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Including the cities, villages and townships

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DESCRIPTION OF THE PLANNING AREA – COLUMBIANA COUNTY
Including the cities and villages of the county

COLUMBIANA COUNTY

Columbiana County is located in the northeastern portion of Ohio on the dissected Allegheny Plateau and is part of the state's Appalachian Region. Mahoning County borders Columbiana County to the north; the Ohio River as well as Lawrence and Beaver Counties in Pennsylvania makes up the eastern border; Carroll and Jefferson Counties border the south; and Stark County makes up the western border. The county contains 13 municipalities, including the villages of Hanoverton, Leetonia, Lisbon, New Waterford, Rogers, Salineville, Summitville, Washingtonville, and Wellsville and the cities of Columbiana, East Liverpool, East Palestine and Salem. The county was established in May of 1803, and is named for Christopher Columbus and Queen Anna. According to the 2000 Census, the highest concentration of residents live in the cities of East Liverpool and Salem.

Columbiana County's transportation infrastructure is comprised of land, air, and water components. The county contains approximately 252 miles of state highway and 50 miles of U.S. highway. US Routes 30 as well as State Routes 14, 39, 154 and 172 cross the county east west. US Route 62 and State Routes 7, 9, 11, 45, and 170 run north south. Three (3) small commercial airports, several miles of railroad, and the Ohio River are also vital to the county's transportation infrastructure. The closest airport with scheduled airline service is the Greater Pittsburgh International Airport. Columbiana County encompasses approximately 533 square miles of land.

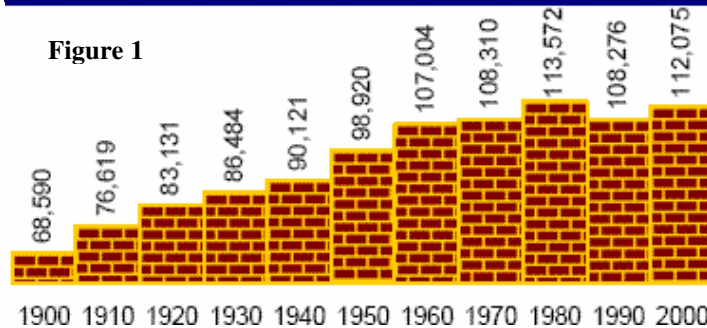
Though Columbiana County contains several miles of highway, there are villages with limited access such as Summitville. Limited access creates a problem if those areas are required to evacuate during an emergency.

The Ohio River makes up the entire eastern border of Columbiana County, flowing past several villages and cities, including Wellsville, East Palestine and East Liverpool. There is a great deal of barge traffic on this portion of the Ohio River. The Ohio River provides the majority of the drainage for the county, with Little Beaver and Yellow Creeks providing smaller drainage areas.

According to the 2000 Census, Columbiana County has a population of 112,075 (see Figure 1), which is a significant increase from 1990. Census figures also cite 46,083 housing units in the county, with an average of 2.43 persons per household. Further, the median household income is listed at \$34,226.

Columbiana County Population Growth 1900 - 2000

Figure 1



The majority of Columbiana County's land cover is wooded or forested; nearly 54% or 183,828 acres, of the total land cover is forested. According to the Ohio Department of Development, 1,170 individual farms operate in Columbiana County, with an average size of 130 acres per farm. 152,000 acres of land is devoted to farmland.

Columbiana County has a diverse employment background. According to Census 2000 information, the largest areas of employment are manufacturing, trade and service (as illustrated in Figure 2). Total employment is currently 49,100 persons. The unemployment rate stands at approximately 5.1%, ranking 28th among Ohio's 88 counties. In 2002, a total of 169 new businesses opened while 123 closed, creating a net formation of 46 new businesses. This net brought the total number of active businesses to 2,077 in 2002.

EMPLOYMENT BY INDUSTRY, 2000

LMI (place of work data)

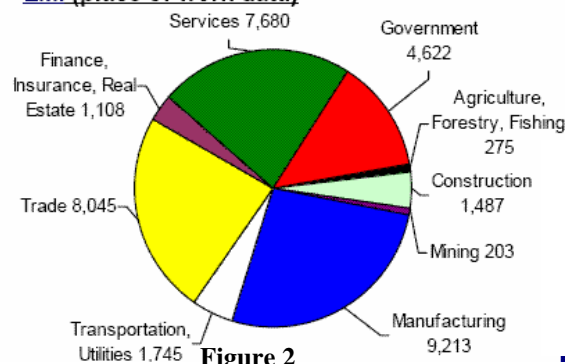


Figure 2

The climate of Columbiana County is affected by air masses from Canada and the Gulf of Mexico and is classified as continental. It is marked by large annual and day-to-day ranges of temperature. Summers are moderately warm and humid with temperatures equal to or greater than 91 degrees Fahrenheit. Winters are cold and cloudy with temperatures equal to or less than -3 degrees Fahrenheit. The mean annual precipitation for the county is 37 inches, including 20-25 inches of snowfall.

The education system in Columbiana County consists of 42 public schools at which 17,467 students attend and 1,157 teachers instruct, as well as five (5) private schools at which another 619 students attend. There is currently one (1) private college (Allegheny Wesleyan College), as well as two (2) branches of Kent State University located near East Liverpool and Salem. The graduation rate stands at 87 percent.

There are several health care facilities located in Columbiana County. Currently, two (2) registered hospitals including, East Liverpool City Hospital and Salem Community Hospital, have a total of 448 available beds. There are five (5) licensed residential care facilities with 247 available beds and 13 licensed nursing homes with 1,012 available beds. The hospitals are among the largest employers in Columbiana County. The county's communications network consists of two (2) radio stations and three (3) daily newspapers, including "The Morning Journal", "the Salem News" and "The East Liverpool Review" which are distributed to 36,332 residents.

COLUMBIANA CITY

The City of Columbiana is located in northeastern Columbiana County in Fairfield Township. The major highways accessing the city include US Route 30, and State Routes 7, 11, 14, and 164. The City of Columbiana is a charter community operating with a Mayor-Council-Manager form of government. The city, formerly known as the Village of Columbiana provides police, fire, and EMS services, and owns and operates water, sewer and electric facilities. The city is located 17 miles from Youngstown, 78 miles from Cleveland, and 58 miles from Pittsburgh, and offers commercial areas, Industrial parks, manufacturing and foundries.

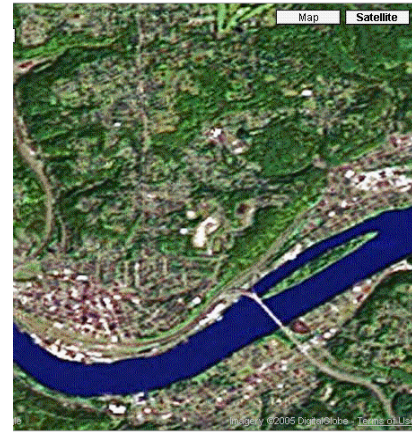


According to the Columbiana County Emergency Operations Plan (EOP), Columbiana City is situated in a known 100-year floodplain. There are seven (7) public schools operating in the city including Columbiana High, Crestview Elementary, Middle and High, Joshua Dixon Elementary, South Side Middle and Hartland Christian.

As indicated by the 2000 Census, the City of Columbiana has a population of 5,635 and is the third most populated city in Columbiana County. The city contains 2,707 housing units with an average of 2.08 persons per household. The median household income is listed at \$34,560.

EAST LIVERPOOL CITY

The City of East Liverpool is positioned in southeastern Columbiana County in Liverpool Township; it lies at the point where the states of Ohio, Pennsylvania, and West Virginia meet. The city can be accessed using US Route 30, and State Routes 39 and 267. The city is also accessible via boat on the Ohio River. According to an Abandoned Mine Locator Map prepared by the Ohio Department of Natural Resources, a small portion of the city has been undermined. East Liverpool is also located within a known 100-year floodplain and according to NOAA event records has been flooded at least four (4) times since 1950.



There are nine (9) schools that operate in East Liverpool, including Calcutta Elementary, East Elementary, East Liverpool Christian School, East Liverpool High, Lacroft Elementary, North Elementary, St. Aloysius Elementary, Westgate Elementary and Westgate Middle. The city also contains a large portion of the county's commercial and industrial assets. Health care facilities in East Liverpool include the East Liverpool City Hospital, which is one of the primary healthcare facility in Columbiana County. The Beaver Creek State Park is also located in the City of East Liverpool.

According to the 2000 Census, the City of East Liverpool has a population of 13,089 and is the most populated municipality in Columbiana County. The city contains 5,743 housing units with an average of 2.33 persons per household. The current median household income is \$23,138.

EAST PALESTINE CITY

The City of East Palestine is located in northeastern Columbiana County in Unity Township, approximately one (1) mile west of the Ohio River. The transportation infrastructure into and out

of the city includes State Routes 46, 170 and 558. The Lower and Upper Wallace Lake Dams which are large Class-I dams are located within close proximity to the city. The city is located within close proximity to three (3) major metropolitan areas including Cleveland, Pittsburgh and Youngstown. The town was founded in 1828 and incorporated into a city in 1875. Nearby clay pits supported a pottery industry; the W.S. George Pottery Company was formed in 1909 from the East Palestine Pottery Company and operated in the city until 1950.

There are three (3) schools located in East Palestine, including East Palestine Elementary, Middle and High schools. According to an Abandoned Mine Locator Map prepared by the Ohio Department of Natural Resources, a large area just to the south of the city has been undermined.



According to the 2000 Census, the City of East Palestine has a population of 5,057 and is the second most populated municipality in Columbiana County. The city contains 2,430 housing units with an average of 2.08 persons per household and currently boasts a median household income of \$36,630.

HANOVERTON VILLAGE

The Village of Hanoverton is located in western Columbiana County, in Hanover Township. The village is accessible using US Route 30 running east west and State Routes 9 and 644. The Guilford Lake State Park is located just to the north and east of the village. The Big Sandy Creek flows just to the south of the village. There are two (2) schools that operate in Hanoverton Village including United Elementary and High Schools.

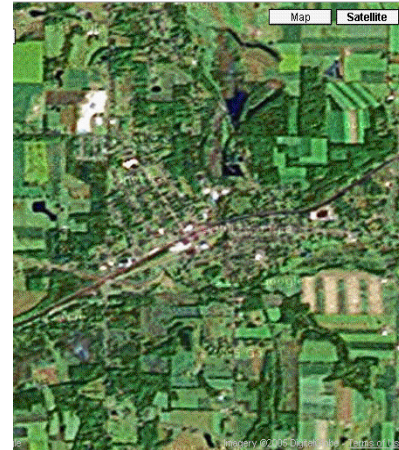
According to the 2000 Census, the Village of Hanoverton has a population of 387. The village contains 165 housing units with an average of 2.33 persons per household. The current median household income is reported at \$36,538.



LEETONIA VILLAGE

The Village of Leetonia is in north central Columbiana County in Salem Township just east of Salem City. Major roadways passing through the village include State Routes 344 and 558. US Route 30 passes just to the east of the village. According to a map prepared by the Ohio Department of Natural Resources that are several underground mines located beneath Leetonia Village. NOAA event records indicate that the village has been flooded as a result of the middle fork of Little Beaver Creek spilling over its banks three (3) times since 1950.

There are three (3) schools that operate in the Leetonia Village, including Leetonia High, Orchard Hill Elementary and Washingtonville Elementary.



As indicated by the 2000 Census, the Village of Leetonia has a population of 2,043 and contains 816 housing units with an average of 2.50 persons per household. The Village of Leetonia currently reports a median household income of \$37,714 which is the highest among the thirteen municipalities.

LISBON VILLAGE

The Village of Lisbon is positioned in central Columbiana County in Center Township, and functions as the county seat. There are several thoroughfares that can be used to access Lisbon including US Route 30 and State Routes 45, 154, 164 and 517. Little Beaver Creek flows into the village and has prompted flooding as many as eight (8) times since 1950. The Salem Reservoir is located just to the north of the village.

There are six (6) schools located in Lisbon including, Beaver Local High, Beaver Local Middle, Columbiana County Vocational School, David Anderson Junior/Senior High, Lisbon Montessori School and McKinley Elementary.



The 2000 Census indicates that Lisbon has a population of 2,788. There are 1,253 housing units in the village with an average of 2.23 persons per household. The median household income is \$27,841.

NEW WATERFORD VILLAGE

New Waterford Village is located in northeastern Columbiana County in Unity Township. Bull Creek flows along the village's entire eastern border. There is only one (1) major thoroughfare into and out of the village, State Route 46. The Beaver Lake Dam is located to the north of the village.

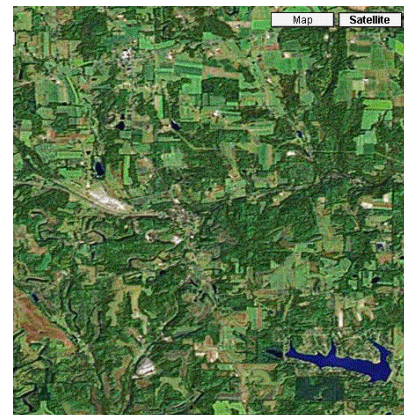
According to the 2000 Census, the Village of New Waterford has a population of 1,391. The village contains 598 housing units with an average of 2.33 persons per household. The 2000 Census also reports the median household income at \$35,000.



ROGERS VILLAGE

Rogers Village is located in east central Columbiana County, in Middleton Township. The transportation infrastructure into and out of the village includes, State Route 7 running north south and 154 running east west. Lake Tomahawk is located just to the south of the village and can be seen in the aerial photo at right. Rogers, like many of the other villages and cities located in Columbiana County, has been under mined, which increases the areas vulnerability to subsidence.

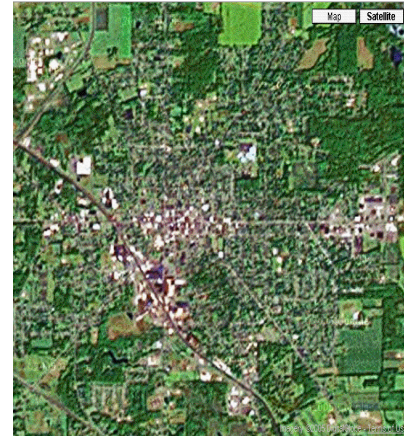
As indicated by the 2000 Census, the Village of Rogers has a population of 266. There are 99 housing units in the village with an average of 2.69 persons per household. The reported median household income is \$31,250.



SALEM CITY

The City of Salem is located in north central Columbiana County, near the Columbiana-Mahoning County line in Perry Township. The major highways that can be used to access the city include US Route 62 and State Routes 9, 14 and 344. The Wellsville Reservoir Dam, which is a large Class I dam is located just to the west of the city.

There are 10 schools located in Salem City, as well as a branch of Kent State University, and the Allegheny Wesleyan College. Salem is also the home of one (1) of the three (3) registered hospitals in the county, Salem Community Hospital. As can be seen from the aerial photo Salem contain a large portion of the county's industrial and commercial assets.



According to the 2000 Census, Salem has a population of 12,197 and is the second most densely populated municipality in Columbiana County. The village contains 5,505 housing units with an average of 2.22 persons per household, and currently boasts a median household income of \$30,006.

SALINEVILLE VILLAGE

The Village of Salineville is positioned in the southern portion of Columbiana County, along the Columbiana-Jefferson County Line in Washington Township. The Yellow Creek State Forest is located just to the west of the village, and the Yellow Creek flows through the northern portion of the village and has caused flooding in the village in the past. Salineville can be accessed using State Routes 39, 164 and 644. The majority of the village has been mined under, which could result in subsidence problems in the future.



There are three (3) schools located in Salineville including Southern Intermediate Elementary, Southern Local Junior/Senior High and Southern Local Primary Elementary.

As indicated by the 2000 Census, the Village of Salineville has a population of 1,397. The village contains 594 housing units with an average of 2.35 persons per household. The village currently boasts a median household income of \$27,473.

SUMMITVILLE VILLAGE

The Village of Summitville is located in southwestern Columbiana County in Franklin Township. The only major highway that can be used to access the village is State Route 644 running north south through the center of the village. Highlandtown Lake Dam which is a large Class-I dam is located just to the east of the village. Brush Creek flows just to the north of the village.

As indicated by the 2000 Census, the Village of Summitville has a population of 108, and is the least populated of Columbiana County's 13 municipalities. Summitville contains 49 housing units with an average of 2.20 persons per household. The city currently boasts a median household income of \$26,250.



WASHINGTONVILLE VILLAGE

The Village of Washingtonville is located in north-central Columbiana County in Salem Township along the Columbiana-Mahoning County line. The village can be accessed using US Route 62 and State Routes 14 and 344. According to the Ohio Department of Natural Resources a large portion of the village has been mined under. This could increase the areas susceptibility to mine subsidence.



According to Census 2000 statistics, Washingtonville Village has a population of 789. The village contains 327 housing units with an average of 2.41 persons per household. The current median household income is \$29,219.

WELLSVILLE VILLAGE

Wellsville Village is located in southeastern Columbiana County, in Yellow Creek Township along the Ohio River. The major roadways that can be used to access the village include State Routes 7 running along the Ohio River as well as 39 and 45 which run north south. The village can also be accessed via boat on the Ohio River. According to local officials the Village of Wellsville is located within a known 100-year floodplain, and has been flooded in the past. The Wellsville Reservoir which is a large Class-I dam is located within close proximity to the village.



There are five (5) schools that operate in the Village of Wellsville, including Daw Middle, Fairview Elementary, Garfield Elementary, Macdonald Elementary and Wellsville High.

According to Census 2000 statistics, the Village of Wellsville has a population of 4,133 and contains 1,869 housing units, with an average of 2.21 persons per household. The current median household income for Wellsville is \$26,198.

HAZARD RISK ASSESSMENT – MULTI-JURISDICTIONAL PLAN REQUIREMENTS

According to 44 CFR Part 201.6(c)(2) (iii), the risk assessment section must assess each jurisdiction's risks where they vary from the risks facing the entire planning area.

For the purpose of this assessment, the risk will be assessed separately for each jurisdiction involved where it differs significantly. If the risk affects one (1) jurisdiction and not another, or if the risk affects one (1) jurisdiction in a significantly different manner, it will be so noted in the hazard identification and hazard profile steps. If the risks are determined to impact each jurisdiction equally or in the same manner, it will be so noted. In such cases, please refer to the hazard profile contained in the larger jurisdiction's hazard profile (i.e. please refer to *Profiling Hazard Events – Columbiana County* for risks affecting Columbiana County and all of its municipalities in the same manner.)

IDENTIFYING HAZARDS – COLUMBIANA COUNTY

As per requirement 44 CFR Part 201.6(c)(2)(i): [The risk assessment shall include a] description of the type...of all natural hazards that can affect the jurisdiction.

Columbiana County identified several hazards in its risk assessment that will be addressed in the county's Hazard Mitigation Plan. These hazards were identified through an extensive research process that utilized input from the following sources:

- Newspapers ranging in date from 1970 to 2000,
- Interviews conducted with local officials/experts:
 - Mr. Darren Dodson, Columbiana County EMA Director,
 - Ms. Mary Smith, Columbiana County EMA Deputy Director
- Questionnaires distributed to county business owners and first response agencies,
- Review of NOAA Event Records,
- Reviews of Flood Insurance Rate Map (FIRM) information for Columbiana County the cities of Columbiana, East Liverpool, East Palestine and Salem, and the villages of Hanoverton, Leetonia, Lisbon, New Waterford, Rogers, Salineville, Summitville, Washingtonville and Wellsville.
- Searches of multiple Internet sites concerning hazard mitigation and planning (The following sites are general listings that were searched at the onset of the project. Sites that were searched regarding specific hazards are listed with those hazards below.):
 - American Red Cross – Local Chapters
<http://www.redcross.org/where/where.html>
 - Disaster Center
<http://www.disastercenter.com>
 - Digital Q3 Flood Data
<http://msc.fema.gov/MSC/statemap.htm>
 - ESRI
<http://www.esri.com/hazards>
 - Federal Emergency Management Agency
<http://www.fema.gov>
 - HAZUS Instruction and Technical Information
<http://www.fema.gov/hazus>

- Socio-Economic Data Resources

http://www.csc.noaa.gov/products/nchaz/htm/dinfo_4.htm

- USDA Natural Resources Conservation Service

<http://www.nhq.nrcs.usda.gov/RID/RID.html>

- National Oceanic Atmospheric Administration

<http://www4.ncdc.noaa.gov/cgi-win>

The following hazards have been identified and considered in the Columbiana County Hazard Risk Assessment.

<i>Hazard</i>	<i>How Identified</i>	<i>Why Identified</i>
Dam Failure	<ul style="list-style-type: none"> • Ohio Department of Natural Resources-Division of Water • Federal Emergency Management Agency (FEMA) • Association of State Dam Safety • Internet research 	<ul style="list-style-type: none"> • As indicated by the Ohio Department of Natural Resources there are seven (7) Class-I dams located in Columbiana County. • According to the Ohio Department of Natural Resources the failure of a Class-I dam could potential result in loss of life, and structural damage to high value properties such as homes, industries, and major public utilities.
Flooding	<ul style="list-style-type: none"> • Review of FIRM information • Public input • Review of past newspaper coverage • Review of past disaster declarations • NOAA Event Records • Internet research 	<ul style="list-style-type: none"> • The Ohio River flows along the majority of the eastern border of Columbiana County. • According to the NOAA Event Record database there have been 47 severe flood events recorded in Columbiana County between 1950 and 2005. • Columbiana County has received seven (7) presidential disaster declarations as a result of flooding since 1964, and there are 14 communities located within the 100-year floodplain.
Hailstorm	<ul style="list-style-type: none"> • Climatology reports • National Weather Service • NOAA Event Records • Review of past newspaper coverage 	<ul style="list-style-type: none"> • Severe thunderstorms and windstorms are often accompanied by hail. • According to the NOAA Event Record database there has been four (4) significant hailstorms in Columbiana County between 1950 and 2004, resulting in over \$500,000 in damages.

Hazmat Incident	<ul style="list-style-type: none"> • US Department of Transportation-Hazardous Materials Safety • Environmental Protection Agency-National Priorities Listing • Internet research 	<ul style="list-style-type: none"> • Almost half of all freight trains carry hazardous materials and there are railways that pass through Columbiana County. • According to local officials there are 21 companies in Columbiana County that use and/or store hazardous substances.
Landslide	<ul style="list-style-type: none"> • Federal Emergency Management Agency (FEMA) • USGS website 	<ul style="list-style-type: none"> • According to the Landslide Overview Map of the Conterminous United States Columbiana County is listed as having a high percentage of landslide incidences.
Mine Subsidence	<ul style="list-style-type: none"> • Ohio Department of Natural Resources • Federal Emergency Management Agency (FEMA) • Local Officials 	<ul style="list-style-type: none"> • According to a map prepared by the Ohio Department of Natural Resources there are seven (7) municipalities within Columbiana County that have underground mines located beneath them.
Severe Thunderstorm	<ul style="list-style-type: none"> • Review of past newspaper coverage • NOAA Event Records • National Weather Service 	<ul style="list-style-type: none"> • Severe thunderstorms are frequently reported throughout Columbiana County. • There have been 166 occurrences of thunderstorms recorded in <i>NOAA Event Records</i>, most of which have resulted in property damage.
Severe Wind and Tornado	<ul style="list-style-type: none"> • Review of past newspaper coverage • NOAA Event Records • Review of ESRI GIS information on Michigan • National Weather Service • <i>State and Local Mitigation Planning How-To Guide: Understanding Your Risks</i> 	<ul style="list-style-type: none"> • From 1950 to 2005, 15 tornadoes have been reported in Columbiana County. • A Presidential Declaration was made on June 5, 1985 as a result of extensive countywide damage from an F2 tornado.
Severe Winter Storm and Sleet	<ul style="list-style-type: none"> • Review of past newspaper coverage • NOAA Event Records • Public input • Review of past disaster declarations 	<ul style="list-style-type: none"> • According to local officials Columbiana County receives at least one (1) severe winter storm per year. • Winter storms has the potential to affect the entire county at the same time.

Temperature Extreme – Heat Wave	<ul style="list-style-type: none"> • Review of past newspaper coverage • National Weather Service • NOAA Event Records • FEMA web site 	<ul style="list-style-type: none"> • According to a statistics from the National Weather Services Approximately 237 Americans succumb to the taxing demands of heat every year.
Terrorism (Biological)	<ul style="list-style-type: none"> • Local officials requested terrorism be identified and evaluated 	<ul style="list-style-type: none"> • Columbiana County is not immune to a biological terrorist event. • Columbiana County contains vulnerable public infrastructure.
Terrorism (Chemical)	<ul style="list-style-type: none"> • Local officials requested man-made hazards be identified and evaluated 	<ul style="list-style-type: none"> • Columbiana County contains public water infrastructure systems. • Columbiana County is not equipped to handle a terrorist incident on the local level.
Terrorism (WMD)	<ul style="list-style-type: none"> • Local officials requested man-made hazards be identified and discussed 	<ul style="list-style-type: none"> • Columbiana County is located within the 50-mile ingestion zone of the Beaver Valley Nuclear Power Plant in Shippingport, Pennsylvania. • WMD events in neighboring or nearby counties could potentially affect Columbiana County.

Several hazards were not identified in Columbiana County. Following are hazards that were not discovered to be significant risks in Columbiana County.

- **Avalanche** – Although Columbiana County contains very limited elevated terrain, the general elevation is not high enough to cause snow to cap mountains year-round. Therefore, avalanches do not appear to be a significant hazard.
- **Coastal Storm** – Columbiana County is not located near a coastline.
- **Drought** – Though drought conditions have occurred in Columbiana County the effects are typically limited to minimal crop and other agriculture damage.
- **Earthquake** – There has been very limited seismic activity in Columbiana County over past two (2) centuries and no damage or injuries have resulted.
- **Epidemic** – Historical records indicate that Columbiana County has not endured any large scale epidemics.
- **Hurricane** – Columbiana County does not experience intense hurricane conditions. The precipitation that is received can be classified as a severe thunderstorm or winter storm. (see also *Severe Thunderstorm* and *Severe Winter Storm and Sleet*)

- Infestation – According to the Ohio Department of Natural Resources there is an extremely low probability of an infestation reaching a magnitude that would result in structural damage in Columbiana County.
- Tsunami – Columbiana County is not located near any large bodies of water, and no historical records indicate that the county has endured effects from a tsunami.
- Volcano – Research shows no volcanic activity in Columbiana County.
- Wildfire – According to the National Oceanic and Atmospheric Administration (NOAA) there have been no wildfire occurrences in Columbiana County from 1950 to the present.

By virtue of their location in Columbiana County, the municipalities in the county can be said to be susceptible to the same hazards that are identified above. However, these municipalities may be more or less susceptible to some of the hazard events. The following table illustrates if the municipalities are affected by the hazard events more than the rest of the county, less than the rest of the county, or in the same manner as the rest of the county.

	Dam Failure	Flooding	Hailstorm	HAZMAT Incident	Landslide	Mine Subsidence	Thunderstorm	Wind & Tornado	Winter Storm	Temperature Extreme	Terrorism
Columbiana City	>	=	=	=	=	<	=	=	=	=	=
East Liverpool City	=	>	=	>	>	>	=	=	=	=	>
East Palestine City	>	>	=	=	>	>	=	=	=	=	=
Hanoverton Village	=	=	=	<	=	<	=	=	=	=	=
Leetonia Village	=	>	=	=	>	>	=	=	=	=	=
Lisbon Village	=	>	=	>	=	>	=	=	=	=	>
New Waterford Village	<	>	=	=	>	<	=	=	=	=	=
Rogers Village	=	=	=	<	>	>	=	=	=	=	=
Salem City	>	>	=	>	=	>	=	=	=	=	>
Salineville Village	<	=	=	=	>	>	=	=	=	=	=
Summitville Village	<	=	=	=	=	<	=	=	=	=	=
Washingtonville Village	=	=	=	=	>	>	=	=	=	=	=
Wellsville Village	>	>	=	=	>	>	=	=	=	=	=

Key

- = : Municipality affected by hazard same as county
- > : Municipality affected by hazard more than county
- < : Municipality affected by hazard less than county

PROFILING HAZARD EVENTS – COLUMBIANA COUNTY

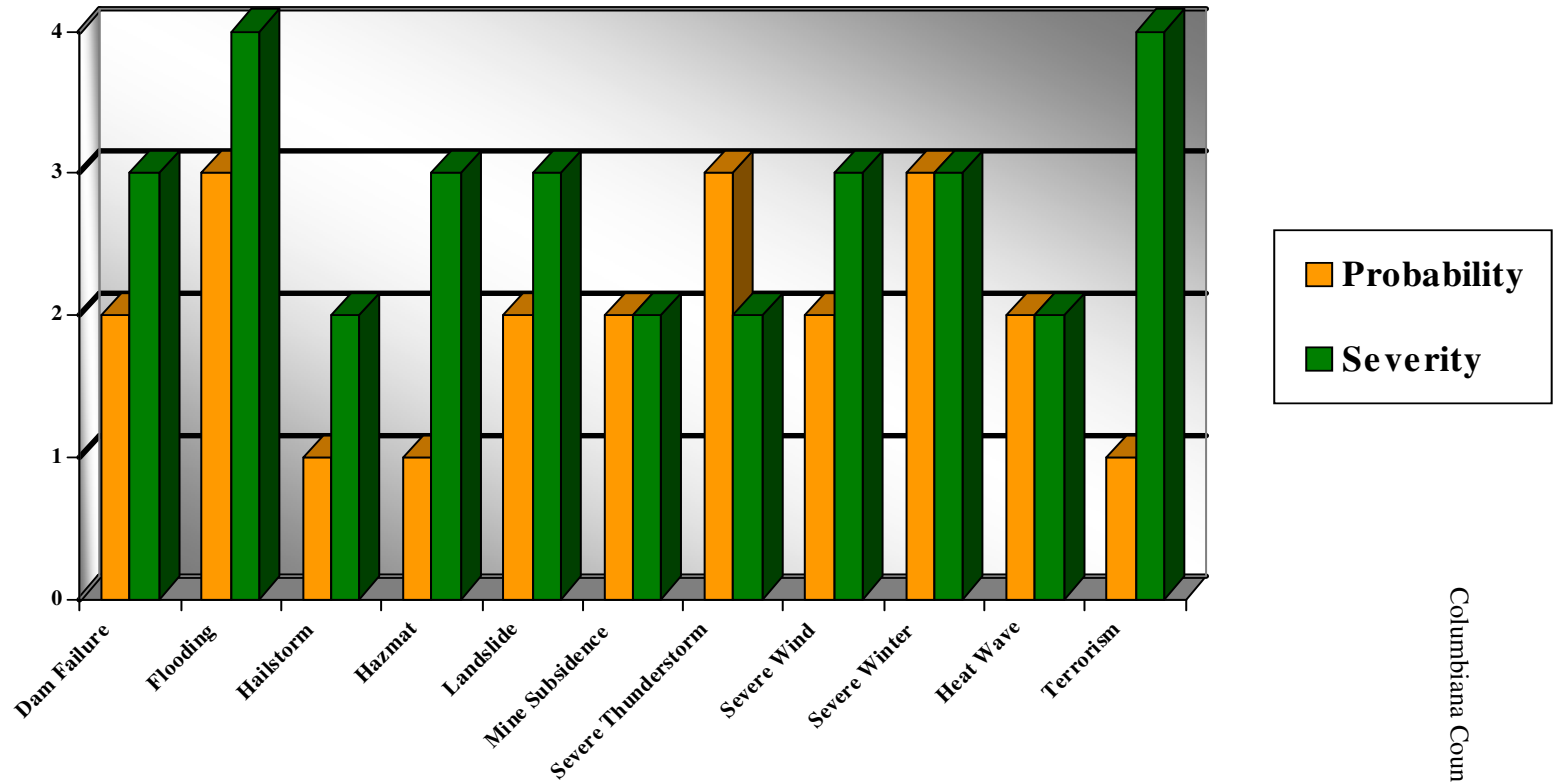
Including the cities, villages and townships

As per requirement 44 CFR Part 201.6(c)(2)(i): [The risk assessment shall include a] description of the...location and extent of all natural hazards that can affect the jurisdiction. The plan shall include information on previous occurrences of hazard events and on the probability of future events.

Columbiana County is subject to many hazard events. As discussed above, past newspaper research, searches of multiple Internet sites, reviews of current FIRM information, and discussions with local emergency management personnel assisted in the identification of these hazards. Each hazard is defined, discussed, and profiled below in detail. Also, a GIS-based map has been developed for each one of these hazards, which illustrates the areas that are susceptible to the different hazards.

The hazard profiles for each hazard are included in this report under a section labeled by the hazard, as well as estimate loss values and the appropriate GIS-based mapping.

Probability vs. Severity



0 = No Occurrence, 1 = Low, 2 = Moderate, 3 = High, 4 = Extreme High

PROBABILITY VS. SEVERITY EXPLANATION

In the case of many hazards, it is not possible to eliminate the risk; the effects from them can only be reduced. When many risks exist at once, or when resources are limited, the problem requires the setting of priorities. The classification of probability and severity for hazard risks in Columbiana County is covered in the following Risk Assessment Decision Matrix.

This decision matrix was then translated into the Probability vs. Severity Chart for reader usability. It was determined that a bar graph format was much easier to understand than the matrix below. For probability, frequent equals four (4), probable equals three (3), occasional equals two (2), remote equals one (1), and improbable equals zero (0). For severity, catastrophic equals four (4), critical equals three (3), marginal equals two (2), and negligible equals one (1).

METHODOLOGY

Probability

The first task that was undertaken was to determine the frequency of hazard occurrences. For instance, how many floods occur in a year? How many tornadoes has Columbiana County experienced in the past ten (10) years? To answer these questions, NOAA event records were analyzed. NOAA keeps records of significant storm events back to 1950. The number of hazard events (i.e. floods, hailstorms, thunderstorms, tornadoes, winter storms, etc.) was counted. Based on records for Columbiana County only, probability was determined. From this analysis, it became evident that hazards such as winter storms and high winds occur frequently.

If the information contained in NOAA's event records was insufficient, other historical data, such as media archives, were examined. Again, if repeated coverage was given to a particular hazard event, that event was considered highly probable to occur. If neither source yielded sufficient data, information gathered from interviews with local representatives was used.

Severity

The second and final task was to determine the severity of identified hazard events. Again, NOAA event records were used. Each document records the atmospheric conditions of the event, as well as other details such as wind speeds, the amount of loss incurred (in dollars), and the number of lives lost. If it appears that winter storms frequently occur but do not result in

significant monetary losses or deaths, then winter storms were said to have a high probability and low severity. If windstorms, for example, appeared to occur frequently and also cause significant damage or deaths, then windstorms were said to have a high probability and high severity.

Again, if NOAA event records were insufficient, local media archives were used as newspapers often report known damages and deaths following hazard events. If neither source yielded sufficient data, information gathered from interviews with local representatives was used.

HAZARD PROBABILITY CLASSIFICATION

Description	Specific Hazard Event	Frequency
Frequent	Likely to occur frequently	Continuously experienced
Probable	Will occur several times in the life of an item	Experienced several times
Occasional	Likely to occur sometime in the life of an item	Experienced
Remote	Unlikely but possible to occur in the life of an item	Unlikely that it has been experienced
Improbable	So unlikely it can be assumed occurrence may not be experienced	Not experienced

HAZARD SEVERITY CLASSIFICATION

Description	Mishap Definition
Catastrophic	Death or major structural loss
Critical	Severe injury, severe illness, or marginal structural damage
Marginal	Minor injury, minor illness, or structural damage
Negligible	Less than minor injury, illness, or structural damage

RISK ASSESSMENT MATRIX

HAZARD SEVERITY	PROBABILITY				
	Frequent	Probable	Occasional	Remote	Improbable
Catastrophic		2		11	
Critical		9	1, 5, 8	4	
Marginal		7	6, 10	3	
Negligible					

1 – Dam Failure
 2 – Flooding
 3 – Hailstorm
 4 – Hazmat
 5 – Landslide
 6 – Mine Subsidence

7 – Severe Thunderstorm
 8 – Severe Wind & Tornado
 9 – Severe Winter Storm
 10 – Temperature Extremes
 11 – Terrorism

ASSET INVENTORY – COLUMBIANA COUNTY

As per requirement 44 CFR Part 201.6 (c)(2)(ii)(A): [The risk assessment shall include a] description of the jurisdiction's vulnerability to the hazards described in paragraph (c)(2)(i) of this section. This description shall include an overall summary of each hazard and its impact on the community. The plan should describe vulnerability in terms of: the types and numbers of existing and future buildings, infrastructure, and critical facilities located in the identified hazard areas.

METHODOLOGY

Several resources were used to inventory the assets in Columbiana County, both for the county as a whole and within designated hazard risk areas. For example, HAZUS, and Census data were used, in addition to extensive correspondence with local representatives.

The first task that was undertaken was to identify the number of residential, commercial, industrial, agricultural, religious/non-profit, government, education, and utility facilities throughout the county and municipalities. Each type of structure was further broken down into three (3) sub-categories: # in Community or State, # in Hazard Area, and % in Hazard Area. (The hazard area was identified in the mapping generated during the hazard profiling step.) The number of structures, value of structures, and number of people for each type of structure was listed, along with the three (3) sub-categories mentioned above.

HAZUS, Census 2000 information, and the GIS-based mapping that was generated during the hazard-profiling step determined the number and value of structures. Finally, the number of people was determined by Census 2000 information. This was done by highlighting all of the affected census block groups in the previously identified hazard areas on the GIS-based maps. The census block group information had been loaded into an ArcView 8.3 base map at the start of this project. All of this information was marked on Worksheet #3a. from FEMA's *State and Local Mitigation Planning How-to Guide: Understanding Your Risks*. This information was listed and reanalyzed for each of the hazards that were profiled.

Next, a specific asset inventory was developed based on HAZUS, Census 2000 data, and information provided by local representatives in Columbiana County. Each of these specific assets was classified in categories such as critical facility, vulnerable population, economic asset, special consideration, or historic/other consideration. The size of each of the structures, as well

as the replacement value, contents value, function use or value, displacement cost (should the asset be non-operational for a day or longer), occupancy or capacity, and other hazard specific information was compiled.

Following are the methods used to determine the above-categories for each of the county's assets.

- Size of buildings = square footage (for assets such as railroads and highways, length was used): This was usually determined by calling an official representative of the asset (e.g. the company president, utility manager, etc.).
- Replacement value of the structure: This was usually determined by calling an official representative of the asset (e.g. the company president, utility manager, etc.).
- Contents value, if not obtained by calling an official representative of the asset, was determined by HAZUS, which gave a table breaking each type (i.e. commercial or residential) of facility into a percentage by which to multiply the replacement value. (e.g. Contents Value of Schools/Libraries = Replacement Value X 100%)
- Function use or value was determined by total annual operating budget.
- Displacement cost (\$ per day) was determined by the function use or value divided by 365.
- Occupancy was determined by calling an official representative of the asset. (e.g. Occupancy of Schools = Total Students + Paid Staff)

A composite list of all of the county's assets was compiled. Worksheet #3b. from the *State and Local Mitigation Planning How-to Guide: Understanding Your Risks* was used to show this list.

ASSETS

Columbiana County's Risk Assessment identifies specific assets located throughout the county and the hazards to which these facilities are susceptible. An asset is defined as a facility which is either in the public or private sector that provides essential products and services to the general public, is otherwise necessary to preserve the welfare and quality of life in Columbiana County, or fulfills important public safety, emergency response, and/or disaster recovery functions. Assets can be a critical facility, vulnerable population, economic asset, special consideration, or historic/other consideration.

The assets identified in the county are emergency services facilities (i.e. fire departments, EMS stations, police stations, etc.), hospitals, utility systems (i.e. water, sewer, gas, and electric), airports, government facilities, schools, historic sites, bridges and transportation systems, and large industrial or commercial facilities. (See “Columbiana County Asset Inventory” map.)

In addition to critical facilities, an analysis of Census 2000 data indicates that the county contains at-risk populations that should be factored into this risk assessment. Columbiana County and all of its municipalities contain elderly and youth populations with limited mobility; in fact, approximately 15% or 16,790 persons of the total population are over the age of 65. Several health care facilities are located throughout the county but primarily within municipal areas. This population is adversely affected during hazard events because of a lack of accessibility to these emergency and other services. The county also contains youth populations that may be affected by certain hazard events. Hazards such as floods, winter storms, hail, etc. pose health and safety threats during hazard events.

A further analysis of Census 2000 data, coupled with historical census data indicates that Columbiana County and all municipalities therein have experienced a significant increase in population over the past ten (10) years. Local leaders are working to increase residential development throughout Columbiana County. These leaders should be encouraged to consider mitigation, e.g. strengthened building materials, landscaping, etc., as this development occurs.

The following are major assets located in Columbiana County. Please see the attached chart that lists the replacement value, contents value, function use or value, displacement cost, occupancy or capacity, and other hazard specific information for each of these assets.

- **GOVERNMENTAL FACILITIES**

- City of East Palestine – Critical Facility (Government Facility)
- City of Columbiana – Critical Facility (Government Facility)
- City of Hanoverton – Critical Facility (Government Facility)
- City of Salem – Critical Facility (Government Facility)
- City of Salineville – Critical Facility (Government Facility)
- City of Wellsville – Critical Facility (Government Facility)
- Elkrum Township – Critical Facility (Government Facility)
- Fairfield Township – Critical Facility (Government Facility)

- Madison Township – Critical Facility (Government Facility)
- Salem Township – Critical Facility (Government Facility)
- Village of Leetonia – Critical Facility (Government Facility)
- Village of Lisbon – Critical Facility (Government Facility)
- Village of New Waterford – Critical Facility (Government Facility)
- Village of Washingtonville – Critical Facility (Government Facility)

- **TRANSPORTATION INFRASTRUCTURE**

- Bridges – Critical Facility (Transportation Infrastructure)
- Railroads – Critical Facility (Transportation Infrastructure)
- Roads – Critical Facility (Transportation Infrastructure)
- York Aerodrome Runway – Critical Facility (Transportation Infrastructure)
- Fox Run Runway – Critical Facility (Transportation Infrastructure)
- Aero Flight Center Runway – Critical Facility (Transportation Infrastructure)
- Morris Field Runway – Critical Facility (Transportation Infrastructure)
- Bullick Field Runway – Critical Facility (Transportation Infrastructure)
- Crosswind Meadows Runway – Critical Facility (Transportation Infrastructure)
- Salem Lakefront Runway – Critical Facility (Transportation Infrastructure)
- O K Dies Runway – Critical Facility (Transportation Infrastructure)
- Johnson Runway – Critical Facility (Transportation Infrastructure)
- Koons Runway – Critical Facility (Transportation Infrastructure)
- Columbiana County Runway – Critical Facility (Transportation Infrastructure)
- Petersburg Runway – Critical Facility (Transportation Infrastructure)

- **PUBLIC UTILITIES & SERVICE DEPARTMENTS**

- Columbiana City Water Works/Sewer Department – Critical Facility (Utilities)
- East Liverpool Water Works – Critical Facility (Utilities)
- East Palestine Sewer and Water – Critical Facility (Utilities)
- Leetonia Sewage Plant – Critical Facility (Utilities)
- Leetonia Water Board – Critical Facility (Utilities)
- Lisbon Village Water Department – Critical Facility (Utilities)
- New Waterford Water/Waste Water Treatment Plant – Critical Facility (Utilities)
- Salem Sewage Plant – Critical Facility (Utilities)
- Salem Water Department – Critical Facility (Utilities)

- Salineville Water Plant – Critical Facility (Utilities)
- Salinville Sewer Plant – Critical Facility (Utilities)
- Washingtonville Water and Sewer – Critical Facility (Utilities)
- Wellsville Filtration Plant – Critical Facility (Utilities)
- Wellsville Sewage Disposal – Critical Facility (Utilities)

- **FIRE & POLICE DEPARTMENTS**

- Columbiana County Sheriff – Critical Facility (Emergency Services)
- Columbiana Emergency Medical Services – Critical Facility (Emergency Services)
- Columbiana City Police – Critical Facility (Emergency Services)
- East Liverpool Police – Critical Facility (Emergency Services)
- East Palestine Police – Critical Facility (Emergency Services)
- Leetonia Police – Critical Facility (Emergency Services)
- Lisbon Village Police – Critical Facility (Emergency Services)
- Liverpool Township Police – Critical Facility (Emergency Services)
- New Waterford Village Police – Critical Facility (Emergency Services)
- Ohio State Highway Patrol – Critical Facility (Emergency Services)
- Perry Township Police – Critical Facility (Emergency Services)
- Salem Police – Critical Facility (Emergency Services)
- Salineville Police – Critical Facility (Emergency Services)
- St. Clair Township Police – Critical Facility (Emergency Services)
- Washingtonville Police – Critical Facility (Emergency Services)
- Wellsville Police – Critical Facility (Emergency Services)
- Calcutta Fire Department – Critical Facility (Emergency Services)
- Columbiana Fire Department – Critical Facility (Emergency Services)
- East Liverpool Fire Department – Critical Facility (Emergency Services)
- East Palestine Fire Department – Critical Facility (Emergency Services)
- Franklin Township Volunteer Fire Department – Critical Facility (Emergency Services)
- Glenmoor Volunteer Fire Department – Critical Facility (Emergency Services)
- Hanover Township Volunteer Fire Department – Critical Facility (Emergency Services)
- Highlandtown Volunteer Fire Department – Critical Facility (Emergency Services)
- Homeworth Volunteer Fire Department – Critical Facility (Emergency Services)
- Leetonia Fire Department – Critical Facility (Emergency Services)
- Lisbon Fire Department – Critical Facility (Emergency Services)

- Liverpool Township Volunteer Fire Department – Critical Facility (Emergency Services)
- Negley Volunteer Fire Department – Critical Facility (Emergency Services)
- New Waterford Fire Department – Critical Facility (Emergency Services)
- North Georgetown Volunteer Fire Department – Critical Facility (Emergency Services)
- Perry Township Volunteer Fire Department – Critical Facility (Emergency Services)
- Rogers Fire Department – Critical Facility (Emergency Services)
- Salem Fire Department – Critical Facility (Emergency Services)
- Salineville Fire Department – Critical Facility (Emergency Services)
- Unity Volunteer Fire Department – Critical Facility (Emergency Services)
- Leetonia Fire Department – Critical Facility (Emergency Services)
- Wellsville Fire Department – Critical Facility (Emergency Services)
- West Point Fire Department – Critical Facility (Emergency Services)
- Winona Fire Department – Critical Facility (Emergency Services)

- **HOSPITALS, NURING HOMES, & AMBULANCE SERVICES**

- East Liverpool City Hospital – Vulnerable Population (Elderly) – Critical Facility (Health Care)
- Salem Community Hospital – Vulnerable Population (Elderly) – Critical Facility (Health Care)
- Lifeteam EMS, Inc. – Critical Facility (Emergency Services)
- Tri-County Ambulance – Critical Facility (Emergency Services)
- Rural Metro Ambulance – Critical Facility (Emergency Services)
- Clemente-McKay EMS – Critical Facility (Emergency Services)
- Columbiana Village EMS – Critical Facility (Emergency Services)
- New Waterford EMS – Critical Facility (Emergency Services)
- East Palestine EMS – Critical Facility (Emergency Services)
- Negley EMS – Critical Facility (Emergency Services)
- Alzheimer’s Research Center - Critical Facility (Health Care)
- Parkside Health Care Center Windsor House – Vulnerable Population (Elderly)
- St. Mary’s Alzheimer’s Center Windsor House – Vulnerable Population (Elderly)
- Adkins Nursing Home – Vulnerable Population (Elderly)
- Calcutta Health Care Center – Critical Facility (Health Care)
- East Liverpool Convalescent Center – Vulnerable Population (Elderly)
- Nentwick Convalescent Home – Vulnerable Population (Elderly)

- Vista Center – Vulnerable Population (Elderly)
- Great Trail Care Center – Vulnerable Population (Elderly)
- Blossom Nursing & Rehabilitation Center – Vulnerable Population (Elderly)
- Essex of Salem – Vulnerable Population (Elderly)
- Holander House – Vulnerable Population (Elderly)
- Pleasant View North Retirement Center – Vulnerable Population (Elderly)
- Pleasant View Nursing Home – Vulnerable Population (Elderly)
- Twin Oaks Retirement Center – Vulnerable Population (Elderly)
- Columbiana County Mental Health – Critical Facility (Health Care)
- Columbiana County Coroner – Special Consideration (Morgue)

• **SCHOOLS & EDUCATIONAL FACILITIES**

- Beaver Local High School – Critical Facility (Education)
- Beaver Local Middle School – Critical Facility (Education)
- Buckeye Elementary School – Critical Facility (Education)
- Calcutta Elementary School – Critical Facility (Education)
- Columbiana County Vocational – Critical Facility (Education)
- Columbiana High School – Critical Facility (Education)
- Crestview Elementary School – Critical Facility (Education)
- Crestview High School – Critical Facility (Education)
- Crestview Middle School – Critical Facility (Education)
- David Anderson Jr./Senior High School – Critical Facility (Education)
- Daw Junior High School – Critical Facility (Education)
- East Elementary School – Critical Facility (Education)
- East Liverpool High School – Critical Facility (Education)
- East Liverpool Middle School – Critical Facility (Education)
- East Palestine Elementary School – Critical Facility (Education)
- East Palestine High School – Critical Facility (Education)
- East Palestine Middle School – Critical Facility (Education)
- Fairview Elementary School – Critical Facility (Education)
- Garfield Elementary School – Critical Facility (Education)
- Joshua Dixon Primary Elementary School – Critical Facility (Education)
- LaCroft Elementary School – Critical Facility (Education)
- Leetonia High School – Critical Facility (Education)

- McKinley Elementary School – Critical Facility (Education)
- North Elementary School – Critical Facility (Education)
- Orchard Hill Elementary School – Critical Facility (Education)
- Prospect Elementary School – Critical Facility (Education)
- Reilly Elementary School – Critical Facility (Education)
- Rogers Elementary School – Critical Facility (Education)
- Salem High School – Critical Facility (Education)
- Salem Junior High School – Critical Facility (Education)
- South Side Middle School – Critical Facility (Education)
- Southeast Elementary School – Critical Facility (Education)
- Southern Intermediate Elementary School – Critical Facility (Education)
- Southern Local Jr./Senior High School – Critical Facility (Education)
- Southern Local Primary Elementary School – Critical Facility (Education)
- United Elementary School – Critical Facility (Education)
- United High School – Critical Facility (Education)
- Washingtonville Elementary School – Critical Facility (Education)
- Wellsville High School – Critical Facility (Education)
- West Pointe Elementary School – Critical Facility (Education)
- Westgate Elementary School – Critical Facility (Education)

- **POST OFFICES**

- Columbiana Post Office – Special Consideration (Federal Facility)
- East Palestine Post Office – Special Consideration (Federal Facility)
- Elkrum Post Office – Special Consideration (Federal Facility)
- Hanoverton Post Office – Special Consideration (Federal Facility)
- Leetonia Post Office – Special Consideration (Federal Facility)
- Lisbon Post Office – Special Consideration (Federal Facility)
- Negley Post Office – Special Consideration (Federal Facility)
- New Waterford Post Office – Special Consideration (Federal Facility)
- Rogers Post Office – Special Consideration (Federal Facility)
- Salem Post Office – Special Consideration (Federal Facility)
- Summitville Post Office – Special Consideration (Federal Facility)
- West Point Post Office – Special Consideration (Federal Facility)
- Winona Post Office – Special Consideration (Federal Facility)

- **PUBLIC LIBRARIES**

- Carnegie Public Library (East Liverpool) – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- Columbiana Public Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- East Palestine Memorial Public Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- Leetonia Community Public Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- Lepper Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- Salem Public Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)
- Wellsville Public Library – Historical Consideration (Contains Historical Documents and Other Rare Materials)

- **OTHER CRITICAL FACILITIES**

- American Red Cross (Salem) – Special Consideration (Community Services)
- American Red Cross (East Liverpool) – Special Consideration (Community Services)
- Residential – Special Consideration (Residential Housing)

LOSS ESTIMATIONS (*See Hazard Profiles*)

ANALYZING DEVELOPMENT TRENDS – COLUMBIANA COUNTY

Including the cities, villages and townships

As per 44 CFR Part 201.6(c)(2)(ii)(C): [The plan should describe vulnerability in terms of] providing a general description of land uses and development trends within the community so that mitigation options can be considered in future land use decisions.

Columbiana County is located in the northeastern portion of Ohio and is part of the states Appalachian Region. It is strategically located at the hub of eastern Ohio's business enterprise centers as it is located within close proximity to three (3) major metropolitan areas; including Cleveland OH, Pittsburgh PA, and Youngstown OH. The incorporated communities in the county include the cities of Columbiana, East Liverpool, East Palestine and Salem, and the villages of Hanoverton, Leetonia, Lisbon, New Waterford, Rogers, Salineville, Summitville, Washingtonville and Wellsville.

In the past, Columbiana County has been the home of several small businesses. During the recent history of the county, these businesses have changed. For example, companies are bought and sold; old companies close, leaving empty facilities behind that are filled by new companies, etc. More than 2,077 companies are located in Columbiana County.

Other land uses in the county consist of the following:

- ***Industrial and commercial areas*** – The majority of the commercial areas can be found in and near the incorporated areas of the county, primarily in the larger cities of East Liverpool and Salem, as well as along US Routes 30 and 62.
- ***Residential areas*** – Located primarily in the northeastern portion of the county, as well as the municipalities in the southern portion of the county. Residential areas are also located along major roadways.
- ***Farmland*** – Agricultural land makes up approximately 42% of the total land cover with 1,170 individual farms at an average size of 130 acres. These agricultural areas are spread throughout the county.
- ***Specialized land use designations*** – Beaver Creek and Guilford Lake State Parks, Yellow Creek State Forest, Highlandtown State Wildlife Area, Zepernick State Wildlife Area, Log House Museum in Columbiana City, Salem Museum of Historic

Interest & Memorabilia, Plymouth Street Historic Area in Hanoverton, Museum of Ceramics in East Liverpool, Old Stone House Museum in Lisbon, Harvey S. Firestone Park, Sandy and Beaver Canal, and six (6) covered bridges.

The residential areas in the county have experienced a significant population increase. As indicated by Census 2000 data, the total population in 1990 was 108,276 increasing to 112,075 in 2000, which is an average increase of 380 people each year over the 10-year period. According to the Ohio Department of Development Office of Strategic Research, this trend is not expected to continue, the projected population for the years 2010 is 111,946 and 2020 is 112,522. The majority of the employment sector in 2000 was comprised of manufacturing, trade, and service.

As growth increases and land for development decreases, long range mitigation planning becomes more important. Residential and industrial development is quite active in response to the recent growth. The development of new neighborhoods, residential areas, and industrial areas must be done in concert with the mitigation of natural hazards in mind if the quality of life is to be maintained.

The major employers in the county include: American Standard Inc., Blackhawk Automotive Plastics, Columbiana County Government, East Liverpool City Board of Education, East Liverpool City Hospital, Hall China Company, Salem Community Hospital, US Industries/Eljer, and Wal-Mart Stores. The majority of these employers are located in the Cities of Columbiana, East Liverpool, and Salem.

Columbiana County contains many low-lying areas that increase susceptibility to flooding. Local officials should consider ordinances or other means of encouraging/requiring residents and employers to safeguard their structures against the potential damage from these floods.

Also due to the potential for terrorism, both foreign and domestic security is a concern for large facilities, like the Beaver Nuclear Power Plant as Columbiana County is within the 50-mile ingestion zone. Domestic terrorism is the primary threat at these facilities. Disgruntled employees and the like may spark a terrorist incident, causing the need for additional locks, guards, etc. Large facilities also should consider strengthening security at sites where hazardous materials are stored. All of the aforementioned hazards should be considered and analyzed as the county continues to grow and develop.

