%	0
	answered question	**17**
	skipped question	**0**

3. What size population do you protect?

	Response Percent	Response Count
A. Under 5000	11.8%	2
B. 5,000 to 10,000	23.5%	4
C. 10,000 to 30,000	**41.2%**	**7**
D. Over 30,000	11.8%	2
E. Over 50,000	5.9%	1
F. Over 100,000	5.9%	1
	answered question	**17**
	skipped question	**0**

4. What position do you hold within your organization?

	Response Percent	Response Count
A. Fire Chief	**58.8%**	**10**
B. Deputy Chief	23.5%	4
C. Assistant Chief	17.6%	3
D. Battalion Chief	0.0%	0
E. District Chief	0.0%	0
F. Captain	0.0%	0
G. Lieutenant	0.0%	0
Other (please specify)	0.0%	0
	answered question	**17**
	skipped question	**0**

5. What is your annual total incident volume?

	Response Percent	Response Count
A. Less than 100 incidents	0.0%	0
B. 100 to 500 incidents	23.5%	4
C. 501 to 1000 incidents	11.8%	2
D. 1000 to 2500 incidents	23.5%	4
E. Over 2500 incidents	**41.2%**	**7**
	answered question	**17**
	skipped question	**0**

6. To the best of your knowledge,who within your municiplality is responsible for Emergency Management?

	Response Percent	Response Count
A. Fire Chief	**56.3%**	**9**
B. Police Chief	6.3%	1
C. Emergency Management Director (Not a Chief Officer)	25.0%	4
D. Elected Official (Selectmen, Town/City Councilor etc)	12.5%	2
E. Other Fire Officer	0.0%	0
F. Other Police Officer	0.0%	0
	answered question	**16**
	skipped question	**1**

7. What are the types of major disaster or weather evnets your department/community experienced? Select all that apply

	Response Percent	Response Count
A. Flooding	94.1%	16
B. Tornado	11.8%	2
C. Severe weather (Lighting, Micro burst)	94.1%	16
D. Earth quake	11.8%	2
E. Snow Storm	94.1%	16
F. Ice Storm	**100.0%**	**17**
G. Wind Storm	94.1%	16
H. All of the above	0.0%	0
	answered question	**17**
	skipped question	**0**

8. Do you believe that, within the last five (5) years, your organization has used a Windshield Damage Assessment following a major disaster or weather event?

	Response Percent	Response Count
A. Yes	**76.5%**	**13**
B. No	17.6%	3
C. Unknown	5.9%	1
	Other (please specify)	1
	answered question	**17**
	skipped question	**0**

9. To the best of your knowledge, does your organization currently have a Winshield Damage Assessment (WDA) procedure? If no, please answer question #10. If yes, please answer question #11.

	Response Percent	Response Count
A. Yes	23.5%	4
B. No	76.5%	13
answered question		17
skipped question		0

10. How would you rate the importance of having a Winshield Damage Assessment program for company officers in your department/community following a natural or man-made disaster?

	Response Percent	Response Count
A. Important	75.0%	12
B. Unimportant	0.0%	0
C. Somewhat important	25.0%	4
D. Not applicable to my department	0.0%	0
answered question		16
skipped question		1

11. How would you rate your current Windshield Damage Assessment process/procedure?

		Response Percent	Response Count
A. Excellent		0.0%	0
B. Good		7.1%	1
C. Fair (could use an update)		35.7%	5
D. Poor (out dated)		0.0%	0
E. Don't have a WDA process/procedure		**57.1%**	**8**
		Other (please specify)	1
		answered question	**14**
		skipped question	**3**

12. To the best of your knowledge, who is responsible for conducting an immediate Winshiled Damage Assesment after a disaster?

	Response Percent	Response Count
A. Fire	**86.7%**	**13**
B. Police	0.0%	0
C. Public Works	6.7%	1
D. Building/Code Official	0.0%	0
E. Assessing Department	0.0%	0
F. Community CERT Team	0.0%	0
G. Outside Agency/Contractor	6.7%	1
Other (please specify)		3
answered question		**15**
skipped question		**2**

13. To the best of your knowledge, Do your Compnay Officers know what a Windshield/Preliminary Damage Assessment is?

	Response Percent	Response Count
A. Yes	**41.2%**	**7**
B. No	29.4%	5
C. Maybe	29.4%	5
answered question		**17**
skipped question		**0**

14. In your professional opinion, what would you consider the minimum criterias for a Windshield Damage Assessment to be?

	Response Percent	Response Count
A. Life Safety	**100.0%**	**17**
B. Property Conservation	47.1%	8
C. Fire-EMS Infrastructure (personnel, stations, apparatus)	35.3%	6
D. Police Infrastrcuture	29.4%	5
E. Community Government Infrastructure	47.1%	8
F. Public Infrastructure	47.1%	8
Other (please specify)		0
answered question		**17**
skipped question		**0**

15. List in priority the benefits of using engine and or ambulance companies to conduct Windshield Damage Assessments?

	Response Percent	Response Count
A. Rapid access to each district	**81.3%**	**13**
B. Rapid information gathering	68.8%	11
C. Thorough evaluation/assessment of each company district	37.5%	6
D. Personnel ready to conduct assessments	43.8%	7
Other (please specify)		1
answered question		**16**
skipped question		**1**

16. Would using engine/ambulance companies to conduct WDA interfere with reposnse duties of the emergency units after a major disaster/weather event?

	Response Percent	Response Count
A. Yes	17.6%	3
B. No	29.4%	5
C. No, if calls are prioritized	**52.9%**	**9**
Other (please specify)	0.0%	0
answered question		**17**
skipped question		**0**

17. What would be the best way to communicate the information from a WDA report?

	Response Percent	Response Count
A. Radio Transmission	**41.7%**	**5**
B. Cell Phone	25.0%	3
C. Nextel Direct Communications	0.0%	0
D. Text messaging	0.0%	0
E. Face to Face	8.3%	1
F. Written Forms turned in or into a runner	25.0%	3
Other (please specify)		6
answered question		**12**
skipped question		**5**

18. Who would the engine/ambulance company personnel conducting the WDA report their initial damage assessment to?

	Response Percent	Response Count
A. Local Dispatch/Fire Alarm	11.8%	2
B. County Dispatch/Fire Alarm	0.0%	0
C. Emergency Operations Center	**70.6%**	**12**
D. Incident Commander	17.6%	3
Other (please specify)		1
answered question		**17**
skipped question		**0**

19. Before a WDA procedure to be implemented into your organization, how many training hours should be needed to properly train Company Officers?

		Response Percent	Response Count
A. 4 hours		58.8%	10
B. 6 hours		23.5%	4
C. 8 hours		17.6%	3
		Other (please specify)	0
		answered question	17
		skipped question	0

20. Please share in your own opinion, positives nad negatives of implementing a Winshield Damage Assessment procedure for engine/ambulance companies?

	Response Count
	7
answered question	7
skipped question	10

Page 1, Q8. Do you believe that, within the last five (5) years, your organization has used a Windshield Damage Assessment following a major disaster or weather event?		
1	Yes but not formally based on a recongized program.	Dec 7, 2011 2:07 PM

Page 2, Q11. How would you rate your current Windshield Damage Assessment process/procedure?		
1	All understand the concept but no formal procedure yet.	Dec 7, 2011 2:10 PM

Page 2, Q12. To the best of your knowledge, who is responsible for conducting an immediate Winshiled Damage Assesment after a disaster?		
1	Not sure	Dec 12, 2011 3:15 PM
2	Usually split between FD, PD, and EM, Town is subdivided for quicker assessment	Dec 9, 2011 10:42 AM
3	Fire ,PDPublic Works Jointly do a survey	Dec 7, 2011 6:45 AM

Page 2, Q15. List in priority the benefits of using engine and or ambulance companies to conduct Windshield Damage Assessments?		
1	I prefer to nto use apparauts for this but rather trained individuals and reserver the bulk of FD resources for responses	Dec 9, 2011 10:42 AM

Page 3, Q17. What would be the best way to communicate the information from a WDA report?		
1	moble data terminals	Dec 12, 2011 3:17 PM
2	Juristiction's information network system	Dec 7, 2011 1:20 PM
3	Use designated Fx for this purpose	Dec 7, 2011 1:15 PM
4	Mobile Data Terminals	Dec 7, 2011 9:37 AM
5	MDT	Dec 7, 2011 7:20 AM
6	Depends on the findings and the response priority.	Dec 6, 2011 5:57 PM

Page 3, Q18. Who would the engine/ambulance company personnel conducting the WDA report their initial damage assessment to?		
1	Area Command Ctr	Dec 7, 2011 1:15 PM

Page 3, Q20. Please share in your own opinion, positives nad negatives of implementing a Winshield Damage Assessment procedure for engine/ambulance companies?		
1	It was efective for the initial damage assessment. After that, followup assessment should be done by designated officers or units	Dec 7, 2011 1:15 PM
2	I believe this is an important tool that we should have in place. If you can accomplish this your department will become more efficient at information and needs identification.	Dec 7, 2011 10:24 AM
3	Positives are a larger number of personnel to conduct the WDA and deploying resources to strategic locations in the community that may have a higher likelyhood of needing a response. The negatives are that personnel will get themselves into a position that may slow their response.	Dec 7, 2011 9:37 AM
4	A procedure to keep current with skills required to accurately use the skill sets.	Dec 7, 2011 7:20 AM
5	For many years this has gone on with different names, must rural areas use engine and or rescue to accomplish this assessment/review	Dec 7, 2011 6:50 AM
6	With limited staffing, our people may be tied up on emergencies and not be able to do a complete damage assessment.	Dec 6, 2011 10:37 PM
7	In a geographic area of any size, it is important to get a rapid assessment of community conditions and the fire service is uniquely positioned to conduct this, provided that call volume is not too high (or even if it is, travel can give a quick sketch of conditions).	Dec 6, 2011 5:57 PM

Appendix C: Out of State Fire Department Survey Results

Windshield Damage Assessment for Engine/Ambulance Companies

SurveyMonkey

1. What is the current makeup of your department?

	Response Percent	Response Count
A. Volunteer	4.5%	1
B. Career	**54.5%**	**12**
C. Paid-on-Call	4.5%	1
D. Combination	36.4%	8
Other (please specify)	0.0%	0
	answered question	**22**
	skipped question	**0**

2. How many members do you have in your department?

	Response Percent	Response Count
A. 0-10	0.0%	0
B. 11-50	27.3%	6
C. 51-100	**36.4%**	**8**
D. Over 100	13.6%	3
E. Over 200	22.7%	5
	answered question	**22**
	skipped question	**0**

3. What size population do you protect?

	Response Percent	Response Count
A. Under 5000	9.1%	2
B. 5,000 to 10,000	4.5%	1
C. 10,000 to 30,000	18.2%	4
D. Over 30,000	13.6%	3
E. Over 50,000	18.2%	4
F. Over 100,000	**36.4%**	**8**
	answered question	**22**
	skipped question	**0**

4. What position do you hold within your organization?

	Response Percent	Response Count
A. Fire Chief	**22.7%**	**5**
B. Deputy Chief	13.6%	3
C. Assistant Chief	18.2%	4
D. Battalion Chief	13.6%	3
E. District Chief	4.5%	1
F. Captain	18.2%	4
G. Lieutenant	0.0%	0
Other (please specify)	9.1%	2
	answered question	**22**
	skipped question	**0**

5. What is your annual total incident volume?

	Response Percent	Response Count
A. Less than 100 incidents	0.0%	0
B. 100 to 500 incidents	4.5%	1
C. 501 to 1000 incidents	9.1%	2
D. 1000 to 2500 incidents	13.6%	3
E. Over 2500 incidents	**72.7%**	**16**
	answered question	**22**
	skipped question	**0**

6. To the best of your knowledge,who within your municiplality is responsible for Emergency Management?

	Response Percent	Response Count
A. Fire Chief	31.8%	7
B. Police Chief	0.0%	0
C. Emergency Management Director (Not a Chief Officer)	**54.5%**	**12**
D. Elected Official (Selectmen, Town/City Councilor etc)	0.0%	0
E. Other Fire Officer	13.6%	3
F. Other Police Officer	0.0%	0
	answered question	**22**
	skipped question	**0**

7. What are the types of major disaster or weather evnets your department/community experienced? Select all that apply

	Response Percent	Response Count
A. Flooding	**86.4%**	**19**
B. Tornado	45.5%	10
C. Severe weather (Lighting, Micro burst)	81.8%	18
D. Earth quake	18.2%	4
E. Snow Storm	72.7%	16
F. Ice Storm	68.2%	15
G. Wind Storm	54.5%	12
H. All of the above	9.1%	2
	answered question	**22**
	skipped question	**0**

8. Do you believe that, within the last five (5) years, your organization has used a Windshield Damage Assessment following a major disaster or weather event?

	Response Percent	Response Count
A. Yes	40.9%	9
B. No	**59.1%**	**13**
C. Unknown	0.0%	0
	Other (please specify)	2
	answered question	**22**
	skipped question	**0**

9. To the best of your knowledge, does your organization currently have a Winshield Damage Assessment (WDA) procedure? If no, please answer question #10. If yes, please answer question #11.

	Response Percent	Response Count
A. Yes	28.6%	6
B. No	71.4%	15
answered question		21
skipped question		1

10. How would you rate the importance of having a Winshield Damage Assessment program for company officers in your department/community following a natural or man-made disaster?

	Response Percent	Response Count
A. Important	73.7%	14
B. Unimportant	0.0%	0
C. Somewhat important	26.3%	5
D. Not applicable to my department	0.0%	0
answered question		19
skipped question		3

11. How would you rate your current Windshield Damage Assessment process/procedure?

		Response Percent	Response Count
A. Excellent		11.8%	2
B. Good		17.6%	3
C. Fair (could use an update)		5.9%	1
D. Poor (out dated)		5.9%	1
E. Don't have a WDA process/procedure		**58.8%**	**10**
		Other (please specify)	2
		answered question	**17**
		skipped question	**5**

12. To the best of your knowledge, who is responsible for conducting an immediate Winshiled Damage Assesment after a disaster?

	Response Percent	Response Count
A. Fire	**73.7%**	**14**
B. Police	0.0%	0
C. Public Works	0.0%	0
D. Building/Code Official	5.3%	1
E. Assessing Department	0.0%	0
F. Community CERT Team	10.5%	2
G. Outside Agency/Contractor	10.5%	2
Other (please specify)		2
answered question		**19**
skipped question		**3**

13. To the best of your knowledge, Do your Compnay Officers know what a Windshield/Preliminary Damage Assessment is?

	Response Percent	Response Count
A. Yes	36.4%	8
B. No	**45.5%**	**10**
C. Maybe	18.2%	4
answered question		**22**
skipped question		**0**

14. In your professional opinion, what would you consider the minimum criterias for a Windshield Damage Assessment to be?

		Response Percent	Response Count
A. Life Safety		**81.8%**	**18**
B. Property Conservation		18.2%	4
C. Fire-EMS Infrastructure (personnel, stations, apparatus)		63.6%	14
D. Police Infrastrcuture		36.4%	8
E. Community Government Infrastructure		40.9%	9
F. Public Infrastructure		63.6%	14
		Other (please specify)	0
		answered question	**22**
		skipped question	**0**

15. List in priority the benefits of using engine and or ambulance companies to conduct Windshield Damage Assessments?

		Response Percent	Response Count
A. Rapid access to each district		57.1%	12
B. Rapid information gathering		**66.7%**	**14**
C. Thorough evaluation/assessment of each company district		38.1%	8
D. Personnel ready to conduct assessments		52.4%	11
		Other (please specify)	2
		answered question	**21**
		skipped question	**1**

16. Would using engine/ambulance companies to conduct WDA interfere with reposnse duties of the emergency units after a major disaster/weather event?

		Response Percent	Response Count
A. Yes		**36.4%**	**8**
B. No		18.2%	4
C. No, if calls are prioritized		**36.4%**	**8**
Other (please specify)		9.1%	2
		answered question	**22**
		skipped question	**0**

17. What would be the best way to communicate the information from a WDA report?

	Response Percent	Response Count
A. Radio Transmission	**42.1%**	**8**
B. Cell Phone	21.1%	4
C. Nextel Direct Communications	0.0%	0
D. Text messaging	0.0%	0
E. Face to Face	10.5%	2
F. Written Forms turned in or into a runner	26.3%	5
Other (please specify)		4
answered question		**19**
skipped question		**3**

18. Who would the engine/ambulance company personnel conducting the WDA report their initial damage assessment to?

	Response Percent	Response Count
A. Local Dispatch/Fire Alarm	5.9%	1
B. County Dispatch/Fire Alarm	0.0%	0
C. Emergency Operations Center	**70.6%**	**12**
D. Incident Commander	23.5%	4
Other (please specify)		5
answered question		**17**
skipped question		**5**

19. Before a WDA procedure to be implemented into your organization, how many training hours should be needed to properly train Company Officers?

		Response Percent	Response Count
A. 4 hours		61.1%	11
B. 6 hours		11.1%	2
C. 8 hours		27.8%	5
		Other (please specify)	4
		answered question	18
		skipped question	4

20. Please share in your own opinion, positives nad negatives of implementing a Winshield Damage Assessment procedure for engine/ambulance companies?

	Response Count
	14
answered question	14
skipped question	8

Appendix D: Bedford Fire Department Draft Rapid Windshield Damage Assessment SOG

BEDFORD FIRE DEPARTMENT
BEDFORD, NEW HAMPSHIRE
STANDARD OPERATING GUIDELINE

SOG #: OPS	Date: 2012
Topic: Fire Operations	Effective Date: 2013
Subject: Rapid Windshield Damage Assessment	Revision Date:
Authorizing Signature:	Page 1 **of 2**

Background: In order for the Bedford Fire Department to respond during a disaster event, a Rapid Windshield Damage Assessment will be conducted. Fire and Ems companies will assess, document and communicate the findings of the RWDA to the EOC, as soon as it is feasible

Purpose: To identify and collect appropriate data on the damage to the town infrastructure during/following a disaster event.

Scope: Bedford Fire personnel are expected to ensure understanding of, compliance with and enforcement of this guideline.

Implementation:

1. During or immediately following a major disaster event, the on-duty OIC shall contact either the Deputy Chief and or the Chief of the Department stating weather conditions or emergency conditions which are impacting the community..

2. The on-duty OIC shall request a manpower "general tone" for call back station/event coverage. Based on facts, observations, intelligence, National Weather Service, and /or credible reports of threats, the Deputy Chief or Chief will have the discretion to order additional manpower to be re-called for station coverage.

3. Requests for any fire department response will be forwarded to the Operations OIC who will prioritize calls until the EOC is staffed.

4. The Town of Bedford Emergency Operation Center shall open (second floor of the Bedford Safety Complex) and shall be staffed by fire department and police personnel until properly relieved by Town of Bedford EOC personnel.

BEDFORD FIRE DEPARTMENT
BEDFORD, NEW HAMPSHIRE
STANDARD OPERATING GUIDELINE

SOG #: OPS	Date: 2012
Topic: Fire Operations	Effective Date: 2013
Subject: Rapid Windshield Damage Assessment	Revision Date:
Authorizing Signature:	Page 2 **of 2**

5. At the discretion of the Operations OIC, Bedford engines, truck and ambulance shall be utilized to conduct rapid windshield damage assessments in a safe and efficient manner.

6. Company Officers will conduct RWDA in their assigned inspection districts (1 thru 4). As additional resources become available, the Operations OIC can assign additional RWDA units to each company officer to assist.

7. All RWDA information will be documented on the NH Homeland Security and Emergency Management forms.

8. The Operations OIC and the apparatus company officer have the authority to make changes and adjustments to damage assessment plans due to the nature of the incident/event.

9. After completion of the company officers assigned inspection district, the Company Officer shall contact the Operations OIC and notify him/her of their status and wait for re-assignment. Company Officers shall be prepared to complete RWDA in other company inspection districts that may be more severely damaged.

10. RWDA forms will be given to the Operations OIC. Once reviewed for accuracy, the Operations OIC will deliver the hard copy forms to the EOC on the second floor.

11. RWDA information collected will become part of the official Town of Bedford EOC record. This documentation will be used to request additional resources and aid from the State of NH EOC.

Appendix E: NH Homeland Security & Emergency Management PDA for IA Form

New Hampshire Homeland Security & Emergency Management Preliminary Damage Assessment for Individual Assistance

Municipality: _____
County: _____
Date: _____
Community Contact: _____
Telephone Number: _____

The purpose of this document is to collect the necessary data to conduct a State/FEMA Individual Assistance Preliminary Damage Assessment. The data collected should be based on the property damage of the homeowners and renters in your community, as well as the economic loss and property damage of the businesses.

A. AFFECTED

Number and type of household:

Uninsured		**Insured**
_____	Owner	_____
_____	Renter	_____
_____	Secondary	_____

B. MINOR

Number and type of household:

Uninsured		**Insured**
_____	Owner	_____
_____	Renter	_____
_____	Secondary	_____

C. MAJOR

Number and type of household:

Uninsured		**Insured**
_____	Owner	_____
_____	Renter	_____
_____	Secondary	_____

D. DESTROYED

Number and type of household:

Uninsured		**Insured**
_____	Owner	_____
_____	Renter	_____
_____	Secondary	_____

E. INACCESSABLE

_____ Residential properties that have been deemed physically inaccessible by the homeowner or local official.

F. SMALL BUSINESS ADMINISTRATION

_____ Businesses with economic loss
_____ Businesses with structural damage

Appendix F: NH Homeland Security & Emergency Management PDA for PA Form

New Hampshire Homeland Security & Emergency Management

Preliminary Damage Assessment for Public Assistance

Provide a brief description of damages with a dollar amount in each category.

Political Subdivision _____
Assessment Team _____
Date _____
Community Contact _____
Telephone Number _____

A. DEBRIS CLEARANCE	**B. PROTECTIVE MEASURES**	**C. ROAD SYSTEM**
D. WATER CONTROL FACILITIES	**E. BUILDINGS and EQUIPMENT**	**F. PUBLIC UTILITY SYSTEMS**

Task: Record community and contact information; Record major areas of damage and compute a dollar amount in each category.