City of Hudson
Community Risk Assessment

May 2013

Prepared By:

Hudson Fire/EMS Deployment Board

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Appendices

Purpose

The Hudson Fire/EMS Deployment Plan charges the Hudson Fire/EMS Deployment Board with the task of identifying changing conditions within the community, evaluating their effects and update the plan accordingly. Within the Deployment Plan is a community risk assessment and hazard analysis. The purpose of the hazard analysis is to identify risks through review of past occurrences, estimate probability of future occurrences, and identify vulnerabilities that pose the greatest threat of disaster to our community. Included in this assessment are proposed mitigation strategies to be incorporated into existing mitigation efforts by the Fire and EMS departments for the purpose of further reducing the impacts of potential disasters upon the residents, businesses and property owners of our community. These recommended actions were developed through an evaluation of needs and shortfalls, reviewing existing resources and exploring opportunities.

Community Profile

Location Description

The City is a neatly defined five-mile square in northern Summit County divided into quadrants defined by Ohio Route 91 (north south) and Ohio Route 303 (east west). Its population is approximately 23,250, with growth expected to continue at a steady pace. The ultimate build-out population is estimated to approach 28,000 within the next twenty years.

Topography & Climate

The topography of the community is essentially flat with interspersed low marsh areas and flood plains. While there are no significant topographical challenges, low areas such as undeveloped wetlands can present challenges to typical responses and impede ground search during seasonal periods of high water levels.

Hudson's climate offers variable weather patterns and distinct changes of season. Average temperatures range from 20 to 40 degrees in winter and 65 to 85 degrees in the summer. Average rainfall is 37.1 inches. Average snowfall is 55 inches. While the weather is generally moderate, severe summer and winter conditions do occasionally occur.

Infrastructure

Three major highways pass through the City. I-80 (The Ohio Turnpike) from east to west with access to it obtained either from outside city boundaries at either end or through an access road located at the Stow Rd underpass. Roadways within the City cross it by bridges over or under. Interstate 480 runs through Hudson from Northwest to Southeast. Route 8 runs along the western border of the community with access points at Route 303 and at Seasons Road. Each of the highways is high volume routes through the area, particularly the Ohio Turnpike which is a major east-west thoroughfare across the nation.

A major railway crosses the city from east southeast to north northwest and passes through the core of the City business district. Train volume is approximately 70 trains per day (range 42-68, June 03), which may carry any number of hazardous commodities. There are two grade crossings, at Stow Road and Hines Hill Road, respectively. Anticipation of grade closures by passing trains may require safety forces to take a longer route to an emergency. The interstate system and railway may restrict options for emergency vehicles traveling from the center of the

city to outlying areas. If railway underpasses, railway crossings, or interstate highway bridges are obstructed, significant detours are required to access areas to the remote north and remote south of the service area. Additional response challenges include high traffic volume on Routes 303 (east-west) and 91 (north-south) during peak traffic hours. Narrow streets in the central part of the City (the old Village/Historic District) also pose response challenges that may slow or restrict access by large emergency vehicles.

The City operates an electric utility, sewer system and water system. Electric service is split between Hudson Public Power and Ohio Edison. Hudson Public Power services the former Village and limited parts of the former Hudson Township. The balance of the community is serviced by Ohio Edison. The city water system is based primarily on a well field to the west of the City center. The City is tied into the City of Cleveland water supply for backup. The City is also served in part by the Summit County and Stow/Summit County water systems. With the exception of the Cleveland backup to the City system, the various systems are not interconnected. Seventy-Five percent of the road miles within the City have a public water supply available, some areas of the City, especially residential areas in the former Hudson Township, continue to rely upon private wells for household water supplies. There is limited access to “dry hydrants around the city. Suction ponds are not routinely available for refilling Fire Dept. water tanks during structural firefighting.

Development and Emerging Issues

Growth in residential development is limited in pace and geography. Build-out is not expected to occur for several years to come. Access to various residential developments is restricted by design and location. Further, some are situated such that the railway and/or interstate highways may affect access. Construction systems vary; however, wood frame construction is predominant even in new office construction. Balloon construction in many historic structures presents a relatively high hazard and a risk of communicating to adjacent structures. Newer light-weight construction and un-sprinklered frame structures, especially contiguous structures without comprehensive smoke detection systems, also pose particular risk of complete loss.

Hudson has a strong balance of industries such as financial services, regional headquarters, distribution centers of medical services and consumer goods, specialty healthcare, and technology services. Commercial development, existing and future, is located principally along the southern latitudes, within the city core and at the west along Boston Mills Road.

Development is expected to continue in the southern region of the community. There are two new nursing/assisted living facilities in this region. One is currently under development on Route 91 south of Terex and the other recently opened on Barlow east of Route 91. These facilities have the potential of significantly impacting call volume for emergency services, particularly EMS. Additional development in the southern region of the community includes a senior-adult housing development off of Hudson Drive near Norton and an industrial development on Seasons Rd near Route 8. Response times may be impacted as development in the southern region of the community continues and should be monitored accordingly.

Division of Safety Response Data

The following table provides a snapshot of emergency response calls and trends of the Fire and EMS departments.

Table A: Fire and EMS Response Data

Classification of Fire and EMS Calls			
Call Type	**Sub-Type**	**Calls for Service* 2000 - 2002**	**Calls for Service* 2010 - 2012**
Fire	Fires in structures – includes mutual-aid for structure fires.	35	**27**
	Automobile related	9	**7**
	Brush and mulch	6	**5**
	Other, Rescue (MVA Extrication), Alarm Malfunction and False Alarms Rescue: MVA, search and building False alarms of all types	135	**254** 38 216
	Sub-total	185	**293**
	Duty Officer	458	363
		2002 EMS figures only	
EMS	Canceled	11	1
	Not Applicable	10	68
	No patient Found	30	2
	No Treatment Required	17	9
	Dead at Scene	10	157
	Treated and Released	267	2
	Treated, Transported by Private Vehicle	38	34
	Patient Refused Care	20	85
	Treated, Refused Transport	51	12
	Treated, Transferred Care	24	28
	Treated, Transported by EMS	1017	1,092
	Other		1
	Total	1495	1487

*** Figures are based on 3 year averages**

Target Hazards

Critical target hazards are identified below based upon concentrations of people, critical infrastructure, and the potential for catastrophic events, which may impact human life, commerce, transportation and municipal services. Exposure areas are listed alphabetically with no conclusion intended about which are most serious, likely or important.

- **Allstate, Executive Pkwy Office** – The large multi-story office facility has a daytime employee population of more than 2,000. There is only one direct access road from the center City. Access through parking lots is restricted during peak occupancy hours.
- **Alltel Communications Center (on Owen Brown Street)** - A significant event at this location could potentially create a widespread telecommunications outage throughout the area, including failure of the 911 emergency call system.
- **American Fireworks** – Large quantities of flammable and explosive materials with, effectively, only one access route. Significant numbers of retail customers are present seasonally.
- **Churches (Occupied)** – There are numerous churches in the community with large peak occupancy. Some are of wood frame construction with no fire protection systems. Access may be restricted by either narrow streets or crowded parking lots during peak occupancy. Some have only one access route from the central City.
- **City and private schools** – Across the nation an alarming increase in school violence has occurred in recent years. A large daytime population of students and staff presents a significant potential for mass casualty presenting a considerable response challenge. Other periods of high occupancy, include sports and community events.
- **Downtown business block (historic)** -- Concentration of frame and masonry un-sprinklered structures with minimal fire detection systems. There is a greater potential for communicating fires. The commercial block on the west side of North Main Street has the dubious distinction of burning to the ground in the 19th century. A similar risk continues today; a large fire will challenge the resources of the Fire Department to control even with aid from neighboring departments. This block of buildings is fundamental to the character and attraction of the community to outsiders and has marketing value higher than an appraised value.
- **Downtown business blocks (other)** – Large property values. Various construction types. Variable fire suppression or detection. Businesses in the City core rely upon each other for survival. Damage to one or a few businesses, especially Acme, potentially impacts commercial traffic for surviving businesses.
- **Electric substation** – Widespread power interruption affecting all services, traffic signals, etc. Approximately 70% of the city is covered by Hudson Public Power (HPP) and 30% by First Energy (FE). HPP has 5 substations: College Street (at Elm and College); South Main (behind Starbucks); East Side (north of Turnpike on Stow Road); Prospect Street (by Turnpike) and Season Road (not yet energized – Northeast side of Seasons Road extension).
- **Jo-Ann Stores** – Large daytime population. Large warehouse space. Physically remote, one primary access route. The large mass and footprint of this facility provides a challenge beyond the resources of City emergency services should a fire grow in any significant way.
- **Nursing and Assisted Living Facilities** – Frame structures. Difficult evacuation and accountability. Impaired elderly population. A fire going undetected for a period of time poses a substantial risk both to predominately frame structures and the elderly and disabled residents. Significant potential for mass casualty incidents.

- **Little Tikes** – The large plastic products manufacturing facility poses significant fire challenges due to large concentrations of chemicals and other plastic compounds. It is located in the most remote southeast quadrant of the city.
- **Water plant** – Risk to health. Impairment of fire protection systems. Hudson Water resources: Source is well field on Rt. 303 near West city limits with high-capacity emergency interconnect to Cleveland water system. Distribution: West to city limits, South to Barlow Road, East to N/S Hayden and North to Turnpike. Stow/Summit County Water System: Source is Lake Rockwell (Akron City Water System) through Stow water system. Distribution: Rt. 91 from South city limits to Georgetown Rd, Norton Rd and residential. Summit County Water System: Source is Lake Rockwell (Akron City water System). Distribution: Stow Rd North from Canterbury to Middleton and residential subdivisions, Middleton and subdivisions to Rt. 91, Rt. 91 North and Subdivisions including most of Chadd's Ford. Cleveland Water System: Source is Lake Erie. Distribution: Walters Rd and subdivisions South to Hines Hill, east to RR crossing; partial Chadd's Ford from Twinsburg.
- **Western Reserve Academy (Dormitories)** – Multi-story masonry structures, some of an historic nature. Dormitory fires have historically been a significant cause of loss of life in residential academic environments.

Hazard Vulnerability Analysis

The purpose of the Hazard Vulnerability Analysis (HVA) is to evaluate the community risk to specific hazards. The development of the HVA is the first step in the risk reduction process, as an organized and coordinated way of assessing potential hazards and risks. The HVA first classifies hazards into four broad categories and evaluates each hazard in terms of past occurrences, frequency, severity of impact, predictability and duration. Next, the capabilities and mitigation efforts of the community are evaluated relative to each identified hazard. With a clear assessment of current risks and an evaluation of available resources, needs and shortfalls the community can begin to explore additional mitigation opportunities and recommend a list of solutions to further reduce the adverse effects and potential damage upon the public and its resources.

Hazard Identification

The risk assessment portion of the HVA began with a review of the hazards assessed in 2009 as part of a community risk assessment. The 2009 plan focused mainly upon target locations such as railroad overpasses, bridges, utility infrastructure and specific buildings with a minor focus placed upon specific risk events such as flooding and hazardous material incidents. For purposes of this study a decision was made to build further upon the previous risk assessment plan by reviewing all potential risk events that could affect any portion of the community and analyze the City's vulnerability to those events. While target hazards were reviewed, the primary focus was placed upon specific hazards that not only impact target hazards but the community as a whole.

Numerous hazards were identified and compiled into an all-hazards list of events that have or could occur in and around the community. For the functions of this study the hazards are classified in four general categories; Natural, Technological, Human Caused, and Hazardous Materials. Table B lists the 30 hazards identified as potential threats to the community.

Table B: Identified Risks

Hazard Categories/Types			
Natural	**Technological**	**Human Caused**	**Hazard Materials**
Drought	Dam Failure	Civil Disturbance	Chemical-Fixed Site
Earthquake	Pipeline	Military Attack	Chemical-Transportation
Flood	Transportation	Terrorism	Radiological/Nuclear
Landslide	Urban Fire	VIP	Biological
Severe Storm	Commodity Shortage	Mass Casualty	
Winter storm/Blizzard	Aircraft Accident		
Tornado	Pipeline		
Epidemic/Pandemic	Railroad		
Large Scale Fire	Collapse		
Wild land Fire	Communications		
	Utility		

Hazard Assessment Factors

Upon review and discussion of the initial all-hazards list some hazards were eliminated from further consideration and others expanded into sub categories based upon historical occurrences, or lack thereof, impact upon the community or unlikelihood of occurring. The remaining 28 hazards were then evaluated the utilizing national and state databases, historical data, departmental and city records, and input from department personnel. Process, focus groups were formed within the Deployment Board. Each group was tasked a specific list of hazards for this process. Additionally, of the thirteen target hazards identified earlier in this report five were found to be representative of all the target hazards and were included in this evaluation process. To assure a systematic and comprehensive evaluation ten factors, grouped in three main categories, were used to appraise each hazard:

Probability

History
Records of past events provide valuable information and insight into what occurred, how, and why. Past actions can be reviewed to determine the overall effectiveness in preventing or mitigating the hazard and potentially identify best practices.

Frequency
The frequency of past events is useful in predicting future events. The probability of an event occurring is an important consideration when evaluating against other potential risk events. For example, an event that has a relatively minor impact on the community but

occurs on an annual basis may warrant greater than a momentous event that occurs only once every 50 years.

Scope/Vulnerability

Property Impact
Property impact is to be viewed as an overall impact on the community and encompasses time and cost to replace or repair infrastructure and the time and cost to provide temporary solutions. Remember to consider the overall impact to the community. For example, the complete loss of a home due to fire is devastating to the owner but the overall impact upon the community is negligible.

Economic/Social Impact
Human impact due to injury or death is not a consideration with in this category. Considerations of the economic element include the financial ability of the local government, the amount of losses incurred, and the overall economic impact on the community. Consideration should be given to long term community needs. The duration of the response and recovery phases also have an impact on this factor. Incorporated in the social factor are the basic needs of the community and its residents such as water and food supplies and safety issues of the citizens, evacuees, emergency personnel and their families.

Warning Time
Warning time is the amount between of time between detection of an impending event and the arrival of the actual event. For example, the time from which a dam begins leaking to when it fails would be the warning time. An additional factor to compare and evaluate is the amount of time required to implement procedures and deploy needed resources.

Duration Time
Duration is the amount of time of which the actual event occurs. This includes the length of time needed to stabilize the event and stop any continued damage or loss of life and property.

Mitigation/Controllability

Preparedness
This measure is based on the completeness of developing and implementing plans, procedures, and necessary financial systems in advance of an emergency to facilitate an effective response. Additional factors include the completeness of identifying and/or acquiring necessary resources, continuity of government, emergency communications, mutual aid agreements, and resource management. If little or no reasonable preparations can be made due to fiscal feasibility or the unlikely hood of an event to occur, then a 0 or 1 would be the appropriate rating.

Training
This criterion evaluates the actual and current status of training. It is necessary to evaluate training relevance, level of training and whether a sufficient number of personnel

have been trained. Does training include coordinated drills or table top exercises with other agencies involved during an actual event?

Community Response
This criterion evaluates the ability of the local community resources to respond quickly and effectively in mitigating a specific risk to the community. Actions taken immediately before, during, or directly after an emergency occurs, to save lives, minimize property damage, and effectiveness of recovery efforts should all be taken into consideration. Response measures include emergency plan activation, emergency alert system activation, emergency instructions to the public, emergency medical assistance, sufficient staffing, shelter, care and evacuation, search and rescue, and resource mobilization.

Regional Response
This criterion evaluates the same elements found in the description for community response but on a regional or even state level. The regional response considers all preparations for and the carrying out of all emergency functions, other than functions for which the federal government or military forces are primarily responsible for.

Hazard events and their affects upon a community can differ significantly from each other. Natural hazards, for example, tend to occur in a predictable manner whereas human caused or technological events tend to evolve based on changes in technology and/or society. Therefore, accurate evaluation of the community's relative risk to each hazard type is important for emergency planning, response, and mitigation. To effectively appraise and compare each identified risk, worksheets were utilized to develop a profile found in Appendix B for each identified hazard.

Hazard Analysis

The potential risk of each hazard is calculated using a comprehensive risk assessment matrix. The matrix provides a systematic means of determining which hazards have the greatest likelihood of severely impacting our community. Severity is calculated by measuring the magnitude of an event against the preparedness efforts to reduce or prevent the event from occurring (Magnitude – Mitigation = Severity). The tool uses a scoring matrix with a weighted numeric system for each of the parameters used in the Assessment worksheets. A point system of 0 (NA) to 3 (high) is given for each of the categories and placed into the spreadsheet.

The ratings are based primarily on the objective data gathered during the assessment process, however, some subjectivity does enter the process when evaluating community preparedness and ability in responding to an incident. The results of this hazard vulnerability analysis process, found in Table C, are then used to perform a gap analysis of the community preparedness efforts. The relative threat of an event is automatically calculated and displayed at the right side of the sheet for each event. An average score for each criterion is automatically calculated and displayed at the bottom of the worksheet.

Table C: Hazard Vulnerability Analysis

NATURALLY OCCURRING EVENTS

EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	ECONOMIC/ SOCIAL IMPACT	WARNING TIME	DURATION	(MAGNITUDE- MITIGATION) PREPAREDNESS	TRAINING	COMMUNITY RESPONSE	REGIONAL RESPONSE	=SEVERITY RISK
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption/stress upon services, finances and social stability*	*Anticipation time for incident*	*Length of incident time*	*Preplanning*	*Personnel Competency*	*Community Resources- Time/Effectiveness*	*Regional Resources - Time/Effectiveness*	*Relative threat**
SIGNIFICANCE	*0 = N/A 1 = Low 2 = Moderate* ***3 = High***	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 - 100%*
Large Scale Fire	1.3	2.3	2.7	2	2	1.5	2	1.7	2	2	**29%**
Flood	1.6	2.3	2.5	2	2	2	2	2	2	2	**37%**
Earthquake	1	2.3	2.5	2	3	2.3	1.3	1.7	2	2	**24%**
Severe Storm	2.7	2.3	1.5	1.3	1.5	1.3	2	1	1.7	1.7	**48%**
Epidemic/Pandemic	1	3	1	2	1	2.5	2.3	2	2.5	2	**23%**
Winter Blizzard	2.7	2	1.3	1	1	1.7	1	1	1.3	1.7	**40%**
Wild lands Fire	1	1.5	1.6	1	1.5	1.3	1.6	1.7	2	1.5	**17%**
Tornado	1.8	2.3	2.7	2.3	2	2.3	2	1.5	2	2	**42%**
AVERAGE SCORE	**1.64**	**2.25**	**1.98**	**1.70**	**1.75**	**1.86**	**1.78**	**1.58**	**1.94**	**1.86**	**34%**

**Threat increases with percentage.*

RISK =	PROBABILITY *	SEVERITY
0.34	**0.55**	**0.62**

Table C: Continued

TECHNOLOGICAL HAZARDS											
						(MAGNITUDE-	MITIGATION)	=SEVERITY			RISK
EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	ECONOMIC/ SOCIAL IMPACT	WARNING TIME	DURATION	PREPAREDNESS	TRAINING	COMMUNITY RESPONSE	REGIONAL RESPONSE	
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption/stress upon services, finances and social stability*	*Anticipation time for incident*	*Length of incident time*	*Preplanning*	*Personnel Competency*	*Community Resources- Time/Effectiveness*	*Regional Resources - Time/Effectiveness*	*Relative threat**
SIGNIFICANCE	*0 = N/A 1 = Low 2 = Moderate* ***3 = High***	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 - 100%*
Pipeline Failure	1	2	1.5	2	3	2	2	1.7	2	2	**22%**
Commodity Shortage	1	2.5	1	1.7	1	2	1.3	1.5	1.6	2	**18%**
Gasoline Shortage	1	2.5	0.6	2	1	2	2	1.5	2	2	**19%**
Small Aircraft Accident	1	1.5	2	1	3	1.5	1.5	2	2	1.7	**20%**
Large Aircraft Accident	1	2.5	2.5	2	3	2	1.6	2.3	2.3	1.8	**25%**
Railroad Incident	1.3	2.3	2.7	2	3	2.5	2.3	2.3	2.5	1.5	**34%**
Communications Failure	1.3	2	0.5	1.3	2.6	1.3	2	2	2	2	**25%**
Structural Collapse	1	2	2.5	1.7	2.7	2	2	2.3	2	2	**24%**
Bridge Collapse	1	2	2.3	2	3	2.7	2	2	2.3	2	**25%**
Dam Failure	1	2	1.8	2	2.7	2	2	2	2	2	**23%**
Utility Failure	1.3	2	1	1.3	3	1.3	1.5	2	2	2	**26%**
AVERAGE SCORE	**1.08**	**2.12**	**1.67**	**1.73**	**2.55**	**1.94**	**1.84**	**1.96**	**2.06**	**1.91**	**24%**

**Threat increases with percentage.*

RISK=	PROBABILITY*	SEVERITY
0.24	**0.36**	**0.66**

Table C: Continued

HUMAN CAUSED HAZARDS											
		(MAGNITUDE-					MITIGATION)	=SEVERITY			
EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	ECONOMIC/ SOCIAL IMPACT	WARNING TIME	DURATION	PREPAREDNESS	TRAINING	COMMUNITY RESPONSE	REGIONAL RESPONSE	RISK
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption/stress upon services, finances and social stability*	*Anticipation time for incident*	*Length of incident time*	*Preplanning*	*Personnel Competency*	*Community Resources- Time/Effectiveness*	*Regional Resources - Time/Effectiveness*	*Relative threat**
SIGNIFICANCE	*0 = N/A 1 = Low 2 = Moderate* ***3 = High***	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A 1 = Low Impact 2 = Mod Impact* **3 = High Impact**	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared 3=Little Preparation*	*0 - 100%*
Civil Disturbance	1	2	1	1.3	2	1.5	2	2	2.3	2	**20%**
Terrorism	1	3	2	2.6	3	2	2.3	2	2	2	**26%**
Mass Casualty	1.5	2	1	1.5	2.5	1.4	2	2	2	2	**30%**
VIP Situation	1.5	1.7	0.5	0.7	1	1	1.6	1	2	1.3	**20%**
AVERAGE	**0.42**	**0.73**	**0.38**	**0.51**	**0.71**	**0.49**	**0.66**	**0.58**	**0.69**	**0.61**	**25%**

**Threat increases with percentage.*

RISK =	PROBABILITY*	SEVERITY
0.25	**0.42**	**0.59**

Table C: Continued

HAZARDOUS MATERIALS											
		(MAGNITUDE-					MITIGATION)	=SEVERITY			RISK
EVENT	PROBABILITY	HUMAN IMPACT	PROPERTY IMPACT	ECONOMIC/ SOCIAL IMPACT	WARNING TIME	DURATION	PREPAREDNESS	TRAINING	COMMUNITY RESPONSE	REGIONAL RESPONSE	
	Likelihood this will occur	*Possibility of death or injury*	*Physical losses and damages*	*Interruption/stress upon services, finances and social stability*	*Anticipation time for incident*	*Length of incident time*	*Preplanning*	*Personnel Competency*	*Community Resources- Time/Effectiveness*	*Regional Resources - Time/Effectiveness*	*Relative threat**
SIGNIFICANCE	*0 = N/A* *1 = Low* *2 = Moderate* ***3 = High***	*0 = N/A* *1 = Low Impact* *2 = Mod Impact* **3 = High Impact**	*0 = N/A* *1 = Low Impact* *2 = Mod Impact* **3 = High Impact**	*0 = N/A* *1 = Low Impact* *2 = Mod Impact* **3 = High Impact**	*0 = N/A* *1 = Low Impact* *2 = Mod Impact* **3 = High Impact**	*0 = N/A* *1 = Low Impact* *2 = Mod Impact* **3 = High Impact**	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared* *3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared* *3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared* *3=Little Preparation*	*0 = N/A* ***1=Highly Prepared*** *2= Moderately Prepared* *3=Little Preparation*	*0 - 100%*
Chemical Fixed Site	1.3	2	2	2	2.3	1.7	2	2	1.8	2	**29%**
Transport Roadway	1.8	2	1	1	2	1.5	2	2	1.5	2	**33%**
Transport Railroad	1.5	2.3	2	2	2.5	2	2	2.3	1.8	2	**35%**
Nuclear	1	3	1.7	2.7	2.7	3	2	2	2.5	2	**27%**
Biological	1	3	1.3	2.7	2.5	2.7	2	2.3	2.5	2	**26%**
AVERAGE	**1.32**	**2.46**	**1.60**	**2.08**	**2.40**	**2.18**	**2.00**	**2.12**	**2.02**	**2.00**	**31%**

**Threat increases with percentage.*

RISK =	PROBABILITY*	SEVERITY
0.31	0.44	0.70

The total score of each risk is not as important as how it compares with the total scores of other hazards the community is exposed to. By comparing scores, the community can determine which hazards should be of greater concern and thus focus mitigation efforts towards the greatest risk. Table D provides the relative scores of each hazard in order of relative risk. The top 14 risks with a relative risk greater than 25% were further reviewed through a gap analysis to determine what, if any, gaps existed in existing mitigation strategies.

Table D: Relative Risk Scores

Event	Relative Risk
Severe Storm	48%
Tornado	42%
Winter Blizzard	40%
Flood	37%
Transport Railroad	35%
Transport Roadway	33%
Mass Casualty	29%
Large Scale Fire	29%
Chemical Fixed Site	29%
Nuclear	27%
Biological	26%
Utility Failure	26%
Communications Failure	26%
Terrorism	25%
Bridge Collapse	25%
Large Aircraft Accident	25%
Structural Collapse	24%
Earthquake	24%
Dam Failure	23%
Epidemic/Pandemic	23%
Pipeline Failure	23%
VIP Situation	22%
Small Aircraft Accident	21%
Civil Disturbance	20%
Gasoline Shortage	20%
Commodity Shortage	20%
Wild lands Fire	17%

Gap Analysis

A gap analysis is an important part of the risk management process and is used to gain an understanding of the capabilities of the community. Assessing capabilities includes evaluation of the effectiveness of existing policies, practices, plans, programs and other mitigation measures. The gap analysis may include actions such as writing, revising, or exercising standard operating procedures, purchasing additional equipment, identifying a need for training, etc.

With completion of the hazard analysis the next step in the process was to identify common gaps in four categories of mitigation efforts; Preparedness, Training, Community Response, and Regional Response. Appendix C provides a matrix used to identify gaps for each processed hazard. For each mitigation category vulnerabilities were identified which represent these gaps. The gaps were analyzed and corresponding "improvement actions" were developed, designed to reduce or possibly eliminate known vulnerabilities. This gap analysis was then used to determine mitigation strategies and develop common goals and objectives between the identified hazards. As the 14 hazards were examined it became evident some risks were very similar in nature and shared many common improvement actions. Therefore, it was decided to consolidate 3 of the risks for efficiency of process: Nuclear and Biological incidents were merged with Chemical Fixed Site; and Large Scale Fire was incorporated into Target Hazards.

Mitigation Strategy

Based on the results of the gap analysis, mitigation strategies were developed for the Fire and EMS departments. The identification of these strategies is based on the findings of the hazard vulnerability assessment and gap analysis. They are specifically focused on the Community's vulnerability to the profiled hazards and the potential severity (Magnitude – Mitigation = Severity) of those hazards.

Please note that potential strategies and recommendations are not intended to put the community or any city department "on notice". Instead these recommendations provide a list of potential actions that can be considered for approval and implementation. If approved, each recommendation will require varying degrees of action such as feasibility studies, plan development, and budgeting which are beyond the scope of this hazard mitigation plan.

The goals for hazard mitigation in our community are:

- Implement and maintain a comprehensive hazard mitigation plan
- Reduce loss of life and injury
- Minimize damage and loss to property
- Provide for continuity of operations
- Ensure adequate training, resources, and support to emergency service operations

Objectives to accomplish these goals are:

- Implement measures to increase operational effectiveness of emergency services during and in the aftermath of disasters
- Reduce the impact upon the community from severe weather
- Reduce damage caused by fire
- Reduce the risk posed from transportation accidents

- Reduce the impacts of utility failures
- Reduce operational impacts from communication system failures
- Reduce the risk of contamination from HAZMAT releases

The collection of recommended mitigation actions are listed as “improvement actions” in the gap analysis of each profiled hazard found in Appendix C. Many improvement actions were common for hazards within the same hazard category type such as weather related hazards. Some improvement actions were also found to be common across the hazard categories as well. Implementation of such improvement actions can provide a greater return in risk reduction efforts. Table E provides a consolidated list of recommended actions documented in the gap analysis process.

Table E: Consolidated List of Improvement Actions

Key Improvement Actions
1. Radio room operational training
2. Provide additional ICS and NIMS training for Fire and EMS personnel
3. Review and update HEOP and provide refresher training to key personnel in city departments
4. EOC training
5. Explore CERT’s for additional support to emergency operations
6. Encourage signup for emergency notifications, Hudson and Summit County
7. MABAS, review, update and train HFD, HEMS and Dispatch
8. Provide additional joint HFD/HEMS trainings
9. Railroads. Identify and preplan access points
10. Railroads. Provide industry training on the first 30 minutes of managing a railroad incident
11. Refresher training on CAD/MDT systems
12. WISER software on all response vehicles
13. HazMat. Train all EMS and key city personnel to Awareness level
14. HazMat. Community table top exercises
15. HazMat. Establish yearly listing of HazMat locations and place as alerts in CAD/MDT system
16. Provide AHLS training to paramedics
17. 911 System. Work with IT on how to best minimize outages
18. Cell phones. Obtain priority access codes from cell phone service providers and establish use policy
19. Review and assess agreements for alternative PSAP

20. Train HFD/HEMS and key Hudson personnel on alternative communications systems and procedures
21. Evaluate and assess communication interoperability with area agencies. Explore MARC's radio system
22. Terrorism. Identify critical facilities and vulnerabilities. Develop preparedness plans with HPD
23. Mass Casualty. Review and update list of needed equipment and transportation agencies.
24. Review County MCI plan and provide refresher training for key city personnel
25. Disaster preparedness drill and trainings, including regional exercises with local hospitals and/or airports
26. Evaluate supply and acquisition capabilities of water, fuel, etc. for emergency operations
27. Explore means of support to HEMS and HFD family members during long term emergency callouts
28. Review activation procedures for county resources.

Conclusion

In practice, any community, employing either a career or volunteer emergency service model, cannot realistically respond and manage all potential risks or disasters with their own resources. Instead, based upon available resources, the community expects a certain level of basic response, supplemented by contingency plans to obtain additional resources.

Such a risk assessment helps identify exposures not commonly recognized which may have an impact on life and property. This lesson was learned from the flooding which occurred in July, 2003 and was not identified as a significant risk to the community prior to its actual occurrence. The community has an expectation that its elected leaders and administrators will have anticipated such events, brought them to the attention of the public, and made appropriate plans to respond.

This would suggest that continued periodic risk assessments are a practical means of reducing risk to the community. At a minimum, Fire and EMS Departments should maintain plans addressing response to identified risks, routinely communicate new or changing circumstances through the City Manager, and seek to attain additional operating and capital resources as practicable.

Appendix A

Acronym List	
Acronym	**Definition**
AHLS	Advanced HAZMAT Life Support
CAD	Computer Aided Dispatch
CERT	Community Emergency Response Teams
EOC	Emergency Operations Center
HEMS	Hudson Emergency Medical Services
HEOP	Hudson Emergency Operations Plan
HFD	Hudson Fire Department
HPD	Hudson Police Department
IC	Incident Command
ICS	Incident Command System
IT	Internet Technologies
MABAS	Mutual Alarm Box
MARC	Multi-Agency Radio Communication System
MCI	Mass Casualty Incident
NIMS	National Incident Management System
PSAP	Public-Safety Answering Point
SOP	Standard Operating Procedure
WISER	Wireless Information System for Emergency Responders

Appendix B

Hazard Type Analysis Worksheet

Potential Hazard: __Flood_____

Hazard Category: __Nature_____

District: ___All districts____

Probability

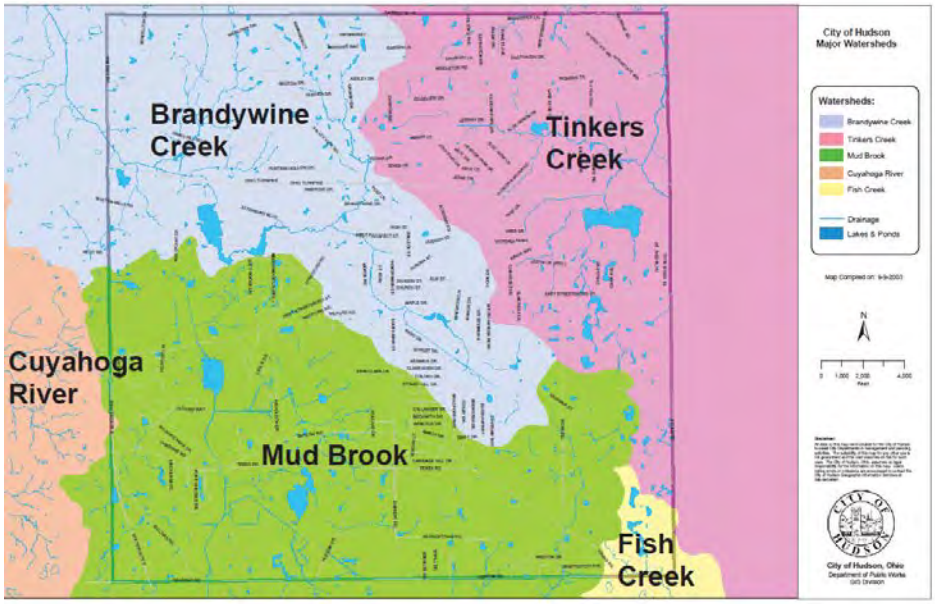
History:
Floods are one of the most common hazards in the United States. Flood effects can be local, impacting a neighborhood or community, or very large, affecting entire river basins and multiple states.

However, all floods are not alike. Some floods develop slowly, sometimes over a period of days. Flash floods can develop quickly, sometimes in just a few minutes and without any visible signs of rain. Flash floods often have a dangerous wall of roaring water that carries rocks, mud, and other debris and can sweep away most things in its path. Overland flooding occurs outside a defined river or stream, such as when a levee is breached, but still can be destructive. Flooding can also occur when a dam breaks, producing effects similar to flash floods.

Flood hazards can be anywhere, but especially are present in a low-lying area, near water or downstream from a dam. Even very small streams, gullies, creeks, culverts, dry streambeds, or low-lying ground that appears harmless in dry weather can flood.

Every county in every state is at risk from this hazard.

Current the City sits within five (5) Major Watersheds; Brandywine Creek, Cuyahoga River, Fish Creek, Mud Brook and Tinkers Creek.



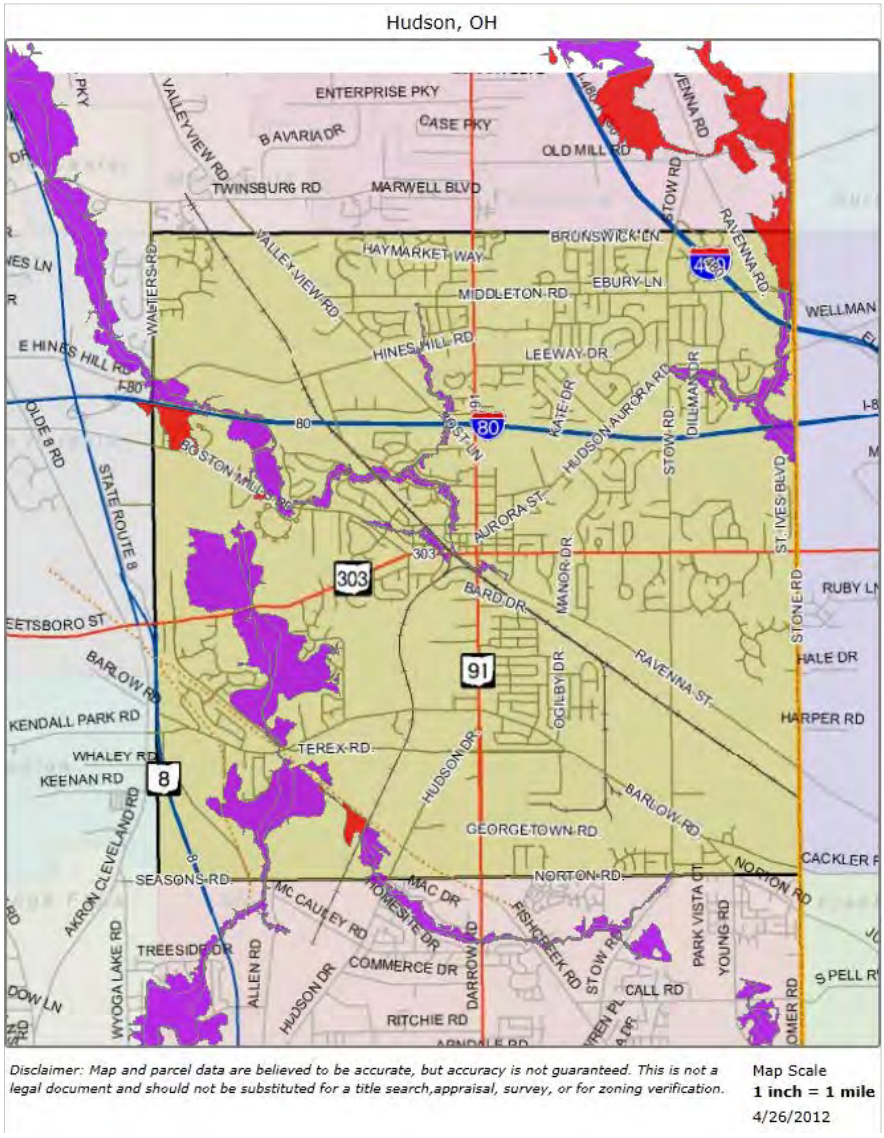
Rivers Monitored by the National Weather Service

		Flood Categories (in feet)				Historical Crests	
Gauge	Physical Location	Action	Flood	Moderate	Major	Number	High
Cuyahoga River at Old Portage	North Portage Path & Winding Brook Dr	9	10.5	13	18	(43) since 1913	05/22/2004 13.74 ft
Cuyahoga River at Independence	Old Rockside Rd & West Canal Rd	14	16	17	18.5	(47) since 1927	06/23/2006 23.29 ft

Frequency:

In July 2003, heavy, constant rains led to minor to severe floods in Hudson. Two Hudsonites died in this 300-year flood event. Property damage was estimated between 3 – 4 million.

FEMA FLOOD PLAIN MAP (PURPOSED FROM 2008)



Scope/Vulnerability

Human Impact:

Loss of Human life should be minimal due to advance warning.

Property Impact:

Primary effects

- *Physical damage* – Can damage any type of structure, including bridges, cars, buildings, sewerage systems, roadways, and canals.

Secondary effects

- *Water supplies* – Contamination of water. Clean drinking water becomes scarce.
- *Diseases* – Unhygienic conditions. Spread of water-borne diseases.
- *Crops and food supplies* – Shortage of food crops can be caused due to loss of entire harvest. However, lowlands near rivers depend upon river silt deposited by floods in order to add nutrients to the local soil.
- *Trees* – Non-tolerant species can die from suffocation
- *Transport* - Transport links destroyed, so hard to get emergency aid to those who need it.

Tertiary and long-term effects

- Economic – Economic hardship, due to: temporary decline in tourism, rebuilding costs, food shortage leading to price increase, etc.

Economic & Social:

Impact upon the local economy is totally dependent upon the type of storm, its width, path and the length of time it stays over the city. Past history has shown damage can be extensive. However the disruption of transportation routes, communications, and public utilities, will be the bigger issue. If the incident happens at rush hour, there is a possibility that we will have to deal with abandoned cars and their occupants. If enough notice is given surrounding the severe storm then it is also possible to see a run on the grocery stores and hardware stores as citizens stock up for the event.

As with other items within this category, from a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a minor event. While these effects might be short lived they could result in panicked residents overwhelming the 911 system during the next severe weather event.

Predictability/Warning Time:

There are several alerts for flooding which are released by the National Weather Service.

Advisory – Flooding is occurring or imminent, but does not pose a serious threat to lives or property, but rather will simply pose a nuisance to people in the affected area. Ponding of water of streets, low-lying areas, highways, underpasses, urban storm drains, and elevation of creek and small stream levels is occurring or imminent

Watch - Flooding is possible or expected within 12–48 hours

PDS Watch - When there is a greater risk of widespread, potentially life-threatening flash flooding

Warning - issued when flooding over a large area or river flooding is imminent or occurring.

Category	Advisory	Watch	PDS Watch	Warning
Flood		**X**		**X**
Flash flood		**X**	**X**	**X**
Coastal flood	**X**	**X**		**X**
River flood	**X**	**X**		**X**
Urban and small stream	**X**			

In most cases those warnings, precede the actual storm.

Duration:

Typically a few hours with the possibility of a couple days.

Mitigation/Controllability

Preparedness/Preplanning:
The functionality of our critical facilities such as emergency services (police, fire/ems, PSAP), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important.

The City has a snow command policy in place. In addition the County EMA has established policies for shelter implementation and identified locations. Planning also needs to be in place with EMS to create an alternative method to get to the patient and transport the patient to a medical facility. Other items to be considered by EMS could be temporary treatment facilities and prolong treatment plans and longer than usual transport times.

The Fire Department also needs to explore alternative methods to place equipment on scene.

EMS might utilize its MCI planning depending on the travel conditions out of the city and if any large gathering establishments were damage or create strike teams.

Training:

Other training such as search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with a Flood.

Community Response:

- Automatic and mutual aid responses from local communities.
- MABAS plans activated
-
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- Summit County Emergency Operation Plan
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- Ohio Emergency Management Agency
- Federal Emergency Management Agency
- Procedures for requesting state and federal assistance.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Large Scale Fire
Hazard Category: Natural
Definition: For the purpose of this paper a large scale fire is a fire in Hudson that is:

1. Beyond the scope of HFD and our typical mutual aid request (multiple MABAS boxes).
2. A very large undivided building, i.e., distribution center.
3. Any facility with an extreme fire load.

Probability: Low in any given decade but will eventually happen.

History: Over the last fifty years the one incident in Hudson that qualifies as aone incident that qualifies as a large fire. In the early 1970s the fuel gas fire on the corner of Rt. 91 and Ravenna Street.

Frequency: Seldom

Scope/Vulnerability:

Human: Depending on location, occupancy and building use; from some human impact to extreme impact with loss of life, vital employment or residents displaced.

Property Impact: Depending on location, occupancy and building; property impact from some to extreme.

Economic and Social: If a working business' building is destroyed or out of service for a length of time the economic impact could be extreme. A North Main Street fire could devastate the historic district.

Predictability/Warning Time: The only predictability is that large fires will happen, either in Hudson or a neighboring community. There is no warning time.

Duration: This is potentially a campaign firefighting activity with long term effects.

Mitigation/Controllability:
Preparedness/Preplanning:

Training:

1. Incident Command System followed from the beginning of incident.
2. MABAS system in place and used by command and dispatch
3. Emphasis on developing and reviewing preplans of high hazard areas
4. Offensive / defensive decisions made and clearly communicated.

Community Response:

1. Fire, EMS, Police
2. Sign department for traffic control
3. Water department
4. Finance department
5. Coordination of press communications/media
6. School buses / shelters
7. Food for workers and displaced

Regional Response:

1. MABAS responding departments
2. Red Cross
3. Medical

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Large Scale Fire
Hazard Category: Natural
Definition: For the purpose of this paper a large scale fire is a fire in Hudson that is:

1. Beyond the scope of HFD and our typical mutual aid request (multiple MABAS boxes).
2. A very large undivided building, i.e., distribution center.
3. Any facility with an extreme fire load.

Probability: Low in any given decade but will eventually happen.

History: Over the last fifty years the one incident in Hudson that qualifies as aone incident that qualifies as a large fire. In the early 1970s the fuel gas fire on the corner of Rt. 91 and Ravenna Street.

Frequency: Seldom

Scope/Vulnerability:

Human: Depending on location, occupancy and building use; from some human impact to extreme impact with loss of life, vital employment or residents displaced.

Property Impact: Depending on location, occupancy and building; property impact from some to extreme.

Economic and Social: If a working business' building is destroyed or out of service for a length of time the economic impact could be extreme. A North Main Street fire could devastate the historic district.

Predictability/Warning Time: The only predictability is that large fires will happen, either in Hudson or a neighboring community. There is no warning time.

Duration: This is potentially a campaign firefighting activity with long term effects.

Mitigation/Controllability:
Preparedness/Preplanning:

Training:

1. Incident Command System followed from the beginning of incident.
2. MABAS system in place and used by command and dispatch
3. Emphasis on developing and reviewing preplans of high hazard areas
4. Offensive / defensive decisions made and clearly communicated.

Community Response:

1. Fire, EMS, Police
2. Sign department for traffic control
3. Water department
4. Finance department
5. Coordination of press communications/media
6. School buses / shelters
7. Food for workers and displaced

Regional Response:

1. MABAS responding departments
2. Red Cross
3. Medical

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: _____Earthquake_____

Hazard Category: _____Natural_____

Probability

History:
The nearest fault line to Ohio is the New Madrid fault, with northeast Ohio lying on the outermost boundaries. Two earthquakes estimated over 7 on the Richter scale have been recorded along this fault in the past. However, with Northeast Ohio (Cuyahoga County) being located on the outermost region of this fault area, seismic experts indicate our area would suffer minimal to no damage even from an 8.0 magnitude earthquake on the New Madrid fault.
Most sources predict that the largest magnitude earthquake in Ohio would register no higher than five. The last significant earthquake in our region occurred in January 1986 and was a 5 on the Richter scale. Minimal property damage was reported from that occurrence.

Frequency:
Ohio has recorded 170 earthquakes with a magnitude of 2.0 or greater since 1776. Of these earthquakes, 15 were reported to have caused noticeable to moderate damage. In the past 10 years an average of approximately 2-3 quakes averaging 2-3 on the Richter scale have occurred in northeast Ohio annually.

Scope/Vulnerability

Human Impact:
Common effects of minor earthquakes are ground motion and shaking, with major quakes surface fault ruptures, and ground failure also occurs. The probability of a significant earthquake capable of causing significant damage is low and therefore would not likely have a significant impact on the physical well-being of residents.

Property Impact:
The severity of these effects is dependent on the amount of energy released from the fault or epicenter. The effects of an earthquake can be felt far beyond the site of occurrence but have a negligible impact on damage to property.
With this in mind, the probability of a damaging earthquake occurring in our community is low. However, if for some reason a quake was to occur with the epicenter nearby, there is no way to comprehend the amount of damage that could be sustained. Extensive damage to private and public facilities could be expected, along with disruption of transportation routes, communications, and public utilities.

Economic & Social:
Past history has shown that minor quakes have had minimal impact upon the local economy. If a significant quake above 5.0 did occur, extensive damage to private and public facilities could be expected along with mass casualties and disruption of transportation routes, communications, and public utilities.
However, from a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a

minor quake. While these effects might be short lived they could result in panicked residents overwhelming the 911 system early on in the event.

Predictability/Warning Time:
Initial earthquakes usually occur without warning. While after-shocks cannot be predicted they do have a high probability of occurring after significant quakes.

Duration:
The event typically lasts just a few seconds. Mitigation is dependent upon the scale of damage and could take several hours to several days to stabilize.

Mitigation/Controllability

Preparedness/Preplanning:
The functionality of our critical facilities such as emergency services (police, fire/ems, psaps), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important. Planning currently in place for events such as tornados and severe weather events should be applicable to a minor seismic event such as we are likely to experience.

Training:
The Department does not have any training specific to earthquakes. Other training such as search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with a minor earthquake.

Community Response:

- Automatic and mutual aid responses from local communities.
- MABAS plans activated
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies
- Contact Verizon Government Support

Regional Response:

- Summit County Technical Operations Rescue Teams (TROT)
- Summit County Emergency Operation Plan
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Severe Storm_____
Hazard Category: _ _Nature_____

Probability

History:
Severe weather refers to any dangerous meteorological phenomena with the potential to cause damage, serious social disruption, or loss of human life. Types of severe weather phenomena vary, depending on the latitude, altitude, topography, and atmospheric conditions. High winds, hail, excessive precipitation, and wildfires are forms of severe weather. Severe weather is caused by thunderstorms, downbursts, lightning, tornadoes, waterspouts, tropical cyclones, and extra-tropical cyclones. Regional severe weather phenomena include blizzards, snowstorms, ice storms, and dust-storms. This Analysis Worksheet deals with severe weather that is caused by thunderstorms, hail, downbursts, lightning, and wind.

Severe thunderstorms can be assessed in three different categories. These are "**approaching severe**", "**severe**", and "**significantly severe**".

Approaching severe is defined as hail between 1⁄2 to 1 inch diameter or winds between 50 and 58 M.P.H. In the United States, such storms will usually warrant a Significant Weather Alert.

Severe is defined as hail 1 inch diameter or larger, winds 58 M.P.H. or stronger, or a tornado.

Significant severe is defined as hail 2 inches in diameter or larger, winds 75 M.P.H. or stronger, a tornado of strength EF2 or stronger, the occurrence of flash flood phenomena by heavy precipitation, or extreme temperatures.

Both severe and significant severe events warrant a severe thunderstorm warning from the National Weather Service. If a tornado is occurring or if it is likely to occur, the severe thunderstorm warning will be superseded by a tornado.

A severe weather outbreak is typically considered to be when 10 or more tornadoes, some will likely be long tracked and violent, and many large hail or damaging wind reports. Severity is also dependent on the size of the geographic area affected, whether it covers hundreds or thousands of square miles.

Frequency:
While data regarding the types of and frequency of National Weather Service alerts is not readily available, NOAA does publish Weather Data for Summit County, Ohio. The following information is for the period from April 30, 1950 to November 30, 2011

Severe Weather Event	Number of Events	Deaths	Injuries	Property Damage
Hail	189	0	1	$107,056,000
High Winds	44	4	18	$ 40,051,000
Lighting	11	1	10	$ 295,000
Strong Winds	5	0	0	$ 1,835,000
Thunderstorm Winds	234	1	10	$ 5,290,000
Total	***483***	***6***	***39***	***$154,232,000***

This averages out to 7.8 events per year in Summit County, resulting in 0.10 deaths and 0.63 injuries. Property damage however averages out to $ 2,487,612.90 a year.

Scope/Vulnerability

Human Impact:

Loss of Human life should be minimal due to advance warning. If however the severe weather would strike at night or during an event, the loss could increase. During the school year the system could become over whelmed if a weather related incident would occur in the gross vicinity of any of the schools.

The best defense when faced with tornadoes or any severe weather event is preparedness. Planning ahead and knowing what to do in the event of severe weather will lower the chances of injury or death or loss of property.

Property Impact:

On a statewide basis, Ohio does not have building codes that address wind resistance for most types of residential dwellings. However, since 1995 many local codes that address wind resistance have been adopted. Therefore, structures constructed prior to 1995 are potentially more susceptible to catastrophic destruction as the result of wind damage than those constructed after 1995. By using U.S. Census Bureau housing data, the age of structures can be assessed and an actual dollar valve could be assigned. In addition due to the spatial nature of these types of storms, property damage would be wide spread.

Economic & Social:

Impact upon the local economy is totally dependent upon the type of storm, its width, path and the length of time it stays over the city. Past history has shown damage can be extensive. However extensive the damage is to private and public facilities, the disruption of transportation routes, communications, and public utilities, will be the bigger issue. If the incident happens at night, mass causalities could be excepted since the majority of citizens will not hear and heed the warnings as they would during the day.
As with other items within this category, from a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a minor event. While these effects might be short lived they could result in panicked residents overwhelming the 911 system during the next severe weather event.

Predictability/Warning Time:

The Storm Prediction Center (SPC), which is part of the National Weather Service (NWS) and the National Centers for Environmental Prediction (NCEP), mission is to provide timely and accurate forecasts and watches for severe thunderstorms and tornadoes over the contiguous United States. The SPC also monitors heavy rain, heavy snow, and fire weather events across the U.S. and issues specific products for those hazards. The SPC relay's forecasts of organized severe weather as much as three days ahead of time, and continually refines the forecast up until the event has concluded.

The National Weather Service uses this information and when conditions are favorable for severe weather to develop, a severe thunderstorm or tornado WATCH is issued. Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado WARNINGS for areas where severe weather is imminent.

Severe thunderstorm and tornado warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities. The public has been taught that if a tornado warning is issued for your area or the sky becomes threatening, move to your pre-designated place of safety.

In most cases those warnings, precede the actual storm.

Duration:

The event itself can last just a few minutes or hours. It is the period leading up to the actual storm and the period of time for the all clear to be issued that is unknown.

Mitigation on the other hand is dependent upon the scale of damage and could take several hours to several days to stabilize.

Mitigation/Controllability

Preparedness/Preplanning:

The functionality of our critical facilities such as emergency services (police, fire/ems, PSAP), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important.

Planning currently in place for events such as earthquakes, floods, winter blizzard and severe weather events should be applicable to a tornado.

The Departments does have policies in place (EMS SOP #4-02 and Fire SOP 407) regarding and Severe Weather Deployment and Thunderstorm/Tornado & Snow Storm Standby and Response.

EMS might utilize its MCI planning depending on the time of day of the incident and if any large gathering establishments were damage or create strike teams.

Training:

Other training such as search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with a severe weather incident.

Community Response:

- Automatic and mutual aid responses from local communities.
- MABAS plans activated
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies
- Contact Verizon Government Support

Regional Response:

- Summit County Emergency Operation Plan
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- SORT
- Geauga County Sheriff Communications Vehicle
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Epidemic / Pandemic_____
Hazard Category: _ _Nature_____

Probability

History:

An **epidemic**, occurs when cases of a disease, in a given human population, and during a given period, substantially exceed what is expected based on recent experience. Epidemiologists often consider the term outbreak to be synonymous to epidemic, but the general public typically perceives outbreaks to be more local and less serious than epidemics.

An epidemic may be restricted to one location, however if it spreads to other countries or continents and affects a substantial number of people, it may be termed a pandemic. The declaration of an epidemic usually requires a good understanding of a baseline rate of incidence; epidemics for certain diseases, such as influenza, are defined as reaching some defined increase in incidence above this baseline. A few cases of a very rare disease may be classified as an epidemic, while many cases of a common disease (such as the common cold) would not.

There are several outbreak patterns, which can be useful in identifying the transmission method or source, and predicting the future rate of infection. Each has a distinctive epidemic curve, or histogram of case infections and deaths:

- Common source – All victims acquire the infection from the same source (e.g. a contaminated water supply).
    - Continuous source – Common source outbreak where the exposure occurs over multiple incubation periods
    - Point source – Common source outbreak where the exposure occurs in less than one incubation period.
- Propagated – Transmission occurs from person to person.

Outbreaks can also be:

- Behavioral risk related (e.g., sexually transmitted diseases, increased risk due to malnutrition)
- Zoonotic – The infectious agent is endemic to an animal population.

Patterns of occurrence are:

- Endemic – a communicable disease, such as influenza, measles, mumps, pneumonia, colds, small pox, TB which is characteristic of a particular place, or among a particular group, or area of interest or activity
- Epidemic – when this disease is found to infect a significantly larger number of people at the same time than is common at that time, and among that population, and may spread through one or several communities.
- Pandemic – occurs when an epidemic spreads worldwide.

The Lead Agency in declaring and managing an Endemic, Epidemic or Pandemic is the WHO (World Health Organization), the CDC (Center for Disease Control), State or Local Public Health Department. During a Public Health Event the Summit County Medical Reserve Corps will play a very large role in carrying out the mission of the Public Health Department..

Frequency:

Under state law the Public Health Department is responsible for tracking Communicable Diseases. Currently the Summit County Public Health Department is tracking the following.

Selected Communicable Disease Reports Received, March 2012 *

Reportable Condition (sorted alphabetically)	Monthly totals					Year to Date	
	By Location			Current month total	Previous Month (Revised)	Mar. 2012	2007-2011 avg.
	Akron	Barber-ton	All Other Juris.				
Campylobacteriosis	3	-	-	**3**	1	7	4
Chlamydia infection	150	3	33	**186**	79	445	328
Cryptosporidiosis	1	-	1	**2**	1	3	1
E. coli - all	-	-	-	**-**	-		1
Giardiasis	-	-	2	**2**	-	9	7
Gonococcal infection	65	4	5	**74**	20	171	131
Haemophilus influenzae (invasive disease)	-	-	-	**-**	-	3	1
Hepatitis A	-	-	-	**-**	-	3	1
Hepatitis B (including delta) - acute	1	-	-	**1**	-	3	19
Hepatitis B (including delta) - chronic	3	-	3	**6**	1	17	61
Hepatitis C - chronic	20	4	17	**41**	9	89	79
Influenza-associated hospitalization	7	-	4	**11**	1	12	15
Legionellosis - Legionnaires' Disease	-	-	-	**-**	-	2	2
Meningitis - aseptic/viral	3	-	-	**3**	-	6	6
Meningococcal disease - Neisseria meningitidis	-	-	-	**-**	-	1	1
Mycobacterial disease - other than tuberculosis	1	1	-	**2**	1	8	12
Pertussis	-	-	1	**1**	-	3	3
Salmonellosis	1	-	1	**2**	2	12	7
Shigellosis	-	-	-	**-**	1	5	10
Streptococcal - Group A - invasive	1	-	-	**1**	-	2	4
Streptococcus pneumoniae	3	-	-	**3**	-	9	13
Varicella	2	-	1	**3**	-	6	22
Syphilis - all stages *				**4**	-	11	--
Tuberculosis				**-**	1	3	--
HIV/AIDS *				**2**	1	6	--
Table 1 Total	**261**	**12**	**68**	**347**	**118**	**836**	--

* Number of cases of disease reported to and investigated by the Summit County Health District. This includes all cases that are probable, suspected, and confirmed. HIV/AIDS, syphilis, and tuberculosis diagnoses are available for the county only.
The Year to Date Total reflects all cases of disease reported to the SCHD as of the date this report was printed. This includes the cases of disease entered into the Ohio Disease Reporting System (ODRS) after last month's report was generated. Because case classifications can change over time, monthly figures should not be considered final until the annual report is complete. Note: Syphilis and HIV/AIDS year-to-date figures have been revised.

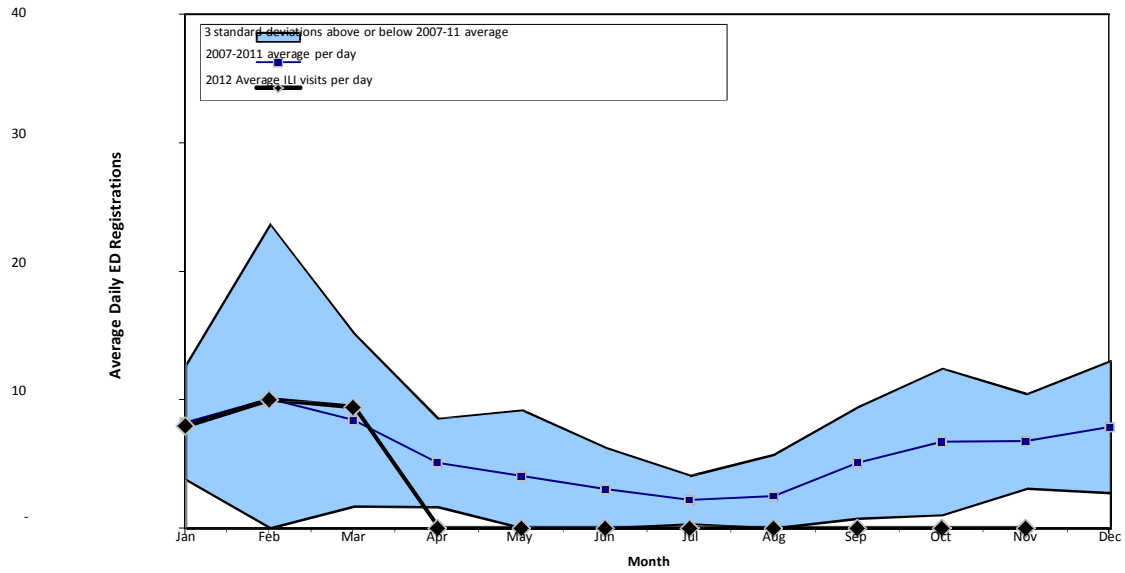
Chlamydia infections (55% of all reported diseases), Gonococcal infections (22% of all reported diseases), and Hepatitis C, chronic (12% of all reported diseases) remain the three most prevalent diseases in Summit County. Together, these three diseases accounted for 89% of all reported communicable disease cases this month.

"Influenza-Like-Illness (ILI) - Emergency Department (ED) Registrations" are also tracked by the Summit County Board of Health (see below). In addition, weekly influenza reports for the current flu season can be found on the Summit County Public Health Website at http://www.scphoh.org/REPORTS.html.

ILI Specific - Emergency Department (ED) Registrations *

• ED registrations for ILI specific averaged 8.4 per day this month. (Source: EpiCenter)

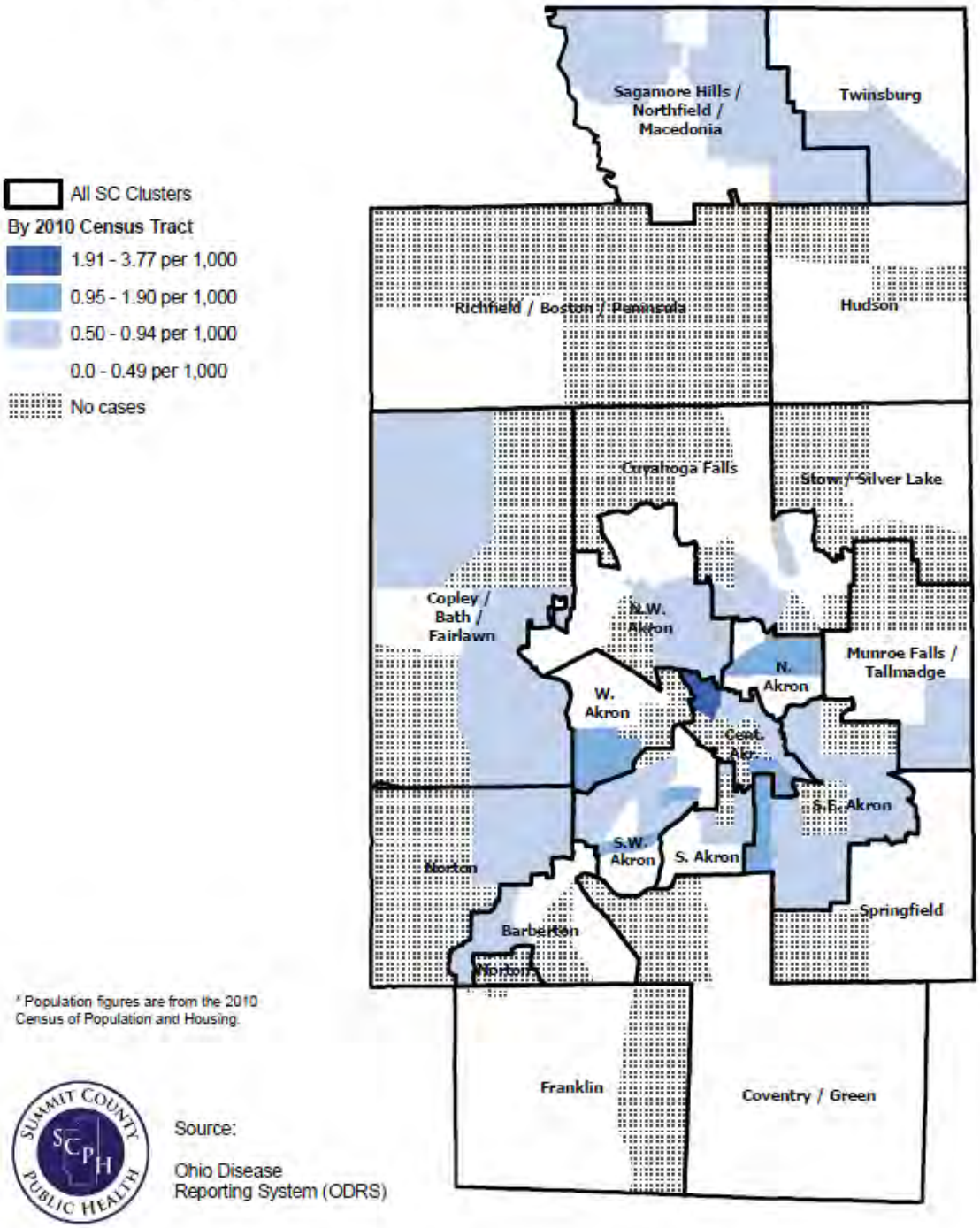
Figure 1: Average Monthly Emergency Department (ED) Registrations for ILI Specific, Summit County, 2012 Year-To-Date



* This chart compares each month's ED registrations to the four year average number of ED registrations in the same month. When currently monthly ED registrations are outside the shaded area of Figure 1, they are either 3 standard deviations above or below the four year average. When currently monthly ED registrations are more than 3 standard deviations above or below the average, it suggests that the differences are unlikely to have occurred by chance and are, therefore, statistically significant.

This tracking is based on cases reported via Primary Care and Public Health Physicians and Hospitals. This does not include Absences from School, Self-Treated or Non Transported Patients. Real Time tracking in Summit County, while commercially available, is not currently being performed.

Map 1: Non Sexually-Transmitted Reportable Disease Cases per 1,000, Summit County, Through March 2012*

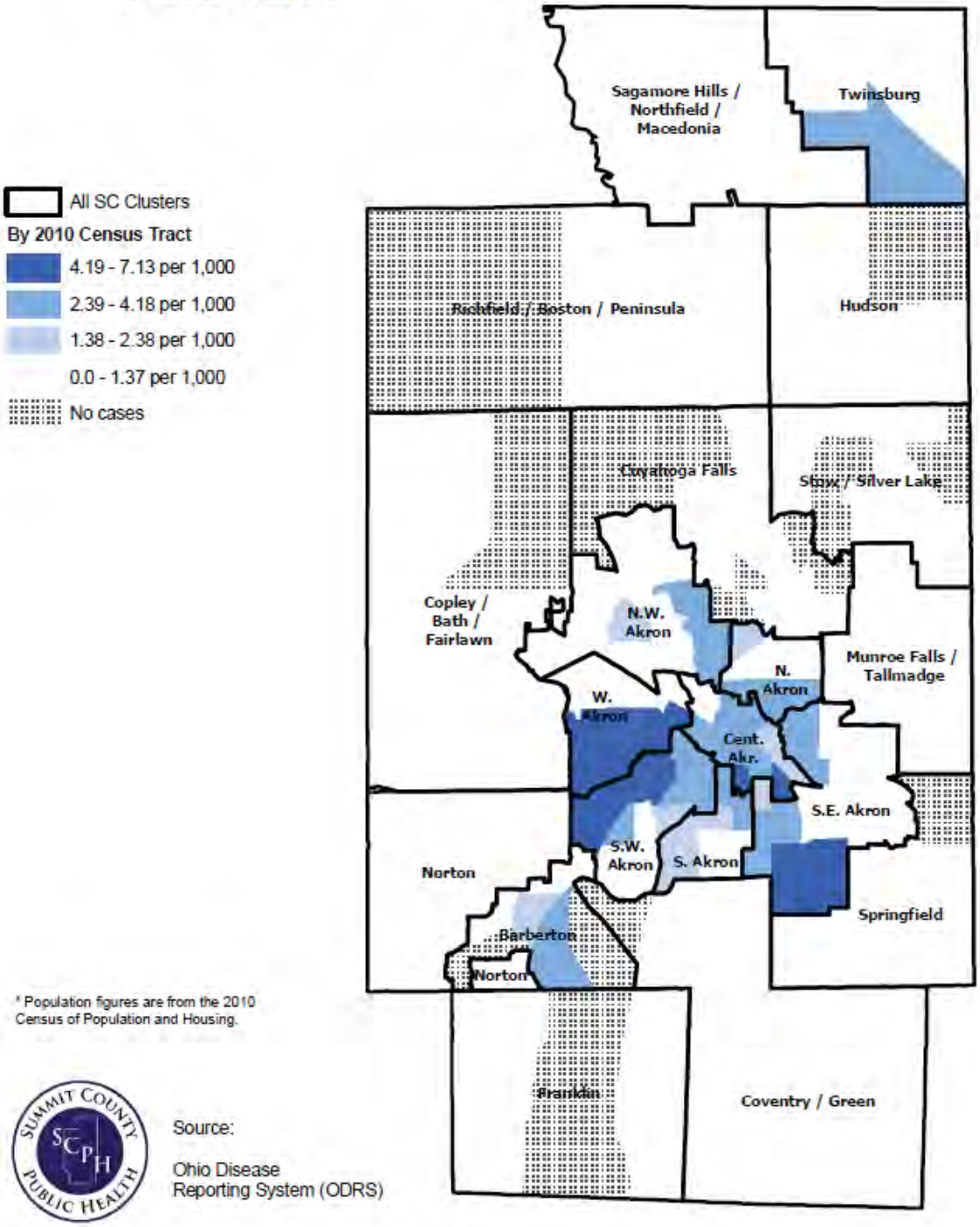


* Population figures are from the 2010 Census of Population and Housing.

Source:

Ohio Disease Reporting System (ODRS)

Map 2: Sexually-Transmitted Reportable Disease Cases per 1,000, Summit County, Through March 2012*



WHO Outbreak Alerts for the United States 2000 - 2011

- 24 November 2011
  Influenza like illness in the United States of America

- 16 August 2011
  West Nile Virus Infection (WNV) in Europe
- 30 May 2007
  Extensively Drug-Resistant Tuberculosis (XDR-TB) in United States air passenger
- 11 October 2006
  Botulism in the United States and Canada
- 2 June 2004
  Salmonella Enteritidis in the United States of America
- 22 March 2004 - 4 December 2003
  Human influenza A/H3N2 epidemic
- 26 June 2003 - 16 March 2003
  Severe Acute Respiratory Syndrome (SARS)
- 27 November 2002 - 27 August 2002
  West Nile virus in the United States
- 23 November 2001 - 10 October 2001
  Anthrax in the United States
- 15 September 2000
  2000 - Acute febrile illness in the United States
- 12 May 2000 - 26 April 2000
  Meningococcal disease in the United States

Scope/Vulnerability

Human Impact:
There is no way to determine the actual Human Impact. This is all Disease specific. As an example the typical mortality rate for the Seasonal Flu is considered to be from about 0.06% to 0.24%, based on an assumption that 5% to 20% of the population will get infected. Listed below is the CDC Pandemic Severity Index

Characteristics	Pandemic Severity Index				
	Category 1	**Category 2**	**Category 3**	**Category 4**	**Category 5**
Case Fatality Ratio (Percentage)	< 0.1	0.1 - < 0.5	0.5 - <1.0	1.0 - < 2.0	≥ 2.0
Excess Death Rate (per 100,000)	< 30	30 - < 150	150 - < 300	300 - < 600	≥ 300
Illness Rate (percentage of the population)	20 - 40	20 - 40	20 - 40	20 - 40	20 - 40
Potential Number of Deaths (Based on 2006 U.S. population)	< 90,000	90,000 - < 450,000	450,000 – < 900,000	900,000 - < 1.8 million	≥ 1.8 million
20th Century U.S. Experience	Seasonal Influenza	1957 (Asian), 1969 (Hong Kong) Pandemic	None	None	1918 Pandemic
Summit County at a 30% illness rate	163	820	1,640	2,460	3,289
City of Hudson at a 30% illness rate	23	115	230	345	445

The 2009 H1N1 had an original estimated illness rate of 50%, meaning 60 to 120 million will be infected, leading to as many as 1.8 million hospitalized and between 30,000 – 90,000 deaths.

The H1N1 resulted in only 113,690 confirmed cases, causing 3,433 deaths. Therefore it must be noted that the Impact on Human assets is dependent on, but not limited to the following parameters:

- Incubation period
- Age-specific illness rates
- Total illness rates, mortality rates
- Reproductive rate

- Intergenerational time
- Population structure
- Healthcare infrastructure

Property Impact: In the large picture there would be very little Property impact.

Economic & Social:
Human mobility plays a central role in the spatial spreading of infectious disease; therefore depending on the disease it is possible for a suspension of activities in the educational, government and business arenas. Who would actually make this declaration is still being discussed secondary to the legal ramifications.

If there is a Suspension of activities, the main question is one of what are the Essential / Critical services that will have to be continued and who will provide them. There is a popular belief that there will be mass call offs, secondary to;

1) Having to tend to the sick at home
2) No Child Care options
3) Simply not wanting to take the chance of contracting the disease.

In addition in the case of a prolong Suspension of activities how does one continue to live, without Income. In short a prolong Suspension will wreak havoc with the economy.

Predictability/Warning Time:
Despite computer modeling WHO has been unable to correctly predict the next location, of the next disease, at least in terms of the point of outbreak. At the onset of an emerging epidemic, very limited information may be known about the cases and deaths.

This is especially true in the case of Influenza.

Duration: Depending on the Disease this could be a couple of days to weeks to months. It is generally agreed that any Influenza Outbreak would occur in waves.

Mitigation/Controllability

Preparedness/Preplanning:
Prevention is the number one item on the Preparedness / Preplanning list. This includes Vaccinations, which is the number one item on the Prevention list, followed by simple Hand Washing.

Preplanning for this type of event is determining the essential functions of each department and working with the county and regional organizations that will be creating the overall plan.

In addition methods will need to be determined on how to ensure a workforce, supplies for those individuals and their equipment in cases of Suspension of Activities.

Training:
- MCI
- NIMS
- Vaccinations training

Community Response:
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- MABAS plans activated.
- Procedures for requesting state and federal assistance.
- Summit County Public Health
- Summit County EMA
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Winter Blizzard_____

Hazard Category: __Nature_____

Probability

History:

Winter Precipitation
SLEET - Rain drops that freeze into ice pellets before reaching the ground. Sleet usually bounces when hitting a surface and does not stick to objects. However, it can accumulate like snow and cause a hazard to motorists.

FREEZING RAIN - Rain that falls onto a surface with a temperature below freezing. This causes it to freeze to surfaces, such as trees, cars, and roads, forming a coating or glaze of ice. Even small accumulations of ice can cause a significant hazard.

FLURRIES - Light snow falling for short durations. No accumulation or light dusting is all that is expected.

SHOWERS - Snow falling at varying intensities for brief periods of time. Some accumulation is possible.

SQUALLS - Brief, intense snow showers accompanied by strong, gusty winds. Accumulation may be significant. Snow squalls are best known in the Great Lakes region.

BLOWING SNOW - Wind-driven snow that reduces visibility and causes significant drifting. Blowing snow may be snow that is falling and/or loose snow on the ground picked up by the wind.

BLIZZARD - A severe snowstorm characterized by strong winds. By definition, the difference between blizzard and a snowstorm is the strength of the wind. To be a blizzard, a snow storm must have sustained winds or frequent gusts that are greater than or equal to 35 mph with blowing or drifting snow which reduces visibility to ¼ mile or less and must last for a prolonged period of time — typically three hours or more. Snowfall amounts do not have to be significant.

Blizzards can bring near-whiteout conditions, and can paralyze regions for days at a time, particularly where snowfall is unusual or rare.

Types of Storms
STORMS WITH STRONG WINDS - Sometimes winter storms are accompanied by strong winds creating blizzard conditions with blinding wind-driven snow, severe drifting, and dangerous wind chill. Strong winds with these intense storms and cold fronts can knock down trees, utility poles, and power lines.

EXTREME COLD - Extreme cold often accompanies a winter storm or is left in its wake. Prolonged exposure to the cold can cause frostbite or hypothermia and become life-threatening.

Infants and elderly people are most susceptible. What constitutes extreme cold and its effect varies across different areas of the United States. In areas unaccustomed to winter weather, near freezing temperatures are considered "extreme cold." Freezing temperatures can cause severe damage to citrus fruit crops and other vegetation. Pipes may freeze and burst in homes that are poorly insulated or without heat. In the north, below zero temperatures may be considered as "extreme cold." Long cold spells can cause rivers to freeze, disrupting shipping. Ice jams may form and lead to flooding.

ICE STORMS - Heavy accumulations of ice can bring down trees, electrical wires, telephone poles and lines, and communication towers. Communications and power can be disrupted for days while utility companies work to repair the extensive damage. Even small accumulations of ice may cause extreme hazards to motorists and pedestrians.

HEAVY SNOW STORMS - Heavy snow can immobilize a region and paralyze a city, stranding commuters, stopping the flow of supplies, and disrupting emergency and medical services. Accumulations of snow can collapse buildings and knock down trees and power lines. In rural areas, homes and farms may be isolated for days, and unprotected livestock may be lost. In the mountains, heavy snow can lead to avalanches. The cost of snow removal, repairing damages, and loss of business can have large economic impacts on cities and towns.

STORM PATTERNS
In this area storms tend to develop over southeast Colorado in the lee of the Rockies. These storms move east or northeast and use both the southward plunge of cold air from Canada and the northward flow of moisture from the Gulf of Mexico to produce heavy snow and sometimes blizzard conditions. Other storms affecting the Midwest and Plains intensify in the lee of the Canadian Rockies and move southeast. Arctic air is drawn from the north and moves south across the Plains and Great Lakes. Wind and cold sometimes combine to cause wind chill temperatures as low as 70F below zero. The wind crosses the lakes, tapping its moisture and forming snow squalls and narrow heavy snow bands. This is called "lake-effect snow."

Snow Emergency Classifications
A county sheriff may, pursuant to Ohio Revised Code sections 311.07 and 311.08, declare a snow emergency and temporarily close the state roads and municipal streets within his/her jurisdiction when such action is reasonably necessary for the preservation of the public peace. Ohio Attorney General’s Opinion 97-015, issued April 1, 1997, concluded that this authority includes state roads, county and township roads and municipal streets.

Any person who knowingly hampers or fails to obey a lawful order of the sheriff declaring a snow emergency and temporarily closing highways, roads and/or streets within his/her jurisdiction may be subject to criminal prosecution under Ohio Revised Code Section 2917.13

Snow Emergency Classifications
LEVEL 1: Roadways are hazardous with blowing and drifting snow. Roads may also be icy. Motorists are urged to drive very cautiously.

LEVEL 2: Roadways are hazardous with blowing and drifting snow. Roads may also be very icy. Only those who feel it is necessary to drive should be out on the roads. Contact your employer to see if you should report to work. Motorists should use extreme caution.

LEVEL 3: All roadways are closed to non-emergency personnel. No one should be driving during these conditions unless it is absolutely necessary to travel or a personal emergency

exists. All employees should contact their employer to see if they should report to work. Those traveling on the roads may subject themselves to arrest.

Winter Deaths
Everyone is potentially at risk during winter storms. The actual threat to you depends on your specific situation. Recent observations indicate the following:

Related to ice and snow:
- About 70% occur in automobiles.
- About 25% are people caught out in the storm.

Related to exposure to cold:
- 50% are people over 60 years old.
- Over 75% are males.
- About 20% occur in the home.

Frequency:

From April 30, 1950 thru November 30, 2012
52 Snow and Ice Events
0 Deaths
76 Injuries
$193,506,000 in Property Damage

Scope/Vulnerability

Human Impact:

Loss of Human life should be minimal due to advance warning.

Property Impact:

Property Damage should be minimal due to the nature of the incident. However is could change based on the duration of the incident and the frequency between storms.

Economic & Social:

Impact upon the local economy is totally dependent upon the type of storm, its width, path and the length of time it stays over the city. Past history has shown damage can be extensive. However the disruption of transportation routes, communications, and public utilities, will be the bigger issue. If the incident happens at rush hour, there is a possibility that we will have to deal with abandoned cars and their occupants. If enough notice is given surrounding the severe storm then it is also possible to see a run on the grocery stores and hardware stores as citizens stock up for the event.

As with other items within this category, from a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a minor event. While these effects might be short lived they could result in panicked residents overwhelming the 911 system during the next severe weather event.

Predictability/Warning Time:

The Storm Prediction Center (SPC), which is part of the National Weather Service (NWS) and the National Centers for Environmental Prediction (NCEP), mission is to provide timely and accurate forecasts and watches for severe thunderstorms and tornadoes over the contiguous United States. The SPC also monitors heavy rain, heavy snow, and fire weather events across the U.S. and issues specific products for those hazards. The SPC relay's forecasts of organized severe weather as much as three days ahead of time, and continually refines the forecast up until the event has concluded.

The National Weather Service uses this information and when conditions are favorable for severe weather to develop, a severe thunderstorm or tornado WATCH is issued. Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado WARNINGS for areas where severe weather is imminent.

Severe thunderstorm and tornado warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities. The public has been taught that if a tornado warning is issued for your area or the sky becomes threatening, move to your pre-designated place of safety.

In most cases those warnings, precede the actual storm.

Duration:
Typically a few hours with a possibility of a couple days.

Mitigation/Controllability

Preparedness/Preplanning:
The functionality of our critical facilities such as emergency services (police, fire/ems, PSAP), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important.

The City has a snow command policy in place. In addition the County EMA has established policies for shelter implementation and identified locations. Planning also needs to be in place with EMS to create an alternative method to get to the patient and transport the patient to a medical facility. Other items to be considered by EMS could be temporary treatment facilities and prolong treatment plans and longer than usual transport times.

The Fire Department also needs to explore alternative methods to place equipment on scene.

The Departments do have policies in place (EMS SOP #4-02 and Fire SOP 407) regarding and Severe Weather Deployment and Thunderstorm/Tornado & Snow Storm Standby and Response.

EMS might utilize its MCI planning depending on the travel conditions out of the city and if any large gathering establishments were damage or create strike teams.

Training:

Other training such as search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with a blizzard or ice storm.

Community Response:

- Automatic and mutual aid responses from local communities.
- Open Communications with Snow Command
- MABAS plans activated
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- Summit County Emergency Operation Plan
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- Ohio Emergency Management Agency
- Federal Emergency Management Agency
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Wildlands Fire

Hazard Category: Natural

Probability of a Large Wildlands Fire: In Hudson Low. This has been determined by Hudson history and through contact with Firewise Communities, (www.firewise.org) for conversation and information. Should drought conditions occur the chances of a large fire increases. Information regarding historical droughts in Ohio: **"**Growing season moisture has been comparatively abundant since 1966. The droughts of 1987-88 and 1991-92 were a result of short-term decreases in precipitation against a background of high moisture supply rivaling the earliest decades of this century. Climatic data indicate that periods of persistent subnormal precipitation, lasting well over one year, have only occurred in three instances: 1893-1896, 1952-1954, and 1963-64. The worst Ohio drought is that of 1930-31 when precipitation reached its lowest amount on record over a span of one year. Record-breaking statewide precipitation in July 1992 is currently regarded as having ended the 1991-92 drought."
See: http://changingclimate.osu.edu/assets/pubs/rogers-1993.pdf

There is the possibility that Hudson Fire will be called to assist in a Cuyahoga Valley National Park in a large scale fire.

History: In the memory of current long-term Hudson firefighters there have been a few 'large grass fires'. One occurred across from Heather Lane on West Streetsboro Street and possibly consumed a 750 x 750 area; the fire department was instrumental in putting this fire out. Another grass fire was on the location of Christ Community Chapel, years before the church was build, this burned approximately one-third of the property. Another was along I 480. In all cases in was mainly grass that burned, not trees.

Frequency: HFD is called out for a small grass fire. These have principally been confined to one part of one yard or small area. Generally these fires are caused by illegal open burning.

Scope/Vulnerability:

Human: Human impact most likely limited to a house or two catching on fire from local woods burning.

Property Impact: According to Park Superintendent Eric Hutchinson, Hudson Spring Park has approximately 240 acres of trees. This is an area with steep slopes that could contribute to the potential of a fast moving wildlands fire in a dry year. To a lesser extent there are many other areas of Hudson that have stands of trees that could burn. A fire at Hudson Springs Park could cause the closure of The Ohio Turnpike. Adjoining neighborhoods could be in danger in many areas of the city.

Economic and Social: As a community the economic and social cost would most likely be small.

Predictability/Warning Time: Little predictability or warning time. Extremely dry weather would most likely be a precursor to wildlands fire; however there have been many dry years that have not resulted in wildlands fires of significant size.

Duration: Even our biggest tree area would most either be put out or burn itself out in less than a day.

Mitigation/Controllability: Hudson arborist Tom Munn, “one in ten trees in Hudson is an ash tree which the Emerald Ash Beetle is now in the process of killing. Using Detroit and the surrounding area as a model, within ten to fifteen years, every ash tree in Hudson will be dead. The most likely scenario is that large stands of ash will be infected and die before those standing alone or in small groups. In wetlands areas one in every three trees is an ash.” Because we know this increased fuel load to wildlands areas is coming, the Deployment Board or fire department may wish to begin discussions about removal of the dead trees. Another discussion to be considered is advising homeowners, who live in the Wildlands Urban Interface to protect their homes from both the effects of dead ash trees and other risks (wood stacked against the house, open vents into the house, gutters full of leaves and pine needles) that surround their homes. See Firewise.org.

Preparedness/Preplanning:

Training: Hudson Fire officers should do wildlands fire training with an emphasis on having and communicating clear objectives for the intended outcome with safety in mind especially if trees are burning. All HFD members need training on chain saw safety and fire behavior in wildlands areas.

Community Response: Many City of Hudson departments could be involved should a large wildlands fire develop. In the past the City Manager has authorized the use of city workers in emergency situations at the request of the Incident Commander. This could include Fire, EMS, Police, Public Works and other departments.

Regional Response: It is unlikely that Hudson will ever reach beyond our normal mutual aid requests (MABAS) for a fighting a wildlands fire. We do have resources for advice from the Metro Parks and Cuyahoga Valley National Park if needed.

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Tornado_____
Hazard Category: __Nature_____

Probability

History:
A tornado is a violent, dangerous, rotating column of air that is in contact with both the surface of the earth and a cumulonimbus cloud or, in rare cases, the base of a cumulus cloud. Tornadoes come in many shapes and sizes, but are typically in the form of a visible condensation funnel, whose narrow end touches the earth and is often encircled by a cloud of debris and dust. Most tornadoes have wind speeds less than 110 miles per hour, are approximately 250 feet across, and travel a few miles before dissipating. The most extreme tornadoes can attain wind speeds of more than 300 mph, stretch more than two miles across, and stay on the ground for dozens of miles.

The Enhanced Fujita scale rates tornadoes by damage caused. An EF0 tornado, the weakest category (65-85 mph), damages trees, but not substantial structures. An EF5 tornado, the strongest category (over 200 mph), rips buildings off their foundations and can deform large skyscrapers.

Currently the in the United States, the Storm Prediction Center (a national guidance center of the National Weather Service) issues watches for areas likely to produce tornadoes and severe thunderstorms. In the event that a tornado watch is likely to lead to a major tornado outbreak along with possible destructive winds and hail, enhanced wording with the words **This is a particularly dangerous situation** (PDS) can be added to the watch; this is occasionally issued

A tornado warning is an alert issued by weather services to warn that severe thunderstorms with tornadoes may be imminent. It can be issued after a tornado or funnel cloud has been spotted by eye or more commonly if there are radar indications of tornado formation. When this happens, the tornado sirens may sound in that area, letting people know that a tornado was seen or is forming nearby. Tornado warnings are also disseminated through various communication routes accessed by the media and various agencies, on the internet, to NOAA satellites, and on NOAA Weather Radio Issuance of a tornado warning indicates that residents should take immediate safety precautions.

In an average year, 1,200 tornados cause 60-65 fatalities and 1,500 injuries nationwide. A Typical tornado lasts for only a few minutes. It should be noted that Tornadoes are not spatial hazards. As a result, it is often difficult to profile tornadoes and determine the exact risk. However, estimations can be developed by analyzing historic occurrences and past declarations.

While Ohio does not rank among the top states for the number of tornado events, it does rank within the top 20 states in the nation for fatalities, injuries, and dollar losses, indicating that it has a relatively high likelihood for damages resulting from tornado.

Frequency:
From 1940 thru 2011 there have been 982 reported tornados in Ohio, with the highest 73% of them being reported in the months April, May, June and July. The period of March – November account for 85% of the reports, but tornados have been reported in every month.

Since 1950 only 14 tornados have set down in Summit County. An additional five have set down around Hudson; in Solon, Streetsboro and Kent area. The following are tornados reports from the Ohio Tornado Database

Date	Time	Rating	Length Width	Location Property Damage	Description of the event
Sunday Nov 10, 2002	1900	F2	3 miles 100 yds	Macedonia $10,200,000	A small F0/F1 tornado touched down in Macedonia near the intersection of Valley View Drive (SR 631) and Aurora Road and moved northeast. The tornado gradually strengthened and reached F2 intensity as it crossed State Route 14 and moved into Twinsburg. After a track of just over three miles the tornado weakened to F1 intensity and crossed into Cuyahoga County south of Glenwillow. Extensive damage was done in Macedonia and Twinsburg. In Macedonia, 60 homes were damaged including two that were destroyed and 15 others were damaged enough to be declared uninhabitable. The most severe damage in the county occurred in the Glenwood Preserve neighborhood on the north side of Twinsburg. Extensive damage was done on Andover Drive and Deeplake Circle where several homes were leveled and a total of 45 homes damaged. Damage estimates in Twinsburg alone were well over $5 million. The damage path was continuous and about 100 yards in width. Dozens of cars were damaged or destroyed and hundreds of trees and power poles downed in Summit County.

Sunday, Nov 10, 2002	1908	F1	4 miles 100 yds	Solon $6,800,000	An F1 tornado crossed into Cuyahoga County from Summit County to the south of Glenwillow. The tornado traveled northeast for about four miles and dissipated to the east of Solon. The tornado caused some home damage in Glenwillow and tore the roof off of a business. After moving across a few open fields the tornado crossed into Solon along Pettibone Road. Several homes were damaged on Selworthy and Hollycock Lanes in the Liberty Hill subdivision just north of Pettibone. As the tornado continued northeast it damaged several more homes in the Hunt Club subdivision near the intersection of SOM Center and Arthur Roads. Next hit was the Solon Middle School on SOM Center Road just north of Arthur Road. The school sustained over $2 million in roof and structural damages. As the tornado continued northeast it caused damage in the Ayleshire subdivision along Aurora Road. More home damage occurred along Liberty Street near the railroad tracks and on Windy Hill Lane. The tornado finally dissipated on the eastern edge of Solon near Bainbridge Road after damaging around 100 homes in the county. Most of the home damage was minor, but dozens of cars were damaged or destroyed and hundreds of trees and power poles downed. The damage path was generally 50 to 100 yards in width.
Date	**Time**	**Rating**	**Length** **Width**	**Location** **Property Damage**	**Description of the event**
Wednesday July, 28, 1999	2304	F0	2 miles 100 yds	Sagamore Hills $75,000	The Cuyahoga County tornado weakened as it crossed the county line near Sagamore Hills. The tornado traveled approximately two miles in Summit County before dissipating as it approached Highway 82 from the north. The damage path was non-continuous. Several dozen trees were downed and a couple houses received minor roof damage. Fallen trees also damaged three cars.
Monday, May 29, 1995	1215	F1	1 mile 100 yds	Copley Center $1,500,000	A tornado touched down north of the intersection of Hametown Road & Copley Road.moved east to Copley Center. Businesses were damaged including a plastics manufacturer. Several trucks were overturned. A lumber and home center just outside of Copley Center suffered signifcant damage, estimated at about $500,000. About 20 homes suffered minor to moderate damage. Numerous trees were downed. A local haunted house business was struck and several dummy

					bodies were blown from the building. Residents mistook the dummies for real bodies and reported them to the police.
Sunday, May 28, 1995	2340	F1	1 mile 150 yds	Sharon Twp $200,000	A tornado touched down just north of the intersection of State Road and Copley Road and moved east parallel to Copley Road. Six homes suffered minor to moderate damage near the location of the touchdown. Numerous trees were downed. Several horses in a nearby field were injured from flying debris.
Date	**Time**	**Rating**	**Length** **Width**	**Location** **Property Damage**	**Description of the event**
Sunday, July 12, 1992	1942	F1	0 miles 73 yds	Kent $25,000	East Summit and South Lincoln (KSU) just South of Stockdale Hall
Sunday, July 12, 1992	1822	F3	8 miles 100 yds	Cuyahoga Falls $2,500,000	On Front street between Broad St and Falls Ave. (Sheraton Hotel)
Sunday, June 3, 1973	1615	F3	8 miles 100 yds	Kent (?) $25,000	Co Hwy 155 and Ravenna Rd (Lake Rockwell)
Sunday, June 3, 1973	1600	F3	5 miles 100 yds	Stow $25,000	Present location of Hidden Lake Apartments
Thursday, April 2, 1970	0725	F1	1 mile 50 yds	Macedonia $2,500	Highland Road East just east of Rail Road Tracks
Friday, April 19, 1963	1420	F2		Akron $2,500,000	North Forge and Arch St (Akron City Hospital)
Friday, April 19, 1963	1420	F0		Green $2,500,000	Southeast of the Akron Canton Airport.
Wednesday, May 23, 1962	1130	F1		Streetsboro $250,000	South of Aurora Rd (82), North of Old Mill Rd and East of Ravenna Rd
Totals	**13**			**$24,077,500**	

With that being said; according to NOAA, 86 tornadoes were reported in nine states on March 3rd, 2012. According to the National Weather Service, seven of those tornadoes touched down in southern Ohio counties. Super cells that cause “out breaks” are becoming more prevalent.

Scope/Vulnerability

The Tornado Relative Risk calculation used by the State of Ohio EMA, indicates the relative likelihood of the occurrence of a strong tornado (EF2 or above). These relative ratings were determined by review of actual tornado occurrences over a 50-year period. Based on the frequency of occurrence, each county has been assigned into a high, medium, or low relative risk categories. Summit County is rated as High.

Human Impact:

Loss of Human life should be minimal due to advance warning. If however the tornado would strike at night, the loss could increase. During the school year the system could become over whelmed if a tornado would touch down anywhere in the gross vicinity of any of the schools.

The best defense when faced with tornadoes or any severe weather event is preparedness. Planning ahead and knowing what to do in the event of severe weather will lower the chances of injury or death or loss of property.

Property Impact:

There is a high probability that mobile homes and residential units built without wind-resistant construction standards would suffer catastrophic destruction as the result of a strike by an EF2 or stronger tornado. On a statewide basis, Ohio does not have building codes that address wind resistance for most types of residential dwellings. However, since 1995 many local codes that address wind resistance have been adopted. Therefore, structures constructed prior to 1995 are potentially more susceptible to catastrophic destruction as the result of a tornado strike than those constructed after 1995. By using U.S. Census Bureau housing data, the age of structures can be assessed and an actual dollar valve could be assigned.

Economic & Social:

Impact upon the local economy is totally dependent upon the rating of the tornado, its width and the length of time it stays on the ground. Past history has showing it to be minimal. However extensive damage to private and public facilities could be expected, along with disruption of transportation routes, communications, and public utilities. If the incident happens at night, mass causalities could be excepted since the majority of citizens will not hear and deed the warnings as they would during the day.

From a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a minor tornado. While these effects might be short lived they could result in panicked residents overwhelming the 911 system during the next severe weather event.

Predictability/Warning Time:

The National Weather Service when conditions are favorable for severe weather to develop, a severe thunderstorm or tornado WATCH is issued. Weather Service personnel use information from weather radar, spotters, and other sources to issue severe thunderstorm and tornado WARNINGS for areas where severe weather is imminent.

Severe thunderstorm and tornado warnings are passed to local radio and television stations and are broadcast over local NOAA Weather Radio stations serving the warned areas. These warnings are also relayed to local emergency management and public safety officials who can activate local warning systems to alert communities. The public has been taught that if a tornado warning is issued for your area or the sky becomes threatening, move to your pre-designated place of safety.

In most cases those warnings, precede the actual storm.

Duration:

The event itself can last just minutes. It is the period leading up to the actual tornado and the period of time for the all clear to be issued that is unknown.

Mitigation on the other hand is dependent upon the scale of damage and could take several hours to several days to stabilize.

Mitigation/Controllability

Preparedness/Preplanning:
The functionality of our critical facilities such as emergency services (police, fire/ems, PSAP), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important.

Planning currently in place for events such as earthquakes, floods, winter blizzard and severe weather events should be applicable to a tornado.

The Department does have policies in place (EMS SOP #4-02 and Fire SOP 407) regarding Standby and response to a Tornado Warning, Watch and Touchdown.

EMS might utilize its MCI planning depending on the time of day of the incident and if any large gathering establishments were damage or create strike teams.

Training:

Other training such as search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with a tornado.

Community Response:

- Automatic and mutual aid responses from local communities.
- MABAS plans activated
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies
- Contact Verizon Government Support

Regional Response:

- Summit County Emergency Operation Plan
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- Ohio Emergency Management Agency
- Federal Emergency Management Agency
- Geauga County Sheriff Communications Vehicle

Hazard Type Analysis Worksheet

Potential Hazard: Pipeline Failure
Hazard Category: Technological

Probability:

History:

The City of Hudson has four major active pipelines.

1. Liquid Petroleum product transmission lines:
    a. Sunoco Logistics running through Hudson to Akron.
    b. Buckeye Products runs roughly north of and parallel to The Ohio Turnpike.
    c. BP Products crossing Rt. 91 near Barlow and running through the Barlow Hill Development.
2. Natural gas pipelines:
    a. East Ohio Gas transmission pipeline crossing 91 near Norton Road, running SW of Terex and crossing Route 8 west of 303.
    b. East Ohio Gas distribution pipelines running throughout the city to homes and businesses.

Frequency:

1. Nationally the trend in serious pipeline incidents (a fatality or injury requiring inpatient hospitalization) has trended down over the past twenty years, from an average of approximately 70 per year in the early 1990s to approximately 50 per year over the last decade.
2. Nationally, significant incidents (fatality or injury requiring inpatient hospitalization, $50,000 loss in 1984 dollars, highly volatile liquid release of five barrels or more, 50 barrels or more of other liquid or release resulting in unintentional fire or explosion) has remained relatively stable at approximately 280 per year for the last twenty years.
3. For the period 2009 until present HFD has responded four times for Property Type 983 – Utility Right of Way – where the situation was pipeline related. Two were contractor damaging pipelines, one an odor along the roadway and one a home meter damaged by falling materials.
4. Studies indicate line depths have decreased over the years potentially increasing vulnerability of lines to damage.

Scope/vulnerability

Human Impact:

1. Citizens who smell an odor to fire, explosion or contamination.
2. Potential disruption of services for an extended period of time.
3. Potential evacuation.
4. Bodies of water and wells contaminated.

Property impact:

1. From none to extreme with odors, fire, explosion or contamination.
2. Potential spills into flowing bodies of water and ground water.

Economic and Social:

1. From none to disruption of business activity and closing of parts of town.
2. Potential contamination of water and land.

Predictability/warning time:

1. None

Duration:

1. From moments to weeks.
2. Long duration of safety forces involvement.
3. Displacement of citizens for extended periods of time.

Mitigation/Controllability:

Preparedness/preplanning:

1. Since excavation damage accounted for almost 60 percent of all reported distribution pipeline incidents between 1995 and 2004 according to the U.S. Department of Transportation Office of Pipeline Safety. And since corrosion is another leading cause of pipeline failure, sometimes caused from excavation damage which, while not severe enough to cause a puncture, causes weakness and scaring that lead to corrosion failure. Preparedness will be aided by requiring, as part of the permit process, pipelines to be marked. Again according to the Office of Pipeline Safety, excavating often takes place without waiting the standard 48 hours for the gas company to mark the location of lines – this makes it important that enforcement require no excavation before gas company markings are in place.
2. Fire department officers must be familiar with call lists for natural gas and petroleum products shut off.
3. Police and service departments prepared for blocking roads into danger areas.
4. Emergency shelter plans for citizens without heat or other life disruption.

Training:

1. Officers and firefighter familiarity with SOP 506, Natural Gas and LP response. Also how this relates to liquid petroleum spills.
2. HFD members familiarity with hazmat procedures for damming and absorbing before spills reach waterways.
3. Officers instructed to call for needed resources early in a hazmat situation.

Community response:

1. City emergency operations plan
2. Public notification through the Reverse Alert system is critical.
3. Radio and TV broadcasts giving instruction to citizens.
4. Hudson service department for help with labor and specialized skills
5. HPD for investigation of the scene
6. Outside contractors with heavy equipment

Regional response:

Because a pipeline accident has the potential to reach catastrophic levels the following may become involved:

1. Summit County HazMat

2. Summit County EMA
3. MABAS
4. Federal response teams
5. EPA

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: _____Commodity Shortage_____

Hazard Category: _____Technological

Probability

History:

Commodity shortages are fairly rare throughout the U.S. the most famous of which was gasoline rationing during the 70's but some food shortages can happen during natural disasters. Some short term electrical outages have been realized as well during severe weather and are the most likely commodity shortage to occur again. Water shortages are also possible but not probable due to our location by the Great Lakes. A potential vulnerability is the four water systems in Hudson.

Frequency:

There are no records of significant commodity shortages in Hudson beyond the gasoline shortage in the 70's. While short term power outages happen multiple times a year as part of large storms, these are covered by the storm hazard plans. Was unable to locate records of significant long term outages of food, water or electricity although these are all possible if highly unlikely.

Scope/Vulnerability

Human Impact:

Depending on time of year, electrical outages can have some life impact if residents are exposed to extreme heat or cold.

Property Impact:

None.

Economic & Social:

While short term shortages have shown to have little to no economic or social impact. Longer term shortages and rationing can resort in hording, rioting and other antisocial behavior.

Predictability/Warning Time:

While short term shortages caused by weather can be somewhat predicted, long term shortages usually are slow to set in and provide time for planning. The exception would be a sudden severe disruption to the water or electrical supply.

Duration:

Most disruptions last a couple of hours with the extreme for our area being a couple of days.

Mitigation/Controllability

Preparedness/Preplanning:

Community shelters would be important for any prolonged disruptions as would supplementing the police in terms of orderly rationing if it should occur. Safety Center and designated community shelters are equipped with generators in case of power outage but only limited fuel is onsite.

Training:

The Departments do not have any training specific to commodity shortages. Other training in incident command and the city resource guide would be applicable.

Community Response:

- Community Disaster plan implemented to coordinate efforts with all city departments.
- Boy Scouts, volunteer organizations
- Utility companies
- Redundancies for some utilities such as power and water systems are available for backup

Regional Response:

- Red Cross
- Summit County EMA
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: Fuel shortage. A fuel shortage is defined as a situation in which the normal quantity and/or timely delivery of fuel supplies to distributors and retail establishments in interrupted.

Hazard Category: Technological

Probability – Low – Limited short term shortages could occur as a cascading effect of another hazard. Long term shortages could occur because of global political changes.

History: There were fuel shortages in the 1970 due to political events. Emergency services received priority for fuel.

Frequency: Infrequent

Scope/Vulnerability

Human Impact: Range from minor inconvenience to serious situations affecting the ability to drive to work, shopping and entertainment. In a severe shortage volunteer EMS and Fire personnel may limit driving to the safety services building.

Property Impact: Little as long as emergency services receive enough fuel for response. A long term shortage could have property damage impact because of economic issues. This is beyond the scope of emergency services.

Economic & Social: A prolonged fuel shortage could cause a wide range of serious effects:
1. Commuters
2. Price increases
3. Civil unrest

Predictability/Warning Time: If the shortage is a result of another hazard the warning time could be short. If because of global politics a longer warning time.

Duration: From days to years.

Mitigation/Controllability: A large scale event, as declared by Homeland Security falls under "Homeland Security -Emergency Support Function #12 – Energy Annex". This is intended to facilitate the restoration of damaged energy systems and components when activated by the Secretary of Homeland Security for incidents requiring a coordinated Federal response. Under (DOE) leadership, ESF #12 is an integral part of the larger DOE responsibility of maintaining continuous and reliable energy supplies for the United States through preventive measures and restoration and recovery actions.

Therefore, Hudson Emergency Services are primarily concerned with the limited time between an occurrence and federal involvement or a short term occurrence with a limited affected area.

Mitigation for the local community:
1. Arranging for priority fuel delivery to emergency services
2. Limiting use of fuel to emergency situations
3. Limiting the public's perception of the use of fuel

4. Preparing for volunteers to limit personal driving (lower numbers for EMS shifts, fire calls and training)

Preparedness/Preplanning: Emergency services and city services in general can mitigate some of the effects by:

1. Having agreements with gas stations and diesel fuel trucks for priority fuel and fuel delivery for emergency vehicles. (A consequence of this could be unrest from citizens who also need fuel to maintain jobs and for family emergencies.)
2. Limiting unnecessary driving.
3. Eliminate/significantly reduce driver training. Explore the possibility of driving simulators for training.
4. Limiting idling while stopped.

Training:

Community Response:

- Agreements with gas stations for priority fuel
- Agreements for diesel fuel trucks to make delivery to the Safety Center in local emergency situations

Hazard Type Analysis Worksheet

Potential Hazard: Aircraft accident, Small (helicopter, light plane, ultralight, powered paraglider, balloons)
Hazard Category: Technological

Probability:
History: None recent
Frequency & Known Flight Paths:

1. Helicopter
    a. Known helicopter (Bell JetRanger) flown infrequently out of Georgetown facility
    b. Medical transport helicopter
        i. Scene run landing zone (LZ) attended by HFD (SOP 703)
        ii. Metro Life Flight based at Twinsburg Cleveland Clinic
    c. Survey helicopters (pipeline, electric lines)
2. Light plane (single, twin) – in flight path Kent State airport
3. Ultra light – possible flights out of local grass strip on Stow Road
4. Powered paraglider – significant activity mostly from north in Macedonia. Some additional traffic from Silver Springs area. Prohibited from use on park property

Scope/vulnerability
Human Impact:

1. Passengers (1-6) – trauma and fire
2. Ground victims vary depending on impact, site – trauma and fire

Property impact:

1. Dependent on impact and site – structural damage and fire – minimal damage

Economic and Social:

1. Dependent on impact and site – may be no more significant than single car motor vehicle crash

Predictability/warning time:

1. Other than LZ operations, none

Duration:

1. Typically short

Mitigation/Controllability:

Preparedness/preplanning:

Training:

1. LZ zone training

Community response:

1. Local safety forces
2. Public Works
3. Hudson Disaster Plan

Regional response:

1. Mutual aid
2. MABAS
3. Summit County EMA
4. State Response Plan
5. Summit County Haz Mat
6. County Foam cache located at Stow FD
7. NTSB/FAA
8. Ohio State Highway Patrol for investigation of aircraft incidents

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: Aircraft Accident, Large (bizjet, commercial or military aircraft)

Hazard Category: Technological

Probability: Possible risk, unlikely

History: None recent

Frequency of aircraft in area: Approach paths-

- Bizjet Light air traffic – not in typical flight paths or landing patterns
- Military Light air traffic – not in typical flight paths or landing patterns
- Commercial Light air traffic – not in typical flight paths or landing patterns

Scope/vulnerability

Human Impact:

- Passengers (1-several hundred) – trauma and fire
- Ground victims vary depending on impact, site – trauma and fire – may be significant
- Psychological trauma to ground victims/witnesses/responders

Property impact:

Dependent on impact and site – structural damage and fire – may be significant

Economic and Social:

Dependent on impact and site – significant to extreme

Predictability/warning time:

None.

Duration:

Moderate to long term, dependent on impact and site

Mitigation/Controllability:

Little to none

Possibility of munitions

Possibility of haz mat releases (fuel, other)

Preparedness/preplanning:

Little to none

Training:

Little to none

Community response:

Local safety forces

Public Works

Hudson Disaster Plan

Regional response:

Mutual Aid

MABAS

Summit County EMA

Summit County Haz Mat

County Foam cache located at Stow FD

State Response plan

Military support (Youngstown, Toledo or Wright-Patterson bases)

Mortuary response

NTSB/FAA

Ohio State Highway Patrol

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Railroad Accident

Hazard Category: Technological

Probability: Low

History: In 2011, Ohio had 78 railroad accidents which include 4 in Summit County. These four all occurred in the Akron rail yards – 3 were minor - 1 had 3 cars on the side. There were no accidents in Hudson. The clear trend in railroad accidents is fewer each decade and year. From 1980 to 2010 the train accident rate fell 77 percent with the grade crossings collision rate falling 81 percent. 2010 was the safest year ever for U.S. railroads, breaking the 2009 record. These numbers are due in large part to the closure or grade separation of thousands of crossings as well as the federal program that allocates more than $200 million per year for grad crossing improvements. The trend to safety should continue. Rail HazMat accident rates are down 90 percent from 1980.

Frequency: According to 2006 statistics on the PUCO website Hudson has 62 trains per day, 32 during the day and 30 at night.

Scope/Vulnerability:

Human: None to extreme depending on cargo and location. An incident in the center of town would have a far greater potential for injuries to occur than outlying areas.

Property Impact: None to extreme depending on location of accident and cargo.

Economic and Social: None to extreme depending on location of accident and cargo.

Predictability/Warning Time: None

Duration: Hours to days to stabilize accident. Clean-up and restoration could take weeks. Potential HazMat spill effects unknown.

Mitigation/Controllability:

Little, dependent upon rail companies to maintain tracks, crossings and equipment.

Grade separations assist in preventing collisions

Preparedness/Preplanning:

Training:

Clear incident command in place with direction to Hudson Safety Forces

HazMat awareness training for Hudson Safety forces

HazMat operations and technical teams from Hudson trained

Summit County HazMat available

Alternate response routes to HFD known to Hudson Safety forces personnel

Community Response:

Public notification (Reverse Alert System)

Local radio and TV announcements with direction to the community

Hudson Service Department
City disaster plan

Regional Response:

Mutual aid/MABAS
Summit County SORTs
Summit County EMA
State/Federal support
Railroads – emergency numbers available

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Communications failure, wired, cell 9-1-1

Hazard Category: Technological

Probability: Likely if another Hazard type causes a local or regional large event.

History and **Frequency:** The breakdown of essential communications is one of the most widely shared characteristics of all disasters.

Scope/Vulnerability

Whether partial or complete, the failure of telecommunications infrastructure leads to preventable loss of life and damage to property by causing delays and errors in emergency response and disaster relief efforts. Despite the increasing reliability and resiliency of modern telecommunications networks to physical damage, the risk associated of failures remains serious because of growing dependence on these tools in emergency operations.

The emergency phase occurs when the integrity of communications is at the greatest risk. Physical damage is difficult to accurately assess and repair, electrical power is likely to be disrupted, and congestion overwhelms systems optimized for more predictable usage patterns. With lives at risk, it is also the phase where the consequences of failure are the greatest.

Three main causes of telecommunications breakdowns in disaster situations:

1. *PHYSICAL DESTRUCTION OF NETWORK INFRASTRUCTURE*

   The most common and well-documented cause of telecommunications failures in recent disasters has been the physical destruction of network infrastructure. Because of the time and funding needed to repair or replace systems, service disruptions caused by physical destruction also tend to be more severe and last longer than those caused by disconnection or congestion. As “the most complicated machine ever constructed by human beings,” historically the telephone system has been highly vulnerable to physical destruction during disaster. Earthquakes and severe weather can sever cables and flood underground equipment.

   The fragility of telecommunications networks is due to the fact that historically, these systems have not had a high degree of redundancy. The telephone network, for example, utilizes a branching structure in which destruction of a single network segment can disconnect entire neighborhoods instantaneously. Cities rarely escape even highly localized disasters without at least some physical damage to the telephone network.

   At the local level, Internet service for small businesses and homes is still largely delivered over the old, non-redundant copper wire of the telephone and cable television networks. As the most sophisticated and fragile urban infrastructure, telecommunications networks are damaged in nearly every major urban disaster.

2. DISRUPTION IN SUPPORTING NETWORK INFRASTRUCTURE

While less common than outages caused by physical damage, outages caused by disruption in supporting infrastructure tend to be far more widespread and damaging to response and recovery efforts. Telecommunications networks rely upon many other local and regional technical systems to ensure their proper operation. These supporting infrastructures often date from an earlier era and lack resiliency to physical damage. Electrical distribution systems are by far the most important supporting infrastructure for telecommunications networks. Electrical power is required to operate all modern telecommunications equipment, often in large amounts. Yet electric power distribution systems lack the "self-healing" capabilities of telecommunications networks, although future improvements are expected to give power networks greater capabilities in this area. Failures in transportation disruptions can also impact the supply of fuel for electric power generation.

Ironically, one of the oldest technologies for telecommunications - amateur radio - remains the only communications infrastructure that has repeatedly demonstrated its ability to operate effectively when electrical power supplies fail. Following major disasters, amateur radio teams working in conjunction with governments and the International Red Cross are rapidly deployed to restore critical basic communications.

3. NETWORK CONGESTION

The final major cause of telecommunications failures during disasters is network congestion or overload. Crises generate intense human need for communication – to coordinate response activities, to convey news and information about affected groups and individuals, and as a panic reaction to crisis. Historically, major disasters are the most intense generators of telecommunications traffic, and the resulting surge of demand can clog even the managed networks. Under this strain, calls are blocked and messages are lost. Congestion is perhaps the most difficult threat to official responders, because its transient nature defies diagnosis. In our area the recent school shootings in Chardon resulted in cell phone networks failure.

Mitigation/Controllability; Preparedness/Preplanning:

Public Safety Systems are the most important telecommunications networks during an emergency. These networks provide skilled emergency responders with the capacity to gather casualty and damage assessment information and coordinate their life-saving and containment activities to the highest degree possible. While prone to failure in extreme circumstances, public safety networks are engineered to provide basic voice communications to support intra-organizational communications during disasters. The area of mitigation/controllability is that the systems are professionally managed and robust before the emergency occurs.

Commercial networks also often provide greater capability for data communications than their public safety counterparts. Mobile data communications with emergency and law enforcement vehicles, for instance, is often provided over high-frequency bands with very limited transmission capacity. Control of this system is beyond the control of safety services.

Amateur high-frequency and short-wave radio are generally the first communications services to be restored, and the last to be destroyed, in any disaster scenario. The area of mitigation/controllability is the possibility of a community wide list/club for people with amateur radio capabilities.

Wireless Priority Service (WPS). During emergencies cellular networks can experience congestion due to increased call volumes and/or damage to network facilities, severely curtailing the ability of national security and emergency preparedness (NS/EP) personnel to make emergency calls. With an increasing number of NS/EP personnel relying on cell phones while performing their emergency duties, the NCS developed Wireless Priority Service to provide priority for emergency calls made from cellular telephones. The area of mitigation/controllability is for the critical cell phones and data ports to be part of this system.

Training: Should take place for City officials and emergency services to recognize potential communication failures and, as the plan is developed, how they are mitigated in Hudson.

Community Response:

- Local radio stations will be critical in the disseminating of information during a crisis.
- Use of back-up radio frequencies
- Notification to emergency personnel of operational/frequency changes
- Portable generators

Regional Response:

- Mutual Aid communities with same frequencies
- Local cell phone providers.
- Summit County Amateur Radio Emergency System.

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Structural Collapse (Parking Terrace / Building)

Hazard Category: Technological

Probability: Low

History:

In Ohio there have been two recent parking garage structural collapses during construction phase in the last year, two partial structural collapses during demolition and multiple structural collapses due to tornados. Structural collapses occur due to one of the five following reasons, CONSTRUCTION CATASTROPHES *these are collapses that occur during construction or demolition*, EARTHQUAKES, FIRE *collapse due to heavy fire damage to structural members*, WEATHER *collapse caused by wind , rain, snow accumulation on roofs, landslides and avalanche,* and TERROISM*.*

Frequency:

Due To:

1. Construction — Multiple each year, poorly reported unless injury or death.
2. Earthquakes — No recent history of collapse in Ohio
3. Weather — Couple each year from snow and wind, poorly reported unless injury or death.
4. Fire/Explosion — Multiple each year, poorly reported unless injury or death.
5. Terrorism — No history in Ohio

Scope/Vulnerability:

Human: None to extreme depending on occupancy.
Property Impact: Minor to extreme depending on cause and severity.
Economic and social: minor to extreme
Predictability/Warning Time: None to small amount
Duration: Hours to days from accident. Potential secondary collapses, potential fire, explosion, Hazmat, and weather concerns.

Mitigation/Controllability:

Little
Recommend pre planning to include average occupancy, and stored materials (Hazmat).

Preparedness/Preplanning:

Training: Clear incident command in place with direction to Hudson Safety Forces
Mass Casualty training for safety forces.
Continued training for Hudson Technical Teams
Summit County TROT and Hazmat available.

Community Response:

Hudson Service Department ready with signage to stop traffic flow into town
Public notification (Reverse Alert System) community wide involvement with direction from Incident Command structure
Local radio and TV announcements with direction to the community
City Disaster Plan
City Engineering Dept.

Regional Response:

Fire and EMS from surrounding departments
Summit County TROT (Region 5 Search and Rescue)
Summit County Hazmat
Summit County EMA
Notification to local Hospitals
State/Federal support

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Structural Collapse / Bridge

Hazard Category: Technological

Probability: Low

History: There has been no history of bridge collapses in recent history. According to the Federal Highway Administration Hudson, Ohio has 41 bridges currently in use. These bridges have an average traffic of 445,324 vehicles and 43,080 of those vehicles are truck traffic. Currently 100% of the bridges located in Hudson have a rating of satisfactory or above and 68% of them are rated at Very Good or above.

Frequency: 41 active bridges or large culverts in Hudson Ohio

Scope/Vulnerability:

Human: None to extreme depending bridge size and time of day.
Property Impact: Minor to extreme depending on location.
Economic and social: minor to extreme. Long term detours impact residents and disrupt transportation and supplies.
Predictability/Warning Time: None to small amount
Duration: Hours to days from accident. Potential secondary collapses, potential fire, explosion, Hazmat.

Mitigation/Controllability:
Bridges are currently inspected by the state every 2yrs, unless they receive an unsatisfactory rating at which time they are inspected every year.

Preparedness/Preplanning:

Training:
Continued training for Hudson Technical Teams. Summit County TROT and Hazmat available.
F.D. private bridges survey

Community Response:
Hudson Service Department ready with signage to stop traffic flow into town
Public notification (Reverse Alert System) community wide involvement with direction from Incident Command structure
Local radio and TV announcements with direction to the community

Regional Response:
Fire and EMS from surrounding departments
Summit County TROT (Region 5 Search and Rescue)

Summit County Hazmat
Notification to local Hospitals
State/Federal support
SCEMA

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Dam Collapse

Hazard Category: Technological

Probability: Low
Dams in Ohio are under the jurisdiction of the Ohio Department of Natural Resources. Dams are classified as Class I – IV. There are three Class II dams (Lake Forest, Barlow Community Center upper and lower lakes, one Class III dam (Hudson Springs) and six Class IV dams within city limits. The Class II dams in Hudson present the greatest hazard to property, roads and infrastructure but are unlikely to result in loss of life if they fail suddenly. There are no Class I or II dams adjacent to city limits in which the floodway would extend into the city should the dam fail.

Scope/Vulnerability:

Human: None to minimal
Property Impact: None to significant if Class II dam.
Economic and Social: None to significant if Class II dam.
Predictability/Warning Time: Hours to days, depending on weather conditions.
Duration: Hours to days from accident.

Mitigation/Controllability:
City engineering department inspect Class II dams periodically and after severe weather events.
Request inspection of dams by ODNR Dam Safety Engineering Program.

Preparedness/Preplanning:

Training:
Clear incident command in place with direction to Hudson Safety Forces
Community Response:
Public notification (Reverse Alert System) community wide involvement with direction from Incident Command structure
City Disaster Plan
City Engineering
Regional Response:
Mutual Aid/MABAS
Summit County SORTs
Ohio Dept. Natural Resources
Summit County EMA

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: Utilities failure

Hazard Category: Technological

Probability: Because utilities exist throughout the city and are vulnerable to interruptions or failures, there is a high probability that this hazard may occur anytime or anyplace. In many cases, these are small isolated events, well within the capabilities of the local utility to address. Therefore, the degree of severity of these day-to-day events may be considered low. Due to long-range planning, regulation, and diligence of the utility operators, major interruptions resulting in a high degree of severity are few and far between. The highest probability of a large scale utility outage comes as a secondary result of another hazard condition.

Electric: Hudson is served by two electric power companies, First Energy and Hudson Public Power, both with excellent service records. Aside from the blackout of 2003 we have not had a sustained power failure from either company in the last ten years. The probability of a large scale electric outage lasting more than twenty-four hours, outside of another precipitating hazard condition is low. A further safeguard is that Hudson Public Power is connected to the national power grid through two entry points, a rare occurrence in municipal systems. This design redundancy, for those on Hudson Public Power, allows for the rapid rerouting of electric service should a failure or voltage irregularities occur. Many buildings, including EMS, PD and Fire have generators to provide power in case of an outage. Power outages in Summit County on the First Energy system may be tracked at: http://outages.firstenergycorp.com/oh.html .

Water: Hudson is served by four municipal water systems, Hudson that draws water from a protected well field, Stow& Akron drawing water from Lake Rockwell and Cleveland with Lake Erie as a water source. Additionally many parts of the city are served through private wells. Each of the municipal water systems is susceptible to disruption from broken pipes and system maintenance. The Stow and Akron have interconnectability. Hudson's water system has a tie-in with the Cleveland system through an 8 inch valve. Those on private wells are susceptible to an electric outage. The probability of one of the municipal systems failing for a period longer than twenty-four hours is low.

Telephone: Telephone service is backed up by a high percentage of homes with cell phone service. There is no question that the percentage of homes with no landline service is increasing dramatically year-by-year. The Centers for Disease Control and Prevention's National Center for Health Statistics reports, more than one-in-four U.S. homes, or 26.6 percent, had only a wireless phone as of June 2010, up from 13.6 percent in 2007. Age is a big factor, forty-four percent of folks between the age of 18-and-30 are wireless only. Regarding telephone service, in homes with a landline and cell phone service we essentially have a redundant system. In homes with only cell service two issues arise, if electricity is out – cell phones are also out and in regional emergencies the cell phone system will be overloaded.

Natural Gas: The supply is plentiful. Pipes will be hit by contractors causing temporary local outages. Outages affecting more than 100 homes or businesses for more than six hours have a low probability.

History: "Small" utility failures occur on a regular basis in the City of Hudson. The disruptions include: underground natural gas lines struck by excavators, trees falling on electric and phone lines, ice falling from roofs onto gas meters, water main failures and endless variations. Typically these disruptions affect a limited number of people and seldom last over six hours. They are handled on a regular basis by local utility crews. The most recent large scale outage was in 2003 when a blackout struck large portions of Ohio, Pennsylvania,

New York, Michigan and Ontario, Canada. In Hudson the parts of town served by First Energy were affected, the parts of town served by Hudson Public Power were unaffected.

Frequency: As mentioned above, small utility failures are common; large failures lasting more than a few hours are not common.

Scope/Vulnerability.

Human Impact:
Short term (one to six hours), limited number of people and small area; electric disruptions will sooner or later, affect every Hudson resident.

1. Will have the greatest human impact on those with medical needs, i.e., oxygen machines, etc. Emergency services may have to intervene.
2. Lesser affects will be felt by those with well water systems.
3. Everyone affected will be inconvenienced.

Long term, wide spread, electric disruptions (greater than 24 hours) will affect a greater number of people with medical needs. Again emergency services may need to intervene. First Energy will not give out statistics on the number of long term outages however the probability of this happening in a ten year period is low.

Property Impact: Loss of utilities, even for short duration, will likely cause the closure of most business that do not have a backup generator. Telephone service to a business may not close the business. Aside from inconvenience most homes will not have significant impact from a short term power disruption.
Long term utilities outages could cause the loss of heat and or spoilage of food.

Economic & Social: Short term disruptions should have little effect on the economic and social conditions, as mentioned above they are to be expected. Long term disruptions of services (24 hours or more) could have severe economic consequences. The probability of this is low unless caused by another hazard.

Predictability/Warning Time: Little. Hot summer months bring an increased likelihood of large scale electric disruptions. Ice storms bring an increased likelihood of smaller electric disruptions.

Duration: Small scale, will happen around town on a regular basis. These are to be expected and for the most part will cause only inconvenience. Large scale, long lasting disruptions will seldom last longer than six hours unless caused by another hazard type.

Mitigation/Controllability

Preparedness/Preplanning: Hudson PD, Fire and EMS all have emergency generators for power outages. Fire and EMS have a few generators that could give electricity to a home for a short duration if a medical emergency necessities.

The following PUCO requirement does not apply to Hudson Public Power because it is a municipal company. For a public power company, such as First Energy, PUCO requires all electric companies to maintain a list of critical customers. However, this list does not guarantee uninterrupted service or immediate service restoration in the event of an outage. The PUCO requires that electric companies notify their customers annually about the critical customer program. The electric company must also provide critical customers with written information concerning options and responsibilities during outages. Those in this situation should plan for contingency measures, such as back-up generators, an alternate power source, or evacuation to another location.

If this list were maintained by Hudson Public Power or HEMS it would be helpful in planning for emergency situations.

Training: Aside from not touching down power lines and that HFD only turns off natural gas at the house, there is little training to be done for utilities failure.

Community Response:

- Community Disaster plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: Civil Disturbance

Hazard Category: Human Cause

Probability: Acts of civil disturbance are precipitated by a variety of causes, most of which, based on historical data, are predictable. Based on the type of cause and the location, the probability of civil disturbance can vary widely, from unlikely to very likely. Large population concentrations, especially in economically disadvantaged areas; precipitating events such as major fires or weather disruptions such as heat waves, coupled with utility failures; and either poor or, paradoxically, widespread but uncoordinated, communications about unfolding events increase the probability of civil disturbances. For instance, very hot weather tends to make people short-tempered and more likely to overreact to incidents. Power failures can precipitate looting. When people cannot get information about large-scale events, they tend to overreact, which precipitates disturbances. However, as was seen in Egypt in the spring of 2011, social-media driven "flash-mob" disturbances can erupt very quickly. When incomplete or incorrect information "goes viral," civil disturbances can grow very quickly into unmanageable situations. In geographically-dispersed, less concentrated outer-ring suburbs like Hudson and its neighbors, civil disturbances are generally unlikely except in the most extreme circumstances.

History: Large-scale civil disturbances of the type that challenge or overwhelm emergency services have been rare in Ohio, and essentially unknown in Hudson. Major Ohio cities have all experienced small to moderate-scale civil disturbances such as looting after utility failures, and a few have suffered major civil disturbances. For example, race riots erupted in Cleveland's Hough area in 1964, and were quite destructive. Columbus has had a recurring problem with disturbances that occur after Ohio State University football games for many years. .

Frequency: The City of Hudson has not experienced a civil disturbance of any scale in its history. Large cities such as Cleveland, Akron, Columbus, and Cincinnati have experienced civil disturbances, but these were highly-localized and rare.

Scope/Vulnerability: Civil disturbances can be roughly defined as incidents involving disruptive activities by large numbers of people that spread, or have the potential to spread, to even larger areas. For example, a fight that breaks out in a bar is best described as a local disturbance. If a fight breaks out at a large sporting event, and involves a large portion of the people in the venue, it is a civil disturbance. Someone breaking into a store is a robbery. Dozens of people simultaneously breaking into many stores is a civil disturbance. The boundary between the two is not clear-cut, but the best criterion might be that the higher the potential the smaller incident has of escalating into a more wide-spread event, the more it looks like a civil disturbance. Locations that are of particular concern to safety forces are large sports venues, concerts, and public gatherings such as political rallies, protests and demonstrations. Emotionally-charged events, events where alcohol and/or drug abuse are likely, and events where opposing groups are in close proximity have very high potential for civil disturbances..

Human Impact: Civil disturbances typically last from a few hours to days in the case of incidents that escalate and are not handled calmly and decisively. The potential for deaths, serious injuries, or wide-spread injuries increases dramatically as the scale of the incident increases.

Property Impact: These could be from minor to severe depending on the nature of the disturbance and the response by civil authorities. Large-scale disturbances usually involve considerable property damage caused

by rioting, looting, and robbery. Smaller-scale disturbances may involve relatively little property damage, depending on how the initial phases of outbreaks are handled.

Economic & Social: Civil disturbances generally do not cause long-term economic problems unless property damage is widespread and extensive. However, when very large-scale disturbances inflict widespread damage, the economic consequences can be severe and disproportionately long-lasting. The social costs of civil disturbances, likewise, depend heavily on the extent and duration of the incidents. Short-term, small-scale disturbances which occur once or very infrequently have few effects. When disturbances become more widespread and longer-lasting, the social effects can affect the long-term social fabric of the area and the region.

Predictability/Warning Time: Certain incidents are likely to trigger civil disturbance, and underlying conditions may dispose minor incidents to rapid escalation into full-scale disturbance. It is an unfortunate fact of urban American life that racial incidents involving citizens and police have a high potential for escalating rapidly. Because there is no easy way to predict when small incidents could escalate, warning times depend very heavily on rapid, clear communications within the safety forces chain of command and with their civil authorities.

Duration: With effective civil response, disturbances can be limited to 1-2 hours. Without such response, disturbances can rapidly escalate to much longer periods, up to several days.

Mitigation/Controllability: Whenever possible, flashpoints which could trigger disturbances should be addressed beforehand. Examples might be keeping opposing sides in a political rally physically separated or deploying effective crowd control at sporting events. Once a disturbance has occurred, the key to controlling it is rapid, coordinated response. Elements of response are crowd control; clear communications with the public through the media; maintaining public safety; and prevention of further incidents. The use of social media such as Facebook and especially Twitter feeds to convey information and counteract misinformation has become a necessary part of the strategy of controlling civil disturbances.

Preparedness/Preplanning:
Civil authorities must be prepared to prevent disturbances whenever possible, to contain and control them when they occur, and to prevent escalation. Public safety forces will be part of the response to such events, so the ability to deploy an incident command system should be worked out and practiced well in advance. Plans for large gatherings should be reviewed as far ahead as possible for potential flashpoints/ bottlenecks, crowd control, traffic management, emergency evacuation routing, response to weather events, and positioning of safety forces.
Civil authorities should have a well-thought out prevention strategy, and establish and maintain open and frequent communications with the public, especially groups which have influence with large numbers of people such as churches,
clubs, sports teams, and schools. A thoughtful social media program can get useful information out to the public quickly, and can prevent the spread of misinformation. This requires that these media be monitored, as well.

Training: There are a variety of training programs available to civil authorities in developing response plans and prevention strategies for civil disturbances from FEMA.
Police forces are introduced to strategies and tactics of response to civil disturbances in their initial training, and should receive regular updates and refreshers on these topics.
Fire and EMS personnel will be called upon to handle fires and possibly HazMat incidents, large numbers of injuries, and potentially people taking refuge from the disturbance. Their training and continuing education should address these situations.

Community Response: The Emergency Operations Plan for the City of Hudson can be invoked when appropriate.

Regional Response: Mutual aid agreements with surrounding cities can be invoked when a response beyond the resources available in Hudson is required. The City can also request assistance from the Summit County Sheriff and the Ohio State Highway Patrol for law enforcement resources. In the event of a very large scale disturbance, the City may request assistance from the Governor in deploying Ohio National Guard units.

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: Terrorism

Hazard Category: Human Cause

Probability: Acts of terrorism are inherently unpredictable. Based on historical information, very few successful acts of terrorism have occurred in the United States within the last 20 years, so the probability of occurrence is low. However, the probability of an attempted act of terrorism is higher because of the shift from overt military conflicts as geopolitical strategy to more widely-dispersed and less well-defined antistate movements, and because of the relative ease with which terrorist acts can be committed.

History: A precise definition of terrorism remains controversial. A working definition is that acts of terrorism are distinguished from acts of war in that they are committed by individuals or groups having a political or religious goal of influencing the actions of target countries by harming and instilling fear in their inhabitants. Acts of war are those taken to conquer or destroy a target country. The dividing line between the two is not always clear, but on a functional basis may not be important in that, in the extreme, the effects are very similar. Acts of terrorism are also distinguished from criminal activity in that they are not primarily intended for financial gain, although this may be a secondary result of such acts. Typically terrorists operate covertly, but recently most groups (for example, al Quaeda, Hamas, or the Taliban) have established Internet sites where threats and hints of attacks or claims of responsibility are prominently posted. Some groups have a long history (for example, the Irish Republican Army, Fatah, or the Basque separatist ETA) and are well-known to authorities, while others are spin-offs of larger groups which are ephemeral and extremely difficult to assess and track. In some countries (for example, Somalia) terrorist groups have all but destroyed effective civil governments with no obvious intent to replace them; while in other countries such as Spain and Great Britain, they are an acknowledged factor in government policy and administration. The U.S. Department of State maintains lists of known terrorist organizations (http://www.state.gov/j/ct/rls/crt/2007/103714.htm)

Frequency: The acts of terrorism foremost in Americans' minds are the attacks on the World Trade Center, the Pentagon, and Flight 93 in 2001 by operatives of al Quaeda. However, foreign groups have attempted other notable attacks such as the Times Square truck bomb, the planned kidnapping of the Saudi ambassador, and earlier bombing attempts at the World Trade Center. Acts of terrorism are not only perpetrated by foreign groups, but also by "home-grown" terrorists who committed the Oklahoma City bombing of the Murrah building, anthrax-laden letter campaigns, the thwarted bombing of the Ohio Route 82 bridge in Brecksville, the Unabomber incidents, and multiple attempts to poison over-the-counter medications. While the historical record of actual terrorist acts is irregular, individuals and groups with an agenda counter to societal interests are likely to be planning and preparing disruptive activities often enough that it seems safe to assume that the threat of such acts is signficant and relatively constant at any given time.

Scope/Vulnerability: Virtually any facet of modern civilization can be a target for acts of terrorism. Typical targets are those which involve large groups of people, infrastructure which has the potential to affect large segments of society (such as utilities, transportation systems such as airports and railroads, and highways), food and fuel supply systems, emergency and safety systems, medical facilities, and other prominent buildings. Geographically-dispersed targets (such as interstate highways, electrical power transmission lines, railroads, or levees); large buildings or facilities that admit widespread public access (such as shopping malls, office buildings, or sports facilities); or critical infrastructure facilities that are relatively easy to access (such as power substations, hospitals, harbors and docks, or bridges) are exceptionally vulnerable to attacks. Facilities that have typical industrial security (such as chemical plants, refineries, tank farms, electrical generation plants, and waste processing facilities) are less vulnerable, and require more sophisticated and well-resourced attacks. Of

particular concern are telecommunication facilities, financial systems, electronic data processing systems, and the Internet, since all of these have become so critical to the function of every aspect of modern society; because they are open to the entire world; and because it is relatively easy to mount concerted attacks on them by electronic means.

Human Impact: Terrorist acts which involve violent means have the potential to cause:

1. immediate injury, illness, and death at varying scales;
2. loss of and damage to property; and
3. disruption of normal activities as a direct result of the attack(s) and the subsequent reactions to them. Depending on the types and levels of disruptions, the effects could be widespread and very harmful.

These effects will usually occur simultaneously and complicate each other.
If the acts involve

1. the release of harmful chemicals, radioactive materials, or biological agents;
2. the disruption of critical services (for example, food, water, and fuel supplies; medical systems; or power supplies)
3. the interruption of critical infrastructure functions (for example, telecommunications or transportation)

the effects could be prolonged and widespread, and could adversely affect the health and safety of very large numbers of people. The resultant economic dislocations could cause similar adverse effects.

Property Impact: These could be from moderate to severe depending on the nature of the terrorist act. Along with human impacts, destruction of property is a central goal of terrorist attacks, so they will be structured to inflict maximum damage. In the case of cyberterrorism, the attacks will be structured to disable electronic communications, data processing, and systems dependent on them. These attacks may involve physical damage as well as damage to software systems.

Economic & Social: Some of the economic and social effects of terrorism are a result of actual attacks, but many are achieved by terrorist organizations simply because of the anticipation of attacks. These effects are tightly linked, and must be considered together.

Social and economic disruption are central goals of terrorism, either directly as a result of an attack, or as a result of the expected reactions after an attack. These too can range from moderate to severe. The effects start immediately and will have long-term consequences. As an example, the restructuring of the U.S. Federal governments security activities under the umbrella of the Department of Homeland Security has had far-reaching effects, not the least of which has been vastly increased economic costs. Air travel has become considerably more-onerous as a result of the increased security measures imposed by the Transportation Safety Administration in response, for example, to the “liquid shoe” and “underwear” bomb attempts. Increased security measures at, for example, refineries, nuclear power plants, food processing facilities, pharmaceutical manufacturers, and airports, ports, and railroad stations have been expensive and time-consuming to develop and deploy.

Predictability/Warning Time: While actual terrorist acts are inherently unpredictable, groups often issue threats in various ways, such as anonymous phone calls, Internet websites, or other published media. These warnings are usually intended to provoke a wide-spread disruptive reaction, and not to actually warn of an impending attack. However, certain high-profile groups, such as al-Quaeda, may issue warnings simply to demonstrate their ability to strike whenever and wherever they choose and enhance their credibility as a threat. Government agencies charged with counter-terrorist missions have developed intelligence systems that have improved the detection of activities that precede attacks, so that many low-level terrorist attempts have been predicted and thwarted. As yet, though, successful terrorist acts occur with virtually no warning of the actual time and place.

Duration: The typical terrorist attack is relatively short, at most a matter of hours, with the most visible part occupying at most a few minutes. The preparation phases may, however, be very long, up to several months. Some types of attack, such as kidnappings or hostage situations, may be longer duration, from hours to days.

Mitigation/Controllability: Governments world-wide have devoted enormous resources to preventing and controlling terrorist acts, and mitigating the effects of those that occur. The types of systems deployed are so large and complex that they are appropriate only at that scale. Within the US, state and local governments generally rely on coordinating with Federal agencies and on considerable Federal funding for counter-terrorist activity.

Preparedness/Preplanning: The Federal government, Canadian government, and the Great Lakes state governments have implemented the Northern Border Initiative to protect Ohio's international maritime border and the northern Lake Erie shoreline (http://publicsafety.ohio.gov/links/HLS0067.pdf). Because of its proximity to Lake Erie, Hudson is a stakeholder in this Initiative. The Federal government has developed the National Infrastructure Protection Plan to reduce risk to statewide infrastructure, both public and private (http://www.dhs.gov/files/programs/critical.shtm). Because three main highways (I-480, I-80, and Rte.8) and a petroleum pipeline pass through Hudson, the City is a stakeholder in this Plan. The State of Ohio Department of Public Safety, Homeland Security division has developed an all-hazards preparedness strategy to prevent, protect against, respond to, and recover from terrorist acts, natural disasters, and other emergencies (http://www.homelandsecurity.ohio.gov/strategic_plan.stm). The City is a stakeholder in this program. One of the objectives of this Strategy is to ensure preparedness by following the National Response Framework (http://www.fema.gov/national-response-framework), the National Preparedness Guidelines (http://www.dhs.gov/files/publications/gc_1189788256647.shtm), and the National Incident Management System (http://www.fema.gov/national-incident-management-system). The State of Ohio Emergency Management Agency has developed an Emergency Operations Plan (http://www.ema.ohio.gov/EOP_Detail.aspx) which establishes a framework through which State of Ohio Agencies and other designated non-state agencies assist local jurisdictions to respond to and recover from disasters that affect the health, safety, and welfare of the citizens of Ohio. The Ohio EOP follows the Emergency Support Function structure as outlined in the U.S. Department of Homeland Security's National Response Plan, and incorporates the National Incident Management System. The state of Ohio Homeland Security agency (http://homelandsecurity.ohio.gov/) has established and maintains the Security Analysis and Information Center (http://www.publicsafety.ohio.gov/links/HLS0014.pdf) as its clearinghouse for terrorism-related information. Suspicious activity should be reported to the SAIC at 1-877-OHS-INTEL (877-647-4683). The City of Hudson Emergency Operation plan was developed to respond to emergencies of all types.

Training: The Department of Homeland Security (http://www.dhs.gov/index.shtm) and the Federal Emergency Management Agency (http://www.fema.gov/) have a wide variety of training courses available (http://training.fema.gov/) to emergency services agencies and municipal governments covering the National Response Framework; the National Incident Management System (http://www.fema.gov/incident-command-system); the Incident Command System; the National Infrastructure Protection Plan; the State, Local, Tribal, and Territorial Government Coordinating Council; and the State and Local Officials Senior Advisory Committee. Considerable information is available on the Department of Homeland Security and FEMA websites.

Community Response: The general public as well as city employees can participate in the See Something, Say Something campaign to report suspicious activity. In Ohio they can call 1-877-OHS-INTEL (877-647-4683) to report information. The initial focus of community response in the aftermath of a terrorist attack should be to secure public safety by aiding the injured, suppressing fires and hazmat incidents, and to preserve vital communication, transportation, and infrastructure assets. Rapid reporting of the incident to County, State, and Federal officials will allow their resources to be brought to bear in the next level of response. Mutual-aid agreements can be invoked to get access to additional police, fire, and EMS resources.

Regional Response: The Summit County Emergency Action Plan and the State of Ohio Emergency Operations Plan can be invoked to get access to additional resources. The Governor of the State of Ohio can direct response by the Ohio National Guard. Once a terrorist attack has been reported, County, State, and Federal officials will respond to take control of certain aspects of operations. The key to preventing chaos will be to coordinate with them through NIMS and ICS, since local law enforcement and safety forces, as well as mutual-aid forces from surrounding communities, will have already deployed.

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Mass Casualty_____

Hazard Category: __Human Cause____

Probability

History:

A **mass casualty incident** (often shortened to **MCI** and sometimes called a **multiple-casualty incident** or **multiple-casualty situation**) is any incident in which emergency medical services resources, such as personnel and equipment, are overwhelmed by the number and severity of casualties. For example, an incident where a two-person crew is responding to a motor vehicle collision with three severely injured people could be considered a mass casualty incident. The general public more commonly recognizes events such as building collapses, train and bus collisions, earthquakes and other large-scale emergencies as mass casualty incidents. Events such as the Oklahoma City bombing in 1995 and the September 11 attacks in 2001 are well publicized examples of mass casualty incidents.

While the number of patients necessary to declare a MCI varies from community to community, it is generally agreed that incidents involving less than 12 patients are not considered to be an MCI. However incidents involving 24 or more patients are always a MCI.

A mass casualty incident will usually be declared by the first arriving unit at the scene of the incident, though it can be declared by a dispatcher based on the information available from people who call 911, about the incident.

Initially, the senior paramedic at the scene will be in charge of the incident, but as additional resources arrive, a senior officer or chief will take command, usually using an incident command system structure to form a unified command to run all aspects of the incident.

Once an MCI has been declared, a definite and well coordinated flow of events will occur using three separate phases: triage, treatment, and transportation. To perform these tasks;

- Paramedic and emergency medical technician (EMT) personnel will arrive in ambulances, and from another agency. They will have the lead in all aspects of patient care.
- Firefighters will perform all initial rescue related operations, as well as fire suppression and prevention. They may also provide medical care if they are trained and assigned to do so.
- Police officers will secure the scene to ensure that only properly authorized people are present to ensure safety and smooth operation. They are also responsible for the investigation of any criminal activity related to the MCI.

Frequency:

MCI's are normally infrequent events. The type of events that can be associated with declaring an MCI include, but limited to;

- Bio-Hazards
- Collapses
- Expressway Multi-Vehicle Incidents
- Haz-Mat Incidents
- Public Transit Accidents
- Terrorist Acts
- Weather Related Incidents

Scope/Vulnerability

Human Impact:
The Human Impact of a MCI is by far the largest concern. Not only is the sheer volume in patients over taxing the local entity and possibility the greater community, but the consideration must also be made towards the needs of the patient's family and those of the rescuers, not only during the incident, but also after.

Property Impact:
The possible Property loss is entirely dependent upon the type of incident. It could be as small of repairing a school bus to rebuilding a building. It is therefore impossible to make any judgment regarding Property Impact, other that most MCI's will tend to disrupt traffic for the duration of the event.

Economic & Social:
Impact upon the local economy is totally dependent upon the type, location and size of the event. However damage to private and public facilities, and possibly public utilities could be expected. In addition one should expect disruption of transportation routes and communications.

From a social perspective the real probability of psychological effects upon the community such as a sense of insecurity and uncertainty must be taken into account even for a minor tornado. While these effects might be short lived they could result in panicked residents.

An event of this type also strips resources from other communities. This is truly a multi agency event and one that could have significant costs attached to it.

Predictability/Warning Time:

Other than those events that are Weather Related there is generally no predictability or warning.

Duration:

Depending on the type of event that caused the MCI to be declared, the total duration of the event could last one hour too weeks or months.

Mitigation/Controllability

Preparedness/Preplanning:
The functionality of our critical facilities such as emergency services (police, fire/ems, PSAP), hospitals, utilities, communications, transportation, fuel delivery systems, etc. will be critically important.

Currently the following Policies are already in place and exercised;

- EMS SOP #4-08
- Summit County Mass Casualty Annex dated 9, 2011

The concept of Task Forces and Strike Teams should also be developed and exercised.

Training:
Other training such as treatment of entrapped patients, extrication, search and rescue, building collapse, confined space and damage assessment would all be applicable to the likely needs encountered with MCI

In addition all parties should be familiar with;

- Each Departments MABAS Book
- NIMS
    - Unified Command
- MCI
    - Summit County Plan
        - Triage Tags
        - Positions
        - Forms
    - Available Partners

Community Response:

- Automatic and mutual aid responses from local communities.
- MABAS plans activated
- Hudson Emergency Operation Plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- Summit County Emergency Operation Plan
- MABAS plans activated.
    - Summit Count MCI Trailer
- Summit County Emergency Management Agency (for requesting state and federal assistance)
- Ohio Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __VIP Visit_____

Hazard Category: __Human Cause____

Probability

History:
A VIP by definition can range from local dignitaries to Sports figures, Media Superstars and even Presidential visits. While most VIP visits are relatively routine and do not pose a significant impact upon the community, a Presidential visit can overwhelm local resources and strain budgets. Hudson has experienced a few such VIP visits. The most recent visit was by former President George H.W. Bush in 2006. In 1861 President elect Abraham Lincoln stopped at Hudson on his inaugural train ride to Washington D.C.

Frequency:
A few visits from State dignitaries have occurred over the years but have been relatively few. The only Presidential visit to occur happened approximately 150 years ago.

Scope/Vulnerability

Human Impact:
Overall impact is generally positive in terms of community recognition. Negative impact is generally short term and is a matter of temporary traffic congestion and/or restricted areas.

Property Impact:
None

Economic & Social:
Impacts are generally positive and a small economic boost can be realized by local merchants. City budget will be impacted in terms of additional resources and potential overtime needed for unanticipated event.

Predictability/Warning Time:
Predictability is little to none. While visits from celebrities may be announced weeks in advance a Presidential visit only provides 3-5 days advance notice.

Duration:
Preparation generally takes days while actual visits only last a few hours.

Mitigation/Controllability

Preparedness/Preplanning:
No specific plans or guidelines are in place.

Training:
None

Community Response:

- Automatic and mutual aid responses from local communities.

- Community Disaster plan implemented to coordinate efforts with all city departments.

Regional Response:

- MABAS plans activated.
- Ohio State Patrol
- Summit County Haz Mat Team
- Geauga County Sheriff Mobile Command Post

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: _Chemical Emergency Fixed Site

Hazard Category: _Hazardous Material Incident___

Probability

History: Hazardous Materials incidents in the city have been very infrequent that have been reported to the SCHMRT. There are many small facilities in the jurisdiction, and no significant hazards identified.

Frequency: LOW

Scope/Vulnerability

Human Impact: Insignificant to severe depending on the individual circumstances and location.

Property Impact: None to severe depending on the circumstances and location.

Economic & Social: Minor to devastating depending on the severity and location.

Predictability/Warning Time: NONE some cases can be predicted by the workers or inspections at the facility, and without mitigation could result in an incident.

Duration: Depends on the chemical and the ability and/or requirements for disposal or clean-up.

Mitigation/Controllability

Preparedness/Preplanning SARA Title III reports are reported to the AHJ (Hudson Fire) and include the most hazardous materials, and include the ability for the facilities to be inspected and see the company's emergency action plans. Summit County Hazardous Materials Team has a signed mutual aid agreement with the Southwest Chagrin Hazardous Materials team for assistance when it is needed. In cooperation with the LEPC (Local Emergency Planning Committee) and Summit County EMA (Emergency Management Agency) databases exist with preplanning scenarios for many of the businesses at highest risk.

Training: Hazardous Materials Technicians have been trained in the Fire Department and EMS, currently HFD has seven HazMat technicians. This training is all encompassing and includes operational level on any hazardous material incident. All HFD members are trained to HazMat awareness with level two firefighters at

the operations level. Training is ongoing and the annual requirements keep members current in every facet of the job.

All Hudson Fire apparatus has Cameo and Aloha installed on the MDTs which can provide numerous resources about chemicals, hazards, pluming of releases and contact information.

Community Response:

- Local Emergency Responders
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- Utility companies

Regional Response:

- MABAS plans activated.
- Summit County Hazardous Materials team requested through Summit County Sheriff
- Summit County EMA notified
- May expand to Clean Up contractors for mitigation
- Possible expansion to Southeast Chagrin HazMat
- Ohio State Response plan may be activated and provide resources as needed specific to the type needed for the incident
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Chemical Transportation Roadway___

Hazard Category: _Hazardous Materials Emergency__

Probability

History: Hazardous Materials incidents in the city have been very infrequent that have been reported to the SCHMRT.

Frequency: Low

Scope /Vulnerability

Exposure There are many locations in Hudson that the major highway is located in very close proximity to a significant number of people. The highest life safety exposures from highway emergencies involve the OH Turnpike proximity to Allstate Insurance and Hudson high school. Although there are no signs indicating the location of the high school it is relatively close to the turnpike. Hudson is intersected well by major highways Rt 91, Rt 303, SR 8 and the Turnpike (with no direct Hudson access).

Human Impact: Insignificant to severe depending on the individual circumstances and location

Property Impact: None to severe depending on the circumstances. An incident in the center of the city on Rt 91 and or Rt 303 could have severe property and economic impact.

Economic & Social: Minor to devastating depending on the severity and location

Predictability/Warning Time: NONE

Duration: Depends on the chemical and the ability and/or requirements for disposal or clean-up. Roads could be closed for up to eight hours with a significant impact on commerce, and travel.

Mitigation/Controllability

Preparedness/Preplanning Summit County Hazardous Materials team has a signed mutual aid agreement with the Southwest Chagrin Hazardous Materials team for assistance when it is needed. In cooperation with the LEPC (Local Emergency Planning Committee) and Summit County EMA (Emergency Management Agency) databases exist with preplanning scenarios for many of the businesses at highest risk.

Training: Hazardous Materials Technicians have been trained in the Fire Department and EMS, currently HFD has seven HazMat technicians. This training is all encompassing and includes operational level on any

hazardous material incident. All HFD members are trained to HazMat awareness with level two firefighters at the operations level. Training is ongoing and the annual requirements keep members current in every facet of the job.

All Hudson Fire apparatus has Cameo and Aloha installed on the MDTs which can provide numerous resources about chemicals, hazards, pluming of releases and contact information.

Community Response:

- Local Fire Department and Police response
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- State police and/or ODOT may need notified depending on situation and location, limited access and state highways
- OTC (Ohio Turnpike Commission) will need notified for incidents on their right of ways
- Utility companies

Regional Response:

- MABAS plans activated.
- Summit County Hazardous Materials team requested through Summit County Sheriff
- Summit County EMA notified
- May expand to Clean Up contractors for mitigation
- Possible expansion to Southeast Chagrin HazMat
- Ohio State Response plan may be activated and provide resources as needed specific to the type needed for the incident
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Chemical Transportation Railroad___

Hazard Category: _Hazardous Materials Emergency__

Probability

History: Hazardous Materials incidents in the city have not been reported involving railway transportation. Potential of an incident certainly exists as there are 62 to 76 trains per day traveling through Hudson. The railroad clearly admits the most used tracks also receive the most maintenance and inspection processes.

Frequency: LOW

Scope/Vulnerability

Human Impact: Insignificant to severe depending on the individual circumstances and location.

Property Impact: None to severe depending on the circumstances. If an incident involved Darrow Rd. (Route 91) and/or West Streetsboro (Rt303) and separated the city the effects would be devastating to the commerce, safety forces, and public.

Economic & Social: Minor to devastating depending on the severity and location.

Predictability/Warning Time: NONE some cases can be predicted by the workers or inspections at the facility, and without mitigation could result in an incident.

Duration: Depends on the chemical and the ability and/or requirements for disposal or clean-up.

Mitigation/Controllability The Railroad maintains very tight control of their incidents and has emergency crews throughout the United States that are very prompt at response. The local resources would be relied on for initial mitigation of hazards, removal of victims, and scene control. It would be advantageous to contact the Railroad and see what training is available for first responders.

Preparedness/Preplanning SARA Title III reports are reported to the AHJ (Hudson Fire) and include the most hazardous materials, and include the ability for the facilities to be inspected and see the company's emergency action plans. Summit County Hazardous Materials team has a signed mutual aid agreement with the Southwest Chagrin Hazardous Materials team for assistance when it is needed. In cooperation with the LEPC (Local Emergency Planning Committee) and Summit County EMA (Emergency Management Agency) databases exist with preplanning scenarios for many of the businesses at highest risk.

Training: Hazardous Materials Technicians have been trained in the Fire Department and EMS, currently HFD has seven HazMat technicians. This training is all encompassing and includes operational level on any hazardous material incident. All HFD members are trained to HazMat awareness with level two firefighters at the operations level. Training is ongoing and the annual requirements keep members current in every facet of the job.

All Hudson Fire apparatus has Cameo and Aloha installed on the MDTs which can provide numerous resources about chemicals, hazards, pluming of releases and contact information.

Hazardous Materials Technicians have been trained in the Fire Department and EMS. This training is all encompassing and includes operational level on any hazardous material incident. Training is ongoing and the annual requirements keep members current in every facet of the job.

Community Response:

- Local Fire Department and Police response
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- Contact needs to be made to the Railroad carrier to make sure incident is reported and oncoming traffic is suspended as needed
- Utility companies

Regional Response:

- MABAS plans activated.
- Railroad should be contacted as soon as possible for incidents involving the RR. Certainly it is imperative that oncoming traffic on the tracks be aware there is an issue.
- Summit County Hazardous Materials team requested through Summit County Sheriff
- Summit County EMA notified
- May expand to Clean Up contractors for mitigation
- Possible expansion to Southeast Chagrin HazMat
- Ohio State Response plan may be activated and provide resources as needed specific to the type needed for the incident
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: __Radiological-Nuclear___

Hazard Category: _Hazardous Materials Emergency__

Probability

History: There is one documented HazMat response for a transportation accident in the last 25 years, but this does not take into account the numerous transportation accidents that were handled by the local responders and tow companies.

Frequency: The chances of transportation accidents with hazardous materials releases are a regular occurrence.

Scope/Vulnerability

Human Impact: Insignificant to severe depending on the individual circumstances and location

Property Impact: None to severe depending on the circumstances. An incident in the center of the city, or on the tracks over Rt 91 and or Rt 303 could have severe property and economic impact.

Economic & Social: Minor to devastating depending on the severity and location

Predictability/Warning Time: NONE some cases can be predicted by the workers or inspections at the facility, and without mitigation could result in an incident.

Duration: Depends on the chemical and the ability and/or requirements for disposal or clean-up.

Mitigation/Controllability

Preparedness/Preplanning SARA Title III reports are reported to the AHJ (Authority Having Jurisdiction - Hudson Fire) and include the most hazardous materials, and include the ability for the facilities to be inspected and see the company's emergency action plans. Summit County Hazardous Materials team has a signed mutual aid agreement with the Southwest Chagrin Hazardous Materials team for assistance when it is needed. In cooperation with the LEPC (Local Emergency Planning Committee) and Summit County EMA (Emergency Management Agency) databases exist with preplanning scenarios for many of the businesses at highest risk.

Training: Hazardous Materials Technicians have been trained in the Fire Department and EMS, currently HFD has seven HazMat technicians. This training is all encompassing and includes operational level on any hazardous material incident. All HFD members are trained to HazMat awareness with level two firefighters at

the operations level. Training is ongoing and the annual requirements keep members current in every facet of the job.

All Hudson Fire apparatus has Cameo and Aloha installed on the MDTs which can provide numerous resources about chemicals, hazards, pluming of releases and contact information.

Community Response:

- Local Emergency Responders
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- NRC (Nuclear Regulatory Commission) may need notified depending on source
- Utility companies

Regional Response:

- MABAS plans activated.
- Summit County Hazardous Materials team requested through Summit County Sheriff
- Summit County EMA notified
- May expand to Clean Up contractors for mitigation
- Possible expansion to Southeast Chagrin HazMat
- Ohio State Response plan may be activated and provide resources as needed specific to the type needed for the incident
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

Hazard Type Analysis Worksheet

Potential Hazard: ___Biological Emergency___

Hazard Category: ___Hazardous Material Incident__

Probability

History: Hazardous Materials incidents in the city have been very infrequent that have been reported to the SCHMRT. One incident at Allstate was deemed credible and was investigated by SCHMRT and the Postal Inspectors and resulted in the determination it was coffee creamer.

Frequency: LOW

Scope/Vulnerability

Human Impact: Insignificant to severe depending on the individual circumstances and location.

Property Impact: None to severe depending on the circumstances. An incident in the center of the city, or on the tracks over Rt 91 and or Rt 303 could have severe property and economic impact.

Economic & Social: Minor to devastating depending on the severity and location.

Predictability/Warning Time: None

NONE some cases can be predicted by the workers or inspections at the facility, and without mitigation could result in an incident.

Duration: Depends on the chemical and the ability and/or requirements for disposal or clean-up.

Mitigation/Controllability

Preparedness/Preplanning SARA Title III reports are reported to the AHJ (Authority Having Jurisdiction, Hudson Fire) and include the most hazardous materials, and include the ability for the facilities to be inspected and see the company's emergency action plans. Summit County Hazardous Materials team has a signed mutual aid agreement with the Southwest Chagrin Hazardous Materials team for assistance when it is needed. In cooperation with the LEPC (Local Emergency Planning Committee) and Summit County EMA (Emergency Management Agency) databases exist with preplanning scenarios for many of the businesses at highest risk.

Training: Hazardous Materials Technicians have been trained in the Fire Department and EMS, currently HFD has seven HazMat technicians. This training is all encompassing and includes operational level on any

hazardous material incident. All HFD members are trained to HazMat awareness with level two firefighters at the operations level. Training is ongoing and the annual requirements keep members current in every facet of the job.

Hudson Fire Apparatus is equipped with Cameo and Aloha installed on the MDTs which can provide numerous resources about chemicals, hazards, pluming of releases and contact information.

Community Response:

- Local Fire Department and Police response
- Automatic and mutual aid responses from local communities.
- Community Disaster plan implemented to coordinate efforts with all city departments.
- State Police and/or FBI may need notified depending on the scope and nature of the incident
- Utility companies

Regional Response:

- MABAS plans activated.
- Summit County Hazardous Materials team requested through Summit County Sheriff
- Summit County EMA notified
- May expand to Clean Up contractors for mitigation
- Possible expansion to Southeast Chagrin HazMat
- Ohio State Response plan may be activated and provide resources as needed specific to the type needed for the incident
- Procedures for requesting state and federal assistance.
- Ohio Emergency Management Agency
- Federal Emergency Management Agency

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: WRA Dorms
Hazard Category: Target Hazard

Probability:

History: Western Reserve Academy is a private boarding high school

Strengths of the facility are: Monitored fire detectors throughout the dorms, automatic monitored residential sprinklers throughout the student rooms, adults in all buildings, faculty and staff live on campus. Fire escapes and secondary escape routes throughout the buildings. Good fire department access to all dorms except the Athenaeum. Improvements to the buildings and systems occurring on a regular basis.

Risk factors include: Students use of hot plates, microwaves etc. in commons areas. Teenage bad judgment. Some teens ignore fire alarms. Escape via known routes could present problems if the route is blocked or in heavy smoke.

Frequency: There have been numerous alarms due to smoke from cooking. A dryer fire in 2005.

Scope/Vulnerability:

Human: With the fire suppression system in place student loss of life should be minimal. The adult apartments in the dorms do not have a suppression system.

Property Impact: The buildings could be lost.

Economic and Social: Student housing could be disrupted for the academic year. It is expected that insurance would rebuild any loss.

Predictability/Warning Time: None

Duration: This is potentially a campaign firefighting activity.

Mitigation/Controllability:

1. Routine inspections by HFD
2. Employee extinguisher training
3. Campus wide intelligent voice notification emergency system

Preparedness/Preplanning:

Training:

5. Incident Command System followed from the beginning of incident.
6. MABAS system in place
7. Preplans available
8. Firefighter accountability must be emphasized

Community Response:

8. Fire, EMS, Police
9. Sign department for traffic control
10. PIO

Regional Response:

4. MABAS responding departments

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Special Events – Taste of Hudson
Hazard Category: Target Hazard

Probability:

History: The Taste of Hudson is an annual event over Labor Day weekend held on the Green and the First and Main Green. The streets around the First and Main Green are blocked off from vehicle traffic as is First Street. Streets, sidewalks and green spaces are often crowded with people. The actual First and Main Green has vendors cooking and selling food. The cooking sites are highly regulated for fire safety and inspected throughout the weekend. Hudson police, EMS and fire have a visible presence.

Risk factors include:

The crowds of people may:

1. Cause difficulty accessing buildings around the First and Main Green
2. Be drawn to a fire causing additional problems
3. Gather on streets causing access

Propane leaking or faulty equipment is a risk.
Severe weather is also a significant hazard with the large crowds of people at Taste of Hudson.

Frequency:

Scope/Vulnerability:

Human: Panic from fire or explosion could cause MCI

Property Impact: Access could slow response resulting in loss.

Economic and Social: Depending on event.

Predictability/Warning Time: None

Duration: Dependent on event

Mitigation/Controllability:

5. Routine inspections by HFD of cooking
6. Town tornado siren
7. Police, EMS and F.D. presence
8. **Preparedness/Preplanning:**

Training:

9. Incident Command System
10. MABAS system in place
11. Map of event available
12. Taste of Hudson workers have communication equipment with good coordination

Community Response:

13. Fire, EMS, Police

Regional Response:

14. MABAS responding departments
15. Warnings for MABAS partners of the large crowds in the incident area.

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Little Tikes
Hazard Category: Target Hazard

Probability:

History: Little Tikes is a manufacturer of large objects with vats, rail cars, silos filled with plastic pellets.

1. The pellets are combustible producing high heat and copious amounts of petroleum based black smoke.
2. During production the pellets are ground into a dust size product creating the potential for explosion
3. The risk exists of someone falling into a pellet storage container causing a confined space engulfment
4. The building is has monitored automatic alarms and sprinkler system with adequate access to hydrants
5. The suppression system could be overwhelmed by a large fire
6. Between 900 and 1,000 people work at the facility

Frequency: There have been no large fires or engulfment incidents at Little Tikes

Scope/Vulnerability:

Human: Alarms and suppression and emergency training of employees should stop widespread loss of life.

Property Impact: A large fire could destroy the business.

Economic and Social: Little Tikes is an important employer in Hudson and the surrounding area. A large fire could have significant social and economic impact on families and the tax base.

Predictability/Warning Time: Reduced through prevention efforts

Duration: This is potentially a campaign firefighting activity with long term effects.

Mitigation/Controllability:

4. Routine inspections by HFD
5. Continued employee safety training
6. Onsite confined space program

Preparedness/Preplanning:

Training:

16. Incident Command System followed from the beginning of incident.
17. MABAS system in place
18. Preplans
19. Offensive / defensive decisions made and clearly communicated decisively.
20. Firefighter accountability must be emphasized
21. HFD firefighter training includes ‘long lay attach’ and search and rescue

Community Response:

22. Fire, EMS, Police
23. Sign department for traffic control
24. PIO
25. Busses, other transportation if employees vehicles are blocked in by fire apparatus or hose.
26. Community disaster plan initiated

Regional Response:

27. MABAS responding departments

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: Laurel Lake
Hazard Category: Target Hazard

Probability:

History: Laurel Lake is a retirement community consisting of independent living villas and apartments, assisted living apartments, skilled nursing care and a memory impairment unit. Approximately 455 residents may live at the facility.
Strengths of the facility are: Automatic monitored sprinkler system throughout the facility except in the interior of independent living apartments in Eastwood and Westwood. Automatic monitored detector alarm system throughout the facility. Security is trained to respond and in the use of fire extinguishers. The suppression system is tested on a regular schedule with occasional activation from freezing pipes. Fire separations throughout the building. The building is well maintained. All concealed areas are automatically supressed
Risk factors include: Non suppressed areas. A 'cry wolf' syndrome among residents from repeated alarm activations. Smoke and disorientation are two of the largest hazards when coupled with many people dependent on scooters, walkers and elevators. The entire building can seem like a maze which will make escape and firefighter search more difficult. A search of the building or a wing could require firefighters assisting large numbers of residents. The basement brings special hazards that include no windows.

Frequency: There have been numerous small incidents resulting in smoke in rooms and hallways along with a few significant fires.

Scope/Vulnerability:

Human: Human impact from a fire could have significant loss of life.

Property Impact: Some of the buildings could be lost.

Economic and Social: Laurel Lake is a source of community pride with many Hudson residents moving from private homes to the facility. Should the buildings become uninhabitable it would be life altering for many residents.

Predictability/Warning Time: None

Duration: This is potentially a campaign firefighting activity with long term effects.

Mitigation/Controllability:

7. Routine inspections by HFD and the State Fire Marshall
8. Continued employee extinguisher training
9. Required emergency training for staff.

Preparedness/Preplanning:

Training:

28. Incident Command System followed from the beginning of incident.
29. MABAS system in place
30. Preplans
31. Firefighter accountability must be emphasized
32. Officer and firefighter orientations and walk through of building on regular basis

Community Response:

11. Fire, EMS, Police
12. Sign department for traffic control
13. PIO
14. Busses, other transportation if employees vehicles are blocked in by fire apparatus or hose.

Regional Response:

9. MABAS responding departments

Appendix B cont.

HAZARD TYPE ANALYSIS WORKSHEET

Potential Hazard: American Fireworks
Hazard Category: Target Hazard

Probability:

History: Through the years American Fireworks has changed from a manufacturer of fireworks with onsite assembly, to a wholesaler of imported products, fireworks show planner and assembler with retail sales to consumers.This change in business models means explosive powder is on site in magazines surrounded by dirt and in intermodal containers sitting on the ground. By isolating the magazines and intermodal storage units the likelihood of a large fire is low.

A higher likelihood of danger at American Fireworks is an explosive event with the resulting 'shoot off' of fireworks with possible concussive effects.
Fireworks drivers are required to have a CDL with HazMat endorsement. A risk factor is product coming into and out of the plant via truck.

Frequency: Until May 4, 1955 Hudson had two fireworks companies, on May 5, 1955 that was reduced to one as a result of a catastrophic explosion. Since that time there have been no large fires at the remaining firework company.

Scope/Vulnerability:

Human: Eleven months of the year the number of people onsite at American Fireworks is low. As fireworks event planning begins in June the number of people onsite sometimes reaches 100. A large explosion and the resulting concussion could result in the injury and death of numerous people.

Property Impact: The most likely scenario is one of the storage buildings, retail area or workshop being destroyed.

Economic and Social: Long term economic and social impact would be about the same as any other building that employs the same number of people.

Predictability/Warning Time: None

Duration: If this is an explosion the duration would be short.

Mitigation/Controllability:

10. Routine inspections by HFD and State of Ohio Division of State Fire Marshall, ATF, U.S. Customs and others
11. HFD maintain a good working relationship with owners/employees

Preparedness/Preplanning:

Training:

33. Incident Command System followed from the beginning of incident.
34. MABAS system in place
35. Preplans
36. Offensive / defensive decisions made and clearly communicated decisively
37. Firefighter accountability emphasized

Community Response:

15. Fire, EMS, Police
16. Coordination of press communications/media

Regional Response:

10. MABAS

Appendix C

HDB GAP ANALYSIS

Type – Natural Hazard

Event - Tornado

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Commodities to sustain the department for 48 hours • Call volume and radio traffic may affect dispatch operations • Key city personnel familiar with NIMS • Events may overwhelm Incident Command (IC) and coordination between departments • Events may strain local resources and MABAS may not be available to address community needs during the initial hours of an event	• Research best means of providing commodities • Radio room operational training • NIMS training • ICS training • HEOP training • EOC training • Explore creation of CERT's for additional support to emergency operations • Review and train on MABAS operations	
Training	1	• Familiarity with MCI Policy • Familiarity with severe weather SOP • Coordinated operations between city departments	• Create MCI Refresher course • Create training programs • Schedule Annual review of applicable SOP's • Routine review and update Hudson Emergency Operations Plan	
Community Response	1.7	• Lack of accurate information • Access to incidents and safe scenes • Coordinated operations between city departments	• Encourage signup for notification systems. • Encourage weather radio purchase • Identify key personnel to be trained in emergency op's plan and maintain list of trained personnel • Establish schedule for reviewing HEOP procedures with Police, Public Works, and Utilities	
Regional Response	2	• Timely MABAS activation of needed resources	• Review and update MABAS as needed • Establish MABAS training refresher	

Appendix C cont.

HDB GAP ANALYSIS

Type – Natural Hazard

Event – Severe Storm

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Commodities to sustain the department for 48 hours • Call volume and radio traffic may affect dispatch operations • Events may overwhelm Incident Command (IC) and coordination between departments • Events may strain local resources and MABAS may not be available to address community needs during the initial hours of an event	• Research best means of providing commodities • Radio room operational training • IC training • HEOP training • EOC training • Explore creation of CERT's for additional support to emergency operations • Review, update and train on MABAS operations	
Training	1.5	• Familiarity with MCI Policy • Familiarity with severe weather SOP	• Create MCI Refresher course • Annual review of applicable SOP's	
Community Response	2	• Lack of accurate information • Access to incidents and safe scenes	• Encourage public to sign up for emergency alerts • Review and update procedures as needed with Police, Public Works, and Utilities • Community table top exercise	
Regional Response	2	• Timely MABAS activation of needed resources	• Review and update MABAS as needed • Establish MABAS refresher training	

Appendix C cont.

HDB GAP ANALYSIS

Type – Natural

Event – Blizzard

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Commodities to sustain the department for 48 hours • Events may strain local resources and MABAS may not be available to address community needs during event	• Research best means of providing commodities • Explore creation of CERT's for additional support to emergency operations	
Training	1	• Familiarity with severe weather SOP	• Annual review of applicable SOP's	
Community Response	1.3	• Access to incidents and safe scenes	• Review/Create procedures with Police, Public Works, and Utilities	
Regional Response	1.7			

Appendix C cont.

HDB GAP ANALYSIS

Type – Natural

Event – Flood

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Call volume and radio traffic may affect dispatch operations • Events may overwhelm Incident Command (IC) • Events may strain local resources and MABAS may not be available to address community needs during the initial hours of an event • Key city personnel familiar with NIMS	• Radio room operational training • HEOP training • EOC training • Explore creation of CERT's for additional support to emergency operations • Review, update and train on MABAS operations • ICS and NIMS training	
Training	2	• Coordination between departments	• Joint Fire/EMS training	
Community Response	2	• Lack of accurate information • Coordinated scene operations between departments • Access to incidents and safe scenes	• Encourage public to sign up for emergency alerts • Review HEOP, update as necessary • Identify key personnel to be trained in emergency op's plan and maintain list of trained personnel • Review and update procedures as needed with Police, Public Works, and Utilities • Community table top exercise	
Regional Response	2	• Timely implementation of MABAS resources	• Establish MABAS refresher training • Review and update MABAS as needed	

Appendix C cont.

HDB GAP ANALYSIS

Type – HazMat

Event – Railroad Transportation

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Incomplete identification of RR access points • CAD system not fully utilized • Rapid access to current information on handling of specific chemicals	• Identify and preplan access points • Provide refresher training on CAD system • WISER software available on all response vehicles • Identify alternate response routes	
Training	2.3	• Unfamiliarity in use of software programs and other information resources • Lack of training for handling railroad incidents • Ability to quickly activate MABAS and establish large-scale incident management system • Ability to treat patients exposed to hazardous materials	• Train all EMS personnel to Awareness level and establish training requirements • Provide industry training on the first 30 minutes of managing a railroad incident • Training on MABAS plans and activation • Establish Incident Command refresher training schedule • Provide AHLS training to paramedics • Joint Fire/EMS training	
Community Response	1.8	• Lack of HazMat awareness training outside of fire department • Coordinated scene operations between departments	• Provide Awareness level training to key personnel in other city departments • Community table top exercises	
Regional Response	2			

Appendix C cont.

HDB GAP ANALYSIS

Type – HazMat

Event – Roadway Transportation

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• CAD system not fully utilized • Rapid access to current information on handling of specific chemicals	• Provide refresher training on CAD system • WISER software available on all response vehicles	
Training	2.3	• Unfamiliarity in use of software programs and other information resources • Ability to quickly activate MABAS and establish large-scale incident management system • Ability to treat patients exposed to hazardous materials • Officers unfamiliar with handling of railroad incidents	• Train all EMS personnel to Awareness level and establish training requirements • Provide industry training on the first 30 minutes of managing a roadway incident • Training on MABAS plans and activation • Establish Incident Command refresher training schedule • Provide AHLS training to paramedics • Joint Fire/EMS training	
Community Response	1.8	• Lack of HazMat awareness training outside of fire department • County & City emergency notification system under utilized	• Provide Awareness level training to key personnel in other city departments • Increase education and awareness of notification system	
Regional Response	2			

Appendix C cont.

HDB GAP ANALYSIS

Type – HazMat

Event – Fixed Site Facility

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• CAD system not fully utilized • Rapid access to current information on handling of specific chemicals	• Flag Haz Mat locations • Yearly listing of HazMat's and locations within the city. • Provide refresher training on CAD system • WISER software available on all response vehicles	
Training	2.3	• Unfamiliarity in use of software programs and other information resources • Ability to quickly activate MABAS and establish large-scale incident management system • Ability to treat patients exposed to hazardous materials • Coordinated efforts between city departments	• Train all EMS personnel to Awareness level and establish training requirements • Training on MABAS plans and activation • Establish Incident Command refresher training schedule • Provide AHLS training to paramedics • Joint Fire/EMS training	
Community Response	1.8	• Lack of HazMat awareness training outside of fire department • County & City emergency notification system under utilized	• Provide Awareness level training to key personnel in other city departments • Increase education and awareness of notification system	
Regional Response	2			

Appendix C cont.

HDB GAP ANALYSIS

Type – Technology

Event – Communication Failure

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Failure of 911 system • Paging system failure • Cell phone system failure due to high demand	• Seek assistance from IT on how best to minimize outages • Obtain priority access codes from cell phone service provider • Develop emergency op's policy for use of cell phones • Review and assess agreements for alternative PSAP	
Training	2	• Ability to quickly activate alternative communication systems	• Train all personnel on alternative communication systems and procedures	
Community Response	2	• Coordinated efforts between all city departments • Community is unaware or unwilling to use emergency notification system	• Provide appropriate training to key personnel in other city departments • Increase education/awareness of notification system	
Regional Response	2	• Communication with other departments	• Evaluate and assess current communication capabilities with area agencies • Explore MARC's radio system	

Appendix C cont.

HDB GAP ANALYSIS

Type – Human Cause

Event – Terrorism

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2.3	• Awareness of locations, structures and infrastructure vulnerable to attacks	• Identify existing critical facilities with the highest relative vulnerability. • Evaluate inherent and tactical vulnerability of critical facilities; gather information for subsequent refinements of this mitigation plan	
Training	2	• Lack of Awareness • Coordinated scene operations between departments	• Identify training courses and establish training requirements • Work with Police to plan and prepare for terrorist activities, including training and exercises.	
Community Response	2	• Coordinated efforts between all city departments • Community unaware or unwilling to use emergency notification system	• Provide appropriate training to key personnel in other city departments • Increase education/awareness of notification system	
Regional Response	2			

Appendix C cont.

HDB GAP ANALYSIS

Type – Human Cause

Event – Mass Casualty

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	2	• Event may overwhelm Incident Command (IC) and coordination between departments • Event may strain local resources and MABAS may not be available to address community needs during the initial hours of an event	• Routine review and update Hudson Emergency Operations Plan • Identify key personnel to be trained in emergency op's plan and maintain list of trained personnel	
Training	2	• Familiarity with MCI Policy • Ability to activate policies and systems in a timely manner	• Joint fire/ems training • Table top exercises • ICS and NIMS training for key personnel	
Community Response	2	• Timely implementation of Hudson Emergency Operations Plan • Coordinated multi-department effort	• Community table top exercises • Review and update list of needed equipment and transportation agencies	
Regional Response	2	• Coordination with regional agencies	• Review County MCI plan • Participate in regional exercises with local hospitals and/or airports	

Appendix C cont.

HDB GAP ANALYSIS

Type – Technology

Event – Utilities Failure

Mitigation Category	Risk Score	Vulnerability	Improvement Action	Approval Level
Preparedness	1.5	• Sufficient staffing of emergency services • Impact upon key facilities and infrastructures	• Evaluate supply and acquisition capabilities of water, gasoline, etc. • Identify and maintain list of key facilities • Explore means of support to families of response personnel • Review mutual aid and MABAS agreements	
Training	2	• Lack of disaster preparedness training • Safe handling of utilities	• Joint fire/ems training • Disaster preparedness drill • Disaster education for public • Safe handling of utilities	
Community Response	2	• Coordinated scene operations between departments • Coordinated efforts between all city departments • Community alert and instructions using emergency notification system	• Review and update Hudson Emergency Operations plan • Disaster preparedness drill • Encourage public to sign up for emergency alerts	
Regional Response	2	• Timely MABAS activation of needed resources	• Review activation procedures for county resources	