MEDINA COUNTY
EMERGENCY MANAGEMENT AGENCY

HAZARDS ANALYSIS
&
RISK ASSESSMENT

2011 Edition

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MEDINA COUNTY
HAZARD ANALYSIS AND RISK ASSESSMENT

I. INTRODUCTION

A. Purposes

1. To identify the possible risks and hazards that may affect Medina County through a systematic hazard identification and risk assessment process.

2. To develop a common awareness among emergency service agencies, public officials and the public of the major hazards existing in Medina County.

3. To enhance our emergency and disaster response and recovery capabilities for all hazards.

4. To encourage plans and actions for preventative measures and effective response to preserve life and property in areas vulnerable to effects of natural and man-made hazards.

B. Methods of Analysis

How often a disaster may occur (frequency) and the effects or severity of the event are important as a basis for planning emergency response and mitigation. Natural hazards tend to reoccur over time whereas man-made events tend to change as technology changes and our way of doing things change.

Assessing the potential threat from a hazard to a specific location could pose planning challenges. A threat may exist, but the lack of occurrences yields little or no data, making an analysis difficult. Data may not account for changes in land use, which may increase the vulnerability of a geographic area.

As this analysis was developed, the natural hazards affecting Medina County were evaluated using six factors: Historical Occurrence, Affected Area, Warning Time, Population Impact, Fiscal Effects, and Duration. Factors were assigned an even-number numerical value ranging between 2 and 8. The sum totals of factor values were then added, allowing hazards to be compared against each other using the totals. (Figure 1).

1. Historical Occurrence

A record of past events is particularly helpful in evaluating natural hazards. Both the frequency and severity of past events are useful in predicting the future. The past records of man-made events also offer valuable information when tempered with the knowledge of preventative efforts, and changes in technology that may reduce the frequency or severity of such an event. Other man-made hazards exist and must be analyzed without the benefit of past experience. Data indicated the frequency with which events have occurred. Some of the events are quite common over time. Other seldom occurs.

2	4	6	8
Low	**Medium**	**High**	**Excessive**

If there is likelihood of a hazard occurring more than five times within an eight-year period, then that hazard has a Low Probability. If it is likely to occur up to ten times within eight years, it has a Medium Probability. If the hazard is likely to occur more than ten times in eight years, it has a High Probability. There is an Excessive Probability if the hazard is likely to occur ten or more times in one year.

2. Affected Area

Each hazard affects a geographic area. A blizzard can affect the county as a whole and a flood might only affect a neighborhood creek. Numerical values have been assigned that represent the size of the affected area. Example – A tornado might strike a village, a city or part of a township within a county. This would be a Single site. If it strikes more than one village, city, or other sites within a township then there would be Multiple Sites. If the tornado causes damage at multiple sites in two townships the affected sites would be considered a Small Area. If the tornado affects sites in three or more townships or an entire county, then for the purposes of the hazard analysis, it is in a Large Area.

2	4	6	8
Single Site	**Multiple Sites**	**Small Area**	**Large Area**

3. Warning Time

Warning Time has an effect on both the Population and Fiscal Impacts of a hazard. The lead-time required to protect lives and property from a hazard varies greatly with each particular event. For example, drought may develop so slowly that there is time to dig a well, but flash floods can occur with no warning at all.

2	4	6	8
Long (Over 60 minutes)	**Medium (31 – 60 minutes)**	**Short (15 – 30 minutes)**	**Short-None (Under 15 minutes)**

4. Population Impact

Population Impact refers to the number of people affected (casualties) via deaths and injuries that can be expected if a particular event occurs.

2	4	6	8
No casualties	**Low (1-5)**	**Medium (6-10)**	**High (10+)**

5. Fiscal Effects

Refers to the monetary damage losses suffered in an event. This type of vulnerability can very greatly between communities based on economic, geographic, demographic, and legal considerations.

2	4	6	8
Minimum	**Low**	**Medium**	**High**
($0-$9,999)	**($10,000-$49,999)**	**($50,000-$99,999)**	**(Over $100,000)**

6. Duration

Duration may be referred to as "time on the ground". It is that time period when the hazard is actively present and causing damage. A HAZMAT spill may last only a few minutes or a flood may continue for a week. Thus, duration is not always an indicator of how damaging a hazard can be.

2	4	6	8
Minimum	**Short**	**Medium**	**Long**
(Up to 1 hr.)	**(1-12 hrs.)**	**(13 hrs. – 1 week)**	**(Over 1 week)**

C. Selection of Hazards

A comprehensive list of potential hazards was used as a checklist of disasters that occur or might occur in Medina County. The following hazards, which are shown in the charts as a community-by-community hazard assessment, have been addressed in this analysis:

MEDINA COUNTY COMMUNITY-BY-COMMUNITY HAZARD ASSESSMENT NATURAL

	FLOODS	DROUGHT	WINTER STORMS	TORNADOES	SEVERE STORMS	SUBSIDENCE	LANDSLIDES	EARTHQUAKES	WILDFIRES	DAM FAILURES
CITIES										
BRUNSWICK	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
MEDINA	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
WADSWORTH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	NO RISK	MEDIUM	NO RISK	LOW
VILLAGES										
CHIPPEWA LAKE	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	NO RISK
GLORIA GLENS	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	NO RISK
LODI	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	NO RISK
SEVILLE	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	NO RISK	MEDIUM	NO RISK	NO RISK
SPENCER	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	NO RISK
WESTFIELD CENTER	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	NO RISK
TOWNSHIPS										
BRUNSWICK HILLS	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
CHATHAM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
GRANGER	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
GUILFORD	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	NO RISK	MEDIUM	NO RISK	LOW
HARRISVILLE	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
HINCKLEY	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
HOMER	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
LAFAYETTE	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
LITCHFIELD	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
LIVERPOOL	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
MEDINA	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
MONTVILLE	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
SHARON	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
SPENCER	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
WADSWORTH	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	LOW	NO RISK	MEDIUM	NO RISK	LOW
WESTFIELD	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW
YORK	MEDIUM	MEDIUM	MEDIUM	MEDIUM	MEDIUM	NO RISK	NO RISK	MEDIUM	NO RISK	LOW

MEDINA COUNTY COMMUNITY-BY-COMMUNITY HAZARD ASSESSMENT

	HAZMAT INCIDENTS	*RADIOLOGICAL*	*SOLID WASTE DISPOSAL*	*CIVIL DISTURBANCES RIOTS, TERRORISM*
CITIES				
BRUNSWICK	MEDIUM	LOW	LOW	LOW
MEDINA	MEDIUM	LOW	LOW	LOW
WADSWORTH	MEDIUM	LOW	LOW	LOW
VILLAGES				
CHIPPEWA LAKE	MEDIUM	LOW	LOW	LOW
GLORIA GLENS	MEDIUM	LOW	LOW	LOW
LODI	MEDIUM	LOW	LOW	LOW
SEVILLE	MEDIUM	LOW	LOW	LOW
SPENCER	MEDIUM	LOW	LOW	LOW
WESTFIELD CENTER	MEDIUM	LOW	LOW	LOW
TOWNSHIPS				
BRUNSWICK HILLS	MEDIUM	LOW	LOW	LOW
CHATHAM	MEDIUM	LOW	LOW	LOW
GRANGER	MEDIUM	LOW	LOW	LOW
GUILFORD	MEDIUM	LOW	LOW	LOW
HARRISVILLE	MEDIUM	LOW	LOW	LOW
HINCKLEY	MEDIUM	LOW	LOW	LOW
HOMER	MEDIUM	LOW	LOW	LOW
LAFAYETTE	MEDIUM	LOW	LOW	LOW
LITCHFIELD	MEDIUM	LOW	LOW	LOW
LIVERPOOL	MEDIUM	LOW	LOW	LOW
MEDINA	MEDIUM	LOW	LOW	LOW
MONTVILLE	MEDIUM	LOW	LOW	LOW
SHARON	MEDIUM	LOW	LOW	LOW
SPENCER	MEDIUM	LOW	LOW	LOW
WADSWORTH	MEDIUM	LOW	LOW	LOW
WESTFIELD	MEDIUM	LOW	LOW	LOW
YORK	MEDIUM	LOW	LOW	LOW

The process of hazard analysis previously defined was applied for Medina County. A numerical rating value was developed of each factor (Figure 1).

Figure 1
HAZARD SUMMARY
(Ranking by Factor Value)

HAZARD TYPE: / ANALYSIS FACTORS:	FLOODS	DROUGHT	WINTER STORMS	TORNADOES	SEVERE STORMS
Historical Occurrence	6	4	6	2	8
Affected Area	8	6	6	4	4
Warning Time	8	2	2	8	2
Population Impact	2	2	2	2	2
Fiscal Impact	6	8	4	6	2
Duration	4	8	6	2	2
TOTAL	**34**	**30**	**26**	**24**	**20**

II. COUNTY PROFILE

Medina County was established on February 18, 1812. It is located in northeast Ohio and is a part of the Western Reserve Territory. Cuyahoga and Lorain Counties border the county to the north, Summit County to the east, and Wayne and Ashland Counties to the south.

Medina County political subdivisions include 3 cities, 17 townships, and 8 villages; including Rittman and Creston, which are primarily in Wayne County. The county covers 424.74 square miles with a ridge traversing the county from east to west. This forms a continental divide that causes drainage to flow north to Lake Erie from the Rocky River and Black River basins and south to eventually the Gulf of Mexico from the Kilbuck, Chippewa, and River Styx basins.

A highway system that includes township, county, state, interstate, and federal highways exceeding 1,000 miles services the county. Also, the county has rail service that crosses the county and provides service delivery to the industrial sectors.

Population within the county has continued to grow, with the county continuing to be one of the top growth counties in the state. Current population estimates indicate that the population has reached 172, 332 (2010 estimates), making it the sixteenth most populous county in the State, and one of the top ten fastest growing counties in Ohio.

III. NATURAL HAZARDS

A. Floods

Floods, with the highest hazard rating of 34, represent the primary natural disaster threat to Medina County.

The flooding data used represents countywide flooding and does not include the regular occurrences in the Chippewa Lake area.

Medina County can experience three types of floods: Riverine (overflow of rivers and streams from rain/melt water); Flash (Fast rising of streams or "dry-gulch" waters after heavy rain/snowmelt); and Urban (Overflow of storm sewers and streets after heavy rainfall).

Most flash flooding is caused by slow-moving thunderstorms, or thunderstorms repeatedly moving over the same area. Occasionally, floating debris or ice can accumulate at a natural or manmade obstruction and restrict the flow of water. Water held back by the ice jam or debris dam can cause flooding upstream. Subsequent flash flooding can occur downstream if the obstruction should suddenly release.

As land is converted from fields or woodlands to roads and parking lots, it loses its ability to absorb rainfall. Urbanization increases runoff 2 to 6 times over what would occur on natural terrain. During periods of urban flooding, streets can become swift moving rivers, while basements can become death traps as they fill with water.

History

The county has had 24 incidents involving flooding in the last eighteen years. Six Presidential Declarations were issued to Medina County; 1964, 1969, 1992, 2003, 2004and 2005; all resulting from flooding. The 1992 declaration was for flooding and tornado destruction.

Vulnerability/Maximum Threat

The following are municipal corporations that have 100-year floodplains within their boundaries: Cities of Brunswick, Medina, and Wadsworth along with the Villages of Chippewa Lake, Gloria Glens, Lodi, and Seville.

The most flood prone areas within Medina County are the Chippewa Lake Watershed, and river basins of the Chippewa River, Styx River, Rocky River, Black River, and areas located inside the 100-year flood plain.

Probability

Medina County will continue to face minor flooding annually. The occurrence of severe floods in the county cannot be predicted. However, the county can be expected to continue to face occasional ice jams, yearly flash floods and seasonal flooding.

B. Drought

Drought is a natural hazard threat with a hazard rating of 30, making it the second leading hazard for the county.

A drought is a prolonged period of abnormally dry weather. The lack of sufficient precipitation, usually rain, causes serious hydrologic unbalances. Droughts are usually of two types. Agricultural drought is usually characterized by harm to crops and livestock. Hydrological drought is characterized by depletion of groundwater supplies, reduction in stream flows, and lowered lake and reservoir levels.

Droughts in Ohio usually occur in summer months. It could occur in the winter if frozen ground prohibits recharge of ground water, absence of water for plant survival, or water supplies are depleted. Droughts in the summer are often accompanied with extreme temperatures or heat waves.

The impacts of droughts can be far-reaching. Droughts vary in geographical area from a region of the United States to one or more areas of several square miles within a state or county. Drought conditions impact both rural and urban areas resulting in significant economic and social consequences. An increased population demand upon water supplies, both individual and municipal, demands from agriculture crops, needs of livestock and human consumption, and industrial and leisure demands all affect drought conditions.

The more common summer droughts, usually accompanied by extremely hot weather, can also lead to outages of electric power. Reduced electric transmission efficiency and significantly increased demand due to increased use of air conditioning cause these outages. These can also be a delayed impact upon agricultural product costs in ensuing months.

History

Medina County has been affected by droughts at least eight times since 1991. Many of these occurrences lasted a month or longer, with extensive crop loss. For this reason alone, drought is a very severe hazard for Medina County.

Vulnerability/Maximum Threat

Medina County in its entirety will continue to be threatened by drought. The rural and farm areas not served by the public water service will be affected the most. Significant impact may also occur to the municipalities and villages that utilize wells due to their lack of

recharge. Possible areas of concern are Wadsworth City, Seville Village, Westfield Center, and Lodi Village.

Probability

The county will continue to have minor problems annually. The occurrence of severe drought in the county can not be predicted.

C. Winter Storms

Winter storms, with a hazard rating of 26, are the third leading weather threat to Medina County.

Winter storms may be 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. Heavy accumulations of ice can also bring down trees, electrical wires, telephone poles and lines, and communication towers. Extreme cold often accompanies a winter storm or is left in its wake.

Winter storms can adversely affect roadways, utilities, and business activities, while a rapid thaw often causes flooding.

Medina County has adopted the Ohio Attorney General Opinion 97-015, which allows a County Sheriff to declare a snow emergency and temporarily close roads within his jurisdiction for the preservation of the public peace. This includes all townships, municipal, county and state roads within his jurisdiction. When the Sheriff declares a snow emergency he will state what level of emergency the county is under, the levels are as follows:

Level 1- Roadways are hazardous with blowing and drifting snow. Roads may also be icy. Drive with caution.

Level 2- Roadways are hazardous with blowing and drifting snow and or ice. Only those who feel it is necessary to drive should be out on the roadways. Driving should be limited to emergencies and urgent trips only. Contact your employer to see if you should report to work.

Level 3- All roadways are closed to non-emergency personnel. No one should be out during these conditions unless it is absolutely necessary to travel. All employees should contact their employer to see if they should report to work. Those traveling on the roadways may subject themselves to prosecution.

History

On the average, Medina County has one severe winter storm a year. The storm is usually severe enough in nature that the Emergency Operations Center (EOC) is staffed at a minimum with Emergency Management personnel. There have been 43 snow and ice events from 1993-2010, 41 of those 43 events have caused over $214 million in damages.

Vulnerability/Maximum Threat

Everyone is potentially at risk during winter storms. With the increase in the severity of these storms over the years, and with more and more damage to the economy, it has become harder for public officials to close down operations to include the schools, therefore causing the people to have to travel in extreme weather conditions to get to work. This then poses a greater danger to the safety of life and property. Therefore, citizens may die in traffic accidents due to icy roadways, from a heart attack while shoveling snow, or from hypothermia from prolonged exposure to cold. A storm like the one in 1977-78, these days, would be catastrophic on the fragile economy.

Probability

The severity and frequency of major winter storms is expected to remain fairly constant. However, due to increased dependence on various modes of transportation and use of public utilities for light, heat and power, the disruption by these storms is more significant today than in the past.

A. Tornadoes

Tornadoes are the fourth most severe natural threat with a hazard rating of 24.

Tornadoes are violent, rotary, windstorms of varying sizes and can achieve speeds over 200 mph. They can be accompanied or followed by severe thunderstorms, downbursts, straight-line winds, lightning, hail, and heavy rains. Tornadoes can occur anywhere, anytime of the year with most likely occurrence in spring or early summer. The impact can be unpredictably sudden and severe. The potential for losses in life and property damage is high, coupled with an ability to overwhelm most response capabilities.

In an average year, 800 tornadoes are reported nationwide, resulting in 80 deaths and over 1,500 injuries. The most violent tornadoes are capable of tremendous destruction with wind speeds of 200 mph or more. Damage paths can be in excess of one mile wide and 50 miles long. Tornadoes are most likely to occur in our county from April through July between 2:00 and 10:00 p.m. but may occur at all hours of the day or night throughout the year.

History

There are 10 times more tornadoes in the United States than any other nation in the world. Since 1950, Medina County has had seventeen tornadoes touchdown, causing two deaths. These numbers have placed us third in the state for tornado occurrence.

Three presidential declarations were given to Medina County due to tornadoes in 1965, 1992, and 2002. The 1992 declaration was a dual, for flood & tornado.

Vulnerability/Maximum Threat

The enormous power and destructive capability of tornadoes are beyond mankind's capabilities to control. The severity of the effects of a tornado will continue to be high. We

will continue to experience deaths, injuries, and property damages as a result of these phenomena. However, technological advances will facilitate earlier warning than previously available. This combined with a vigorous public education program and improved construction techniques, provide the potential for significant reductions in the number of deaths and injuries as well as a reduction in property damage.

Probability

The frequency of tornadoes occurring in the county remains constant. The impact from a tornado occurring in the county now would have a stronger impact due to the increase in the population.

A. Severe Storms

Severe storms are the fifth natural hazard threat with a value of 20.

The typical thunderstorm is 15 miles in diameter and lasts an average of 30 minutes. Despite their small size, all thunderstorms are dangerous. Every thunderstorm produces lightning, which kills more people each year than tornadoes. Heavy rain from thunderstorms can lead to flash flooding. Strong winds, hail, and tornadoes are also dangers associated with some thunderstorms.

History

Every year, Medina County experiences severe storms. Between 1950 & 2004, there have been 170 reported thunderstorms and high wind events; 16 of which produced damaging hail, costing $311,000. These storms may also produce other natural hazards previously covered in this analysis. Severe storms, like the other natural hazards, are beyond mankind's capabilities to control.

Vulnerability/Maximum Threat

Every citizen in the county is potentially at risk during a severe storm, due to the possibility that the storm may produce lightning, flooding, or possibly tornadoes.

Probability

The frequency of severe storms is expected to remain fairly constant. However due to the continual increase in population and the use of public utilities for light, heat and power, the disruption by these storms is more significant today than in the past.

The following hazards were not analyzed using the previous six factors due to their lack of occurrence.

F. Subsidence and Landslides

Subsidence is defined as a drop in the earth's surface due to a collapse in bedrock and other underlying material (sand, gravel) into underground mines. Landslides or Mudslides are defined as a downward, outward movement of slopes due to rains, or snow melting with accompanying damage and debris deposition. These may also include sudden collapses of tunnel walls, supports, or mines with resulting damages to surface structures or features, such as highways or buildings.

Subsidence and landslides include three types: a *rotational slump* occurs when weak rock or sediment move as a mass in slow or imperceptible movement; *Earthflow*, which is more common, involves rock/sediment, or weathered surface materials flowing downslope in a mass; and *Rockfall* is characterized as the most rapid (and dangerous) form of movement. Rock from a cliff or cut will fall onto roadbeds, highways, or structures. This action is common during late winter and early spring during periods of freezing and thawing. A majority of these events may be caused by traffic vibrations, undercut slopes, increased weight on slopes, the removal of vegetation, and ensuing erosion.

History

While no subsidence of note has occurred, Wadsworth City, Wadsworth Township, and Guilford Township did have significant areas of coal mining, which allows the possibility of a hazard to occur.

Vulnerability/Maximum Threat

If the county did have an occurrence of subsidence in one of the above-mentioned areas, approximately one half of the population of that area could be affected.

Probability

As development occurs in the townships that are listed above, minor scattered individual incidents may occur.

G. Earthquakes

Earthquakes are a rapid motion of the ground with shaking, faulting (surface and subsurface) and ground failure.

At least 120 earthquakes with epicenters in Ohio have been felt since 1776 and 14 of these events have caused minor to moderate damage. There have been no deaths, only minor injuries in Ohio.

Seismic activity is concentrated in, but not confined to, three areas of the State. The most active area with at least 40 earthquakes felt since 1875 is the Anna seismogenic zone centered in Shelby County, which is located in western Ohio. In northeastern Ohio, the

majority of events occur in the Lake County area. There is also some occurrence in southeastern Ohio.

Ohio would also be affected by earthquakes generated by the New Madrid Fault, which runs from Arkansas to Indiana along the Mississippi River Valley. This fault generated the most powerful earthquakes ever documented in the Continental United States during a four-month period in 1811 and 1812.

History

There have been a few instances in Medina County that seismic activity has been felt. According to the Ohio Seismic Network (ODNR), the last earthquake recorded that began in Medina County was a 2.8 magnitude and it was in 1998 on Christmas day at 9:22PM. However, there was no damage or injuries reported.

Vulnerability/Maximum Threat

Medina County does fall within the area predicted to be affected by disturbances along the New Madrid Fault, which runs from Arkansas to Indiana. We can sustain significant amounts of damage from an earthquake that may occur anywhere along this fault line.

Collateral damage from earthquakes could be extensive and might include hazardous material spills, landslides, subsidence, dam failures, fire, groundwater contamination, pipeline breaks, infrastructure disruptions, epidemics, looting, and floods.

Probability

Earthquakes pose a minor threat to Medina County but the National Earthquake Center has stated that there is a probability that the county will have an earthquake with moderate damage within the next 25 years.

H. Wildfires

A wildfire is an uncontrolled burning of forests, farm and wastelands. Grass and woodland fires usually occur in spring or autumn as a result of careless burning or arson. Experts indicate that the average rural fire can burn for 20 minutes prior to discovery.

History

Medina County has many rural grass fires annually but due to the natural habitat of the county, they do not pose a significant threat.

Vulnerability/Maximum Threat

Urban conflagration could have a strong economic impact on the county and local government. This occurred in the City of Medina in the late 1800's with the burning of the square. There are 5 areas in the county that are typical and susceptible to this potential occurrence. Due to the age of the buildings and existing water supply to these buildings, another fire of this type could have devastating results. The communities that have this

concern are the Cities of Medina, and Wadsworth, and the Villages of Seville, Spencer and Lodi.

Probability

The probability of either a wildfire or urban conflagration occurring is small but the impact that would occur to the county government and the economy if either occurred would be devastating.

I. Dam Failures

A dam failure is a gradual or immediate collapse or failure of water impounding a system or structure, which results in downstream damages.

In Ohio, dams have been divided into four classes (I, II, III, and IV) based upon downstream threat potential. The failure of the Class I dam would result in the probable loss of life or a serious hazard to health, property, and high-value industrial or commercial properties and public utilities. These include dams with a volume over 5,000 acre-feet or height greater than 60 feet. Class I damages pose the highest threat to human life, but Class II and III also pose a threat if affected.

History

There are 14 Class I dams in Medina County. The following locations have 1 (one) class I dam in their area: Brunswick City, Wadsworth City, Guilford Township, Hinckley Township, Medina Township, and Sharon Township. Montville Township has 7 class I dams. There are 19 class II dams, 33 class III dams, and 64 class IV dams in Medina County. (Figure 2).

Figure 2
DAM LOCATIONS

MUNICIPALITY	***CLASS I***	***CLASS II***	***CLASS III***	***CLASS IV***	***TOTAL***
Brunswick City	1	1	0	1	**3**
Medina City	0	3	0	4	**7**
Wadsworth City	1	1	0	2	**4**
Brunswick Hills Twp.	0	1	0	2	**3**
Chatham Twp.	0	1	5	3	**9**
Granger Twp.	0	1	2	2	**5**
Guilford Twp.	2	1	0	2	**5**
Harrisville Twp.	0	0	0	4	**4**
Hinckley Twp.	1	3	2	6	**12**
Homer Twp.	0	0	2	2	**4**
Lafayette Twp.	0	1	2	4	**7**
Litchfield Twp.	0	0	0	6	**6**
Liverpool Twp.	0	2	1	2	**5**
Medina Twp.	1	2	5	5	**13**
Montville Twp.	7	0	5	3	**15**
Sharon Twp.	1	1	2	1	**5**
Spencer Twp.	0	0	3	4	**7**
Wadsworth Twp.	0	1	1	1	**3**
Westfield Twp.	0	0	1	7	**8**
York Twp.	0	2	2	3	**7**
TOTAL	**14**	**19**	**33**	**64**	**132**

There are no dam locations in the villages in Medina County.

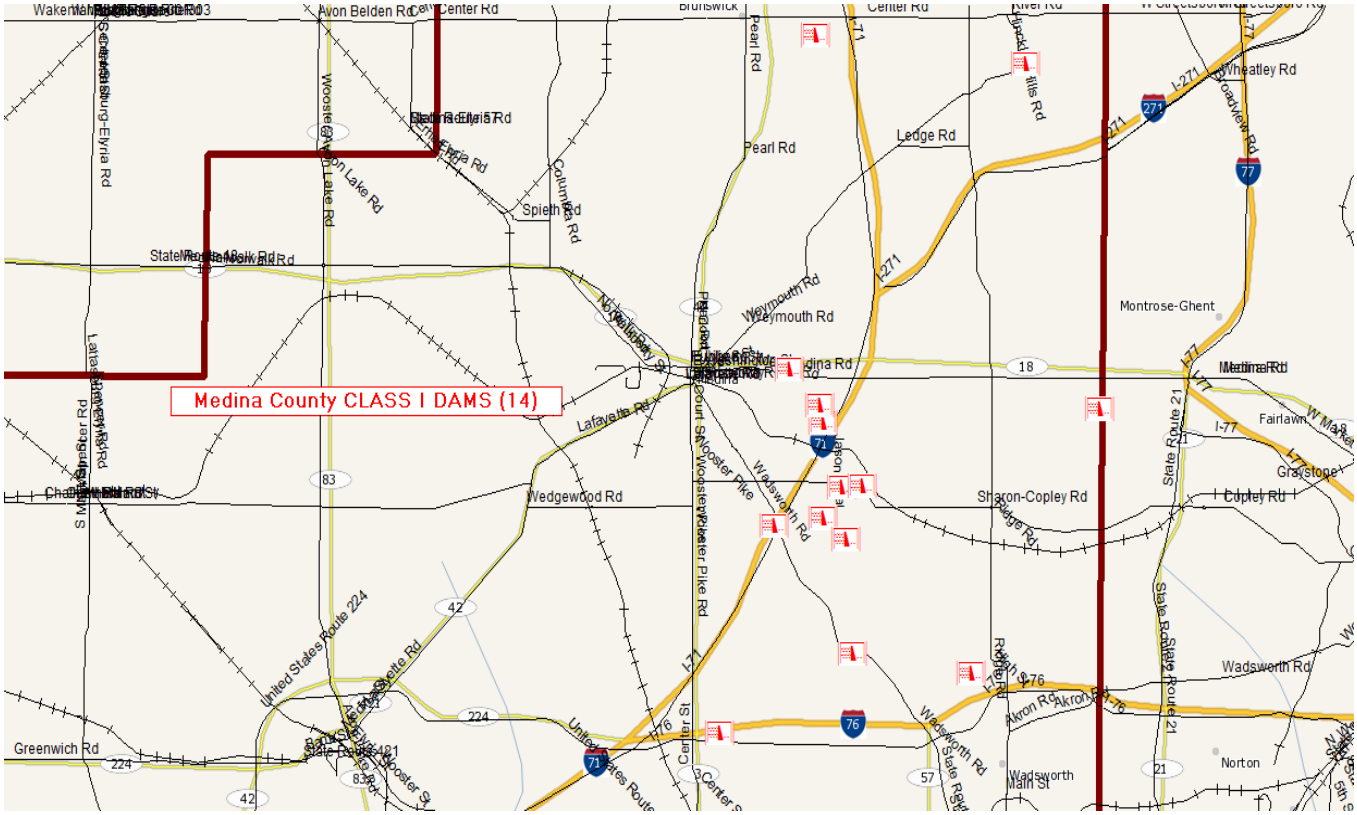
Vulnerability/Maximum Threat

The areas that would be the most affected are the ones that are downstream for approximately ½ mile from the Class I (Figure 3) and Class II dams. Class III dams may produce minor damage but do not pose a severe threat.

Probability

The threat of dam failure should remain low in Medina County with continued maintenance and inspection programs by the Ohio Department of Natural Resources (ODNR) of all dams.

Figure 3
CLASS I DAM LOCATIONS



IV. TECHNILOGICAL HAZARDS

A. Hazardous Materials (HazMat) Incidents (Spills, releases)

A hazardous material event is a spill of toxic or noxious material at a fixed site or in a transportation accident. There are an increasingly large number of chemicals, oils, radioactive materials and other hazardous substances spilled as the result of highway, rail and waterway accidents, storage tank leakage, pipeline break, or other "unscheduled events." On occasion, these events reach major (disaster) proportions and force people to evacuate and/or lose their homes and businesses.

Until the 1970's, spills of materials now classified as "hazardous" received little attention. After serious incidents at Bophal, India and in West Virginia in the mid-1980's, Congress passed the Superfund Amendments and Reauthorization Act (SARA Title III) legislation, which established emergency planning and community right-to-know programs as a permanent part of community preparedness. States and counties are now required to initiate hazard materials plans. In the late 1980s according to Ohio EPA, Ohio ranked second in air pollution, third in total toxin release, and third in the release of carcinogens.

History

From 1991 to present, Medina County has had a total of 120 hazardous materials incidents that required some type of response.

Section 3745.13 of the Ohio Revised Code authorizes cost recovery for emergency actions taken at the scene of a hazardous materials incident. Since 1991, emergency response agencies in Medina County collected over $149,000.00 in cost recoveries from hazardous materials incidents.

Vulnerability/Maximum Threat

There are 44 companies within the county that have extremely hazardous substances (EHS) on site (see figure 4 for locations), and 52 companies that have hazardous chemicals. All of these companies must comply with SARA Title III by filing paperwork with their local fire department and the Medina County Emergency Management Agency (MCEMA).

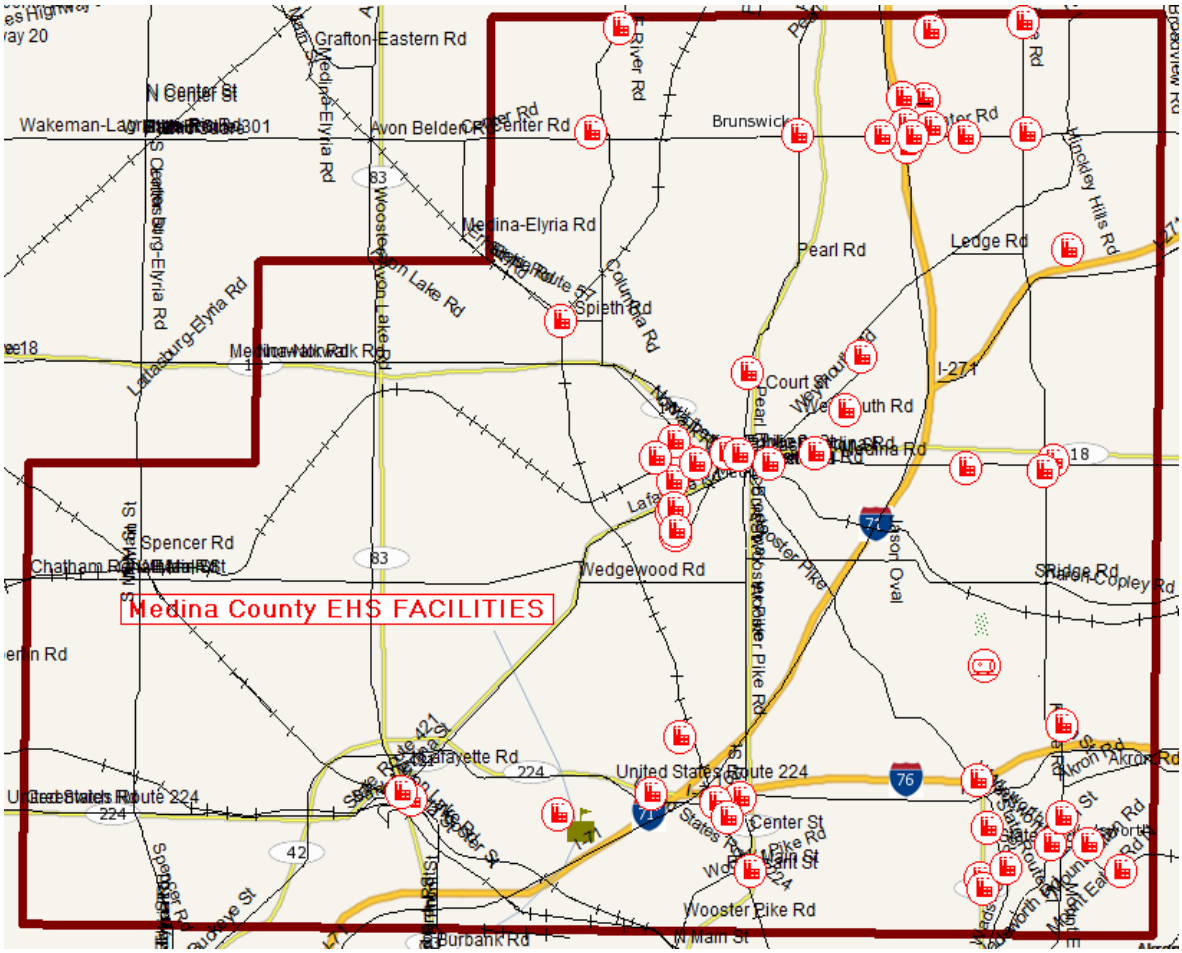
MCEMA has developed a site-specific preplan and evacuation zone for each of the EHS sites, which can be found in the Medina County Emergency Operations Plan (EOP) Hazardous Materials Annex.

Hazardous materials may also be transported through our county on one of the 16 major roadways that dissect our county or by rail. An initial transportation corridor study was done in 1998 and updated in 2010 for our county. The new study states that there are approximately 14.2 million trucks traveling through our county each year. Of this total, 760,000 trucks are carrying hazardous materials, 5% of commercial truck traffic. For the average, only 5% of all trucks traveling through the county each day had placards stating that they were transporting hazardous materials. However, many more are carrying less than the 1,000 pounds required for placarding. Experience has shown that approximately 40% of all trucks transport some type of hazardous material. There are also over 65,000 carloads each year of hazardous materials traveling through the county by rail.

Probability

As long as hazardous materials are produced and transported through the county, there will continue to be the possibility for a hazardous material incident to occur. If an incident occurred on a transportation corridor, the affected area might be ½ mile in either direction, which could affect approximately 75% of the county's population. This would have a major affect on the county and its citizens. However, due to knowledge and education of the emergency responders, the situation should be handled efficiently.

Figure 4
EXTREMELY HAZARDOUS SUBSTANCES FACILITY LOCATIONS



II. Radiological Incidents

Radiological incidents can be intentional (terrorism) or unintentional (accidents). An uncontrolled release, misuse, or loss of radioactive material or containers (transportation accident) is considered a peacetime radiological incident. Intentional acts may include dirty bombs, contaminating the food/water supplies, attacking nuclear reactors or any other kind of intentional sabotage to harm mass amounts of people.

Contamination can force the closing of businesses, the imposition of quarantines, and result in costly recovery.

History

There has been one radiological incident in Medina County, it occurred in Liverpool Township on June 4, 2002 and involved a low form of radioactive material used for medical purposes. Also, movement of low level and high-level waste material to new storage facilities in and out of the county/state has begun.

Vulnerability/Maximum Threat

With movement of radioactive material through the state, the potential for an incident will increase. The area affected would be a ½ mile in each direction on the interstate corridors. This would affect approximately 75% of the county population. There are however restricted routing requirements for transportation of this material.

The county has radiological trained personnel with radiological monitors to detect radiological leaks. If a leak were detected, they would contact the Ohio Emergency Management Agency and the Ohio Department of Health for containment and clean up.

Probability

As stated above, the probability of an accident involving radioactive materials could increase due to the increased movement of radioactive materials through the county, but due to the safety precautions and transportation rules and regulations, the probability of an incident occurring will remain low.

C. Solid Waste Disposal Problems

Medina County has a Central Processing Facility (CPF) that processes all types of materials. The facility operates one (1) shift a day. With the growing county population and housing units, the CPF would have to increase its operating time if a disaster occurred.

The County also has a composting facility for tree and lawn waste material.

The county does not have an Environmental Protection Agency (EPA) certified landfill, but does have a construction material landfill in Liverpool Township.

If a disaster were to occur in Medina County that would cause significant damage, there would be an abundance of solid waste that would have to be trucked out to landfills that are 50 to 75 miles away.

History

Medina County has had a few tornadoes that have caused minor to moderate damage. Luckily, the damage happened to a small percentage of homes, which did not cause a problem of major debris removal. The composting facility was able to handle the increased level of tree and lawn waste material caused by the tornadoes.

We have not had a disaster of the magnitude that has taxed the county with waste removal.

Vulnerability/Maximum Threat

If a major disaster occurred, it would tax the ability of the CPF to handle the overflow of debris. It would not be able to process large debris such as appliances, furniture, carpeting, etc. Solid Waste and Debris Management plans are in place that suggests other facilities capable of handling some of the items that the CPF is not.

Probability

There is always the possibility of the county experiencing a disaster. It would depend on the magnitude of that disaster as to whether the CPF could handle the overflow of debris or not.

V. Other, Unspecified Hazards

A. Civil Disturbances, Riots, Terrorism

Civil disturbances result in disruption of civil order and peace and require police actions to control or suppress civil disturbances (labor disputes, riots, terrorism, sabotage, and vandalism).

Civil disturbances include strikes (1920's-40's); demonstrations and rioting (late 1960's) in cities and on campuses. Events of this nature are not commonplace in Medina County.

Terrorism is a form of violence aimed at a public audience. The Federal Bureau of Investigation defines terrorism as "the unlawful use of force or violence against persons or property to intimidate or coerce a government, civilian population, or any segment thereof in furtherance of political or social objectives." The FBI excludes racially or religiously motivated acts of violence ("hate crimes").

The victims may not always be the intendeds, or the most concerned elements of society. Terrorists select times, weapons and tactics to achieve objectives.

History

Medina County has not had any major civil disturbances. This does not mean that a disturbance couldn't occur at any time. Cleveland and Akron are listed in the top 120 cities in the country that are target cities for terrorism. Due to Medina County's proximity to these cities, it is listed as a secondary target to reduce our ability to provide mutual aid assistance.

Vulnerability/Maximum Threat

The areas of vulnerability would be county government and population centers for a terrorism attack. The schools in the county could also become areas of civil disturbance.

Probability

The probability of Medina County being the target of a terrorist attack is low. The probability of a civil disturbance occurring at a school is unknown. The security at schools has increased due to the civil disturbances that have occurred at other schools in the country.

VI. Summary

Medina County by virtue of its terrain and location is subject to the most common natural hazards such as flooding, droughts, winter storms, and tornadoes. These natural events threaten almost every segment of the county.

Medina County has not experienced any severe human-caused disasters. However, it is not immune to the ongoing threat of hazardous materials incidents, fires, transportation accidents, or dam failures. Of all the man-caused hazards analyzed, hazardous materials incidents seem to command immediate attention. The dramatic increase in the use, transport and manufacturing of hazardous materials and the increase in hazardous materials accidents, should be cause for concern by the emergency response community in our county. Less predictable are weapons of mass destruction, domestic terrorism, school violence, and civil disturbances.

Responsibility for managing emergencies begins at the local level of government in the State of Ohio. As the scope of a disaster or the level of resources required increases, the county and even state agencies may become involved. Therefore, it is important that every level of government assess the hazards that threaten their communities so that appropriate response, precautions and preventive measures can minimize the effects of these events.

Identification of the primary hazards affecting Medina County will assist in development of emergency operations plans, mitigation, recovery plans, and development of land use, subdivision and zoning regulations, training, and grants for special projects like early warning systems.

VII. References

A. Medina County Emergency Management Agency records

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E. Storm Data, 1991 to 1999, National Oceanic and Atmospheric Administration.

F. Medina County Planning Commission, county census information

G. University of Akron, Institute for Policy Studies, Factbook for Medina County, Ohio. Fall, 1998 edition.

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I. HazardMaps.gov

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